

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

MYE4W0

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

Lab Code: ACE Case No.: 51817 MA No. : 3226.1 SDG No.: MYE4W0

Matrix: SOIL Lab Sample ID: P4524-01

% Solids: 98.4 Date Received: 10/23/2024

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	15000	D	11/09/2024	1827
7440-36-0	Antimony	1.6	JD	11/09/2024	1827
7440-38-2	Arsenic	46	D	11/09/2024	1827
7440-39-3	Barium	230	D	11/09/2024	1827
7440-41-7	Beryllium	0.73	JD	11/09/2024	1827
7440-43-9	Cadmium	1.2	D	11/09/2024	1827
7440-70-2	Calcium	3500	D	11/09/2024	1827
7440-47-3	Chromium	37	D	11/09/2024	1827
7440-48-4	Cobalt	23	D	11/09/2024	1827
7440-50-8	Copper	130	D	11/09/2024	1827
7439-89-6	Iron	43000	D	11/09/2024	1827
7439-92-1	Lead	52	D	11/09/2024	1827
7439-95-4	Magnesium	8500	D	11/09/2024	1827
7439-96-5	Manganese	920	D	11/09/2024	1827
7440-02-0	Nickel	49	D	11/09/2024	1827
7440-09-7	Potassium	2500	D	11/09/2024	1827
7782-49-2	Selenium	5.6	UD	11/09/2024	1827
7440-22-4	Silver	1.6	UD	11/09/2024	1827
7440-23-5	Sodium	170	JD	11/09/2024	1827
7440-28-0	Thallium	4.0	UD	11/09/2024	1827
7440-62-2	Vanadium	87	D	11/09/2024	1827
7440-66-6	Zinc	140	D	11/09/2024	1827

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

Comments:

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MYE4W1

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

Lab Code: ACE Case No.: 51817 MA No. : 3226.1 SDG No.: MYE4W0

Matrix: SOIL Lab Sample ID: P4524-02

% Solids: 94.9 Date Received: 10/23/2024

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	23000	D	11/09/2024	1831
7440-36-0	Antimony	1.9	JD	11/09/2024	1831
7440-38-2	Arsenic	51	D	11/09/2024	1831
7440-39-3	Barium	310	D	11/09/2024	1831
7440-41-7	Beryllium	0.97	D	11/09/2024	1831
7440-43-9	Cadmium	0.42	JD	11/09/2024	1831
7440-70-2	Calcium	7700	D	11/09/2024	1831
7440-47-3	Chromium	42	D	11/09/2024	1831
7440-48-4	Cobalt	25	D	11/09/2024	1831
7440-50-8	Copper	80	D	11/09/2024	1831
7439-89-6	Iron	45000	D	11/09/2024	1831
7439-92-1	Lead	28	D	11/09/2024	1831
7439-95-4	Magnesium	11000	D	11/09/2024	1831
7439-96-5	Manganese	940	D	11/09/2024	1831
7440-02-0	Nickel	63	D	11/09/2024	1831
7440-09-7	Potassium	2200	D	11/09/2024	1831
7782-49-2	Selenium	5.3	UD	11/09/2024	1831
7440-22-4	Silver	1.5	UD	11/09/2024	1831
7440-23-5	Sodium	160	JD	11/09/2024	1831
7440-28-0	Thallium	3.8	UD	11/09/2024	1831
7440-62-2	Vanadium	92	D	11/09/2024	1831
7440-66-6	Zinc	100	D	11/09/2024	1831

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

Comments:

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MYE4W2

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

Lab Code: ACE Case No.: 51817 MA No. : 3226.1 SDG No.: MYE4W0

Matrix: SOIL Lab Sample ID: P4524-03

% Solids: 95 Date Received: 10/23/2024

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	23000	D	11/09/2024	1836
7440-36-0	Antimony	1.7	JD	11/09/2024	1836
7440-38-2	Arsenic	48	D	11/09/2024	1836
7440-39-3	Barium	350	D	11/09/2024	1836
7440-41-7	Beryllium	0.96	D	11/09/2024	1836
7440-43-9	Cadmium	0.38	JD	11/09/2024	1836
7440-70-2	Calcium	5500	D	11/09/2024	1836
7440-47-3	Chromium	46	D	11/09/2024	1836
7440-48-4	Cobalt	28	D	11/09/2024	1836
7440-50-8	Copper	77	D	11/09/2024	1836
7439-89-6	Iron	51000	D	11/09/2024	1836
7439-92-1	Lead	26	D	11/09/2024	1836
7439-95-4	Magnesium	11000	D	11/09/2024	1836
7439-96-5	Manganese	1600	D	11/09/2024	1836
7440-02-0	Nickel	62	D	11/09/2024	1836
7440-09-7	Potassium	2700	D	11/09/2024	1836
7782-49-2	Selenium	6.0	UD	11/09/2024	1836
7440-22-4	Silver	1.7	UD	11/09/2024	1836
7440-23-5	Sodium	860	UD	11/09/2024	1836
7440-28-0	Thallium	4.3	UD	11/09/2024	1836
7440-62-2	Vanadium	110	D	11/09/2024	1836
7440-66-6	Zinc	93	D	11/09/2024	1836

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

Comments:

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MYE4W3

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

Lab Code: ACE Case No.: 51817 MA No. : 3226.1 SDG No.: MYE4W0

Matrix: SOIL Lab Sample ID: P4524-04

% Solids: 98.2 Date Received: 10/23/2024

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	15000	D	11/09/2024	1840
7440-36-0	Antimony	1.6	JD	11/09/2024	1840
7440-38-2	Arsenic	55	D	11/09/2024	1840
7440-39-3	Barium	220	D	11/09/2024	1840
7440-41-7	Beryllium	0.80	D	11/09/2024	1840
7440-43-9	Cadmium	1.4	D	11/09/2024	1840
7440-70-2	Calcium	2900	D	11/09/2024	1840
7440-47-3	Chromium	37	D	11/09/2024	1840
7440-48-4	Cobalt	25	D	11/09/2024	1840
7440-50-8	Copper	170	D	11/09/2024	1840
7439-89-6	Iron	46000	D	11/09/2024	1840
7439-92-1	Lead	58	D	11/09/2024	1840
7439-95-4	Magnesium	8100	D	11/09/2024	1840
7439-96-5	Manganese	1100	D	11/09/2024	1840
7440-02-0	Nickel	49	D	11/09/2024	1840
7440-09-7	Potassium	2700	D	11/09/2024	1840
7782-49-2	Selenium	5.3	UD	11/09/2024	1840
7440-22-4	Silver	1.5	UD	11/09/2024	1840
7440-23-5	Sodium	160	JD	11/09/2024	1840
7440-28-0	Thallium	3.8	UD	11/09/2024	1840
7440-62-2	Vanadium	91	D	11/09/2024	1840
7440-66-6	Zinc	140	D	11/09/2024	1840

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

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MYE4W4

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

Lab Code: ACE Case No.: 51817 MA No. : 3226.1 SDG No.: MYE4W0

Matrix: SOIL Lab Sample ID: P4524-05

% Solids: 97.8 Date Received: 10/23/2024

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	17000	D	11/09/2024	1845
7440-36-0	Antimony	2.2	JD	11/09/2024	1845
7440-38-2	Arsenic	52	D	11/09/2024	1845
7440-39-3	Barium	250	D	11/09/2024	1845
7440-41-7	Beryllium	0.83	D	11/09/2024	1845
7440-43-9	Cadmium	1.3	D	11/09/2024	1845
7440-70-2	Calcium	3200	D	11/09/2024	1845
7440-47-3	Chromium	42	D	11/09/2024	1845
7440-48-4	Cobalt	27	D	11/09/2024	1845
7440-50-8	Copper	130	D	11/09/2024	1845
7439-89-6	Iron	52000	D	11/09/2024	1845
7439-92-1	Lead	56	D	11/09/2024	1845
7439-95-4	Magnesium	8900	D	11/09/2024	1845
7439-96-5	Manganese	1100	D	11/09/2024	1845
7440-02-0	Nickel	57	D	11/09/2024	1845
7440-09-7	Potassium	2600	D	11/09/2024	1845
7782-49-2	Selenium	5.8	UD	11/09/2024	1845
7440-22-4	Silver	1.7	UD	11/09/2024	1845
7440-23-5	Sodium	830	UD	11/09/2024	1845
7440-28-0	Thallium	4.2	UD	11/09/2024	1845
7440-62-2	Vanadium	100	D	11/09/2024	1845
7440-66-6	Zinc	150	D	11/09/2024	1845

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

Comments:

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MYE4W5

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

Lab Code: ACE Case No.: 51817 MA No. : 3226.1 SDG No.: MYE4W0

Matrix: SOIL Lab Sample ID: P4524-06

% Solids: 97.2 Date Received: 10/23/2024

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	17000	D	11/09/2024	1921
7440-36-0	Antimony	1.5	JD	11/09/2024	1921
7440-38-2	Arsenic	59	D	11/09/2024	1921
7440-39-3	Barium	250	D	11/09/2024	1921
7440-41-7	Beryllium	0.79	JD	11/09/2024	1921
7440-43-9	Cadmium	1.6	D	11/09/2024	1921
7440-70-2	Calcium	5000	D	11/09/2024	1921
7440-47-3	Chromium	40	D	11/09/2024	1921
7440-48-4	Cobalt	27	D	11/09/2024	1921
7440-50-8	Copper	210	D	11/09/2024	1921
7439-89-6	Iron	47000	D	11/09/2024	1921
7439-92-1	Lead	75	D	11/09/2024	1921
7439-95-4	Magnesium	9700	D	11/09/2024	1921
7439-96-5	Manganese	1100	D	11/09/2024	1921
7440-02-0	Nickel	55	D	11/09/2024	1921
7440-09-7	Potassium	2300	D	11/09/2024	1921
7782-49-2	Selenium	6.1	UD	11/09/2024	1921
7440-22-4	Silver	1.7	UD	11/09/2024	1921
7440-23-5	Sodium	190	JD	11/09/2024	1921
7440-28-0	Thallium	4.4	UD	11/09/2024	1921
7440-62-2	Vanadium	95	D	11/09/2024	1921
7440-66-6	Zinc	160	D	11/09/2024	1921

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

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MYE4W6

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

Lab Code: ACE Case No.: 51817 MA No. : 3226.1 SDG No.: MYE4W0

Matrix: SOIL Lab Sample ID: P4524-09

% Solids: 98.2 Date Received: 10/23/2024

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	14000	D	11/09/2024	1938
7440-36-0	Antimony	1.7	JD	11/09/2024	1938
7440-38-2	Arsenic	51	D	11/09/2024	1938
7440-39-3	Barium	200	D	11/09/2024	1938
7440-41-7	Beryllium	0.71	JD	11/09/2024	1938
7440-43-9	Cadmium	1.0	D	11/09/2024	1938
7440-70-2	Calcium	2800	D	11/09/2024	1938
7440-47-3	Chromium	35	D	11/09/2024	1938
7440-48-4	Cobalt	24	D	11/09/2024	1938
7440-50-8	Copper	100	D	11/09/2024	1938
7439-89-6	Iron	43000	D	11/09/2024	1938
7439-92-1	Lead	45	D	11/09/2024	1938
7439-95-4	Magnesium	7800	D	11/09/2024	1938
7439-96-5	Manganese	880	D	11/09/2024	1938
7440-02-0	Nickel	46	D	11/09/2024	1938
7440-09-7	Potassium	2200	D	11/09/2024	1938
7782-49-2	Selenium	5.0	UD	11/09/2024	1938
7440-22-4	Silver	1.4	UD	11/09/2024	1938
7440-23-5	Sodium	180	JD	11/09/2024	1938
7440-28-0	Thallium	3.6	UD	11/09/2024	1938
7440-62-2	Vanadium	92	D	11/09/2024	1938
7440-66-6	Zinc	120	D	11/09/2024	1938

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

Comments:

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MYE4W7

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

Lab Code: ACE Case No.: 51817 MA No. : 3226.1 SDG No.: MYE4W0

Matrix: SOIL Lab Sample ID: P4524-10

% Solids: 98.2 Date Received: 10/23/2024

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	16000	D	11/09/2024	1943
7440-36-0	Antimony	2.7	JD	11/09/2024	1943
7440-38-2	Arsenic	43	D	11/09/2024	1943
7440-39-3	Barium	210	D	11/09/2024	1943
7440-41-7	Beryllium	0.78	JD	11/09/2024	1943
7440-43-9	Cadmium	1.2	D	11/09/2024	1943
7440-70-2	Calcium	3400	D	11/09/2024	1943
7440-47-3	Chromium	43	D	11/09/2024	1943
7440-48-4	Cobalt	24	D	11/09/2024	1943
7440-50-8	Copper	140	D	11/09/2024	1943
7439-89-6	Iron	50000	D	11/09/2024	1943
7439-92-1	Lead	58	D	11/09/2024	1943
7439-95-4	Magnesium	9200	D	11/09/2024	1943
7439-96-5	Manganese	930	D	11/09/2024	1943
7440-02-0	Nickel	49	D	11/09/2024	1943
7440-09-7	Potassium	2400	D	11/09/2024	1943
7782-49-2	Selenium	6.2	UD	11/09/2024	1943
7440-22-4	Silver	1.8	UD	11/09/2024	1943
7440-23-5	Sodium	170	JD	11/09/2024	1943
7440-28-0	Thallium	4.4	UD	11/09/2024	1943
7440-62-2	Vanadium	100	D	11/09/2024	1943
7440-66-6	Zinc	150	D	11/09/2024	1943

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

Comments:

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MYE4Y0

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

Lab Code: ACE Case No.: 51817 MA No. : 3226.1 SDG No.: MYE4W0

Matrix: SOIL Lab Sample ID: P4524-11

% Solids: 97.8 Date Received: 10/24/2024

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	16000	D	11/09/2024	1947
7440-36-0	Antimony	2.1	JD	11/09/2024	1947
7440-38-2	Arsenic	58	D	11/09/2024	1947
7440-39-3	Barium	310	D	11/09/2024	1947
7440-41-7	Beryllium	0.84	JD	11/09/2024	1947
7440-43-9	Cadmium	1.2	D	11/09/2024	1947
7440-70-2	Calcium	3300	D	11/09/2024	1947
7440-47-3	Chromium	43	D	11/09/2024	1947
7440-48-4	Cobalt	28	D	11/09/2024	1947
7440-50-8	Copper	150	D	11/09/2024	1947
7439-89-6	Iron	52000	D	11/09/2024	1947
7439-92-1	Lead	51	D	11/09/2024	1947
7439-95-4	Magnesium	8500	D	11/09/2024	1947
7439-96-5	Manganese	1600	D	11/09/2024	1947
7440-02-0	Nickel	50	D	11/09/2024	1947
7440-09-7	Potassium	2900	D	11/09/2024	1947
7782-49-2	Selenium	6.5	UD	11/09/2024	1947
7440-22-4	Silver	1.9	UD	11/09/2024	1947
7440-23-5	Sodium	180	JD	11/09/2024	1947
7440-28-0	Thallium	4.7	UD	11/09/2024	1947
7440-62-2	Vanadium	110	D	11/09/2024	1947
7440-66-6	Zinc	130	D	11/09/2024	1947

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

Comments:

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MYE4Y1

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

Lab Code: ACE Case No.: 51817 MA No. : 3226.1 SDG No.: MYE4W0

Matrix: SOIL Lab Sample ID: P4524-12

% Solids: 95.2 Date Received: 10/24/2024

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	14000	D	11/09/2024	1952
7440-36-0	Antimony	2.1	JD	11/09/2024	1952
7440-38-2	Arsenic	53	D	11/09/2024	1952
7440-39-3	Barium	180	D	11/09/2024	1952
7440-41-7	Beryllium	0.82	D	11/09/2024	1952
7440-43-9	Cadmium	1.5	D	11/09/2024	1952
7440-70-2	Calcium	2200	D	11/09/2024	1952
7440-47-3	Chromium	38	D	11/09/2024	1952
7440-48-4	Cobalt	25	D	11/09/2024	1952
7440-50-8	Copper	170	D	11/09/2024	1952
7439-89-6	Iron	50000	D	11/09/2024	1952
7439-92-1	Lead	61	D	11/09/2024	1952
7439-95-4	Magnesium	6900	D	11/09/2024	1952
7439-96-5	Manganese	1300	D	11/09/2024	1952
7440-02-0	Nickel	43	D	11/09/2024	1952
7440-09-7	Potassium	2900	D	11/09/2024	1952
7782-49-2	Selenium	5.0	UD	11/09/2024	1952
7440-22-4	Silver	1.4	UD	11/09/2024	1952
7440-23-5	Sodium	150	JD	11/09/2024	1952
7440-28-0	Thallium	3.6	UD	11/09/2024	1952
7440-62-2	Vanadium	100	D	11/09/2024	1952
7440-66-6	Zinc	140	D	11/09/2024	1952

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

Comments:

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MYE4Y2

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

Lab Code: ACE Case No.: 51817 MA No. : 3226.1 SDG No.: MYE4W0

Matrix: SOIL Lab Sample ID: P4524-13

% Solids: 98.2 Date Received: 10/24/2024

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	14000	D	11/09/2024	1956
7440-36-0	Antimony	1.1	JD	11/09/2024	1956
7440-38-2	Arsenic	38	D	11/09/2024	1956
7440-39-3	Barium	180	D	11/09/2024	1956
7440-41-7	Beryllium	0.83	D	11/09/2024	1956
7440-43-9	Cadmium	0.92	D	11/09/2024	1956
7440-70-2	Calcium	2300	D	11/09/2024	1956
7440-47-3	Chromium	38	D	11/09/2024	1956
7440-48-4	Cobalt	25	D	11/09/2024	1956
7440-50-8	Copper	120	D	11/09/2024	1956
7439-89-6	Iron	46000	D	11/09/2024	1956
7439-92-1	Lead	42	D	11/09/2024	1956
7439-95-4	Magnesium	6600	D	11/09/2024	1956
7439-96-5	Manganese	1200	D	11/09/2024	1956
7440-02-0	Nickel	43	D	11/09/2024	1956
7440-09-7	Potassium	3000	D	11/09/2024	1956
7782-49-2	Selenium	5.2	UD	11/09/2024	1956
7440-22-4	Silver	1.5	UD	11/09/2024	1956
7440-23-5	Sodium	170	JD	11/09/2024	1956
7440-28-0	Thallium	3.7	UD	11/09/2024	1956
7440-62-2	Vanadium	89	D	11/09/2024	1956
7440-66-6	Zinc	110	D	11/09/2024	1956

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

Comments:

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

MYE4Y3

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

Lab Code: ACE Case No.: 51817 MA No. : 3226.1 SDG No.: MYE4W0

Matrix: SOIL Lab Sample ID: P4524-14

% Solids: 96.6 Date Received: 10/24/2024

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	16000	D	11/09/2024	2000
7440-36-0	Antimony	1.5	JD	11/09/2024	2000
7440-38-2	Arsenic	46	D	11/09/2024	2000
7440-39-3	Barium	190	D	11/09/2024	2000
7440-41-7	Beryllium	0.91	D	11/09/2024	2000
7440-43-9	Cadmium	0.80	D	11/09/2024	2000
7440-70-2	Calcium	3400	D	11/09/2024	2000
7440-47-3	Chromium	40	D	11/09/2024	2000
7440-48-4	Cobalt	26	D	11/09/2024	2000
7440-50-8	Copper	100	D	11/09/2024	2000
7439-89-6	Iron	47000	D	11/09/2024	2000
7439-92-1	Lead	43	D	11/09/2024	2000
7439-95-4	Magnesium	7500	D	11/09/2024	2000
7439-96-5	Manganese	1100	D	11/09/2024	2000
7440-02-0	Nickel	47	D	11/09/2024	2000
7440-09-7	Potassium	3400	D	11/09/2024	2000
7782-49-2	Selenium	4.9	UD	11/09/2024	2000
7440-22-4	Silver	1.4	UD	11/09/2024	2000
7440-23-5	Sodium	220	JD	11/09/2024	2000
7440-28-0	Thallium	3.5	UD	11/09/2024	2000
7440-62-2	Vanadium	98	D	11/09/2024	2000
7440-66-6	Zinc	160	D	11/09/2024	2000

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

Comments:

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

MYE4Y4

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

Lab Code: ACE Case No.: 51817 MA No. : 3226.1 SDG No.: MYE4W0

Matrix: SOIL Lab Sample ID: P4524-15

% Solids: 94.9 Date Received: 10/24/2024

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	22000	D	11/09/2024	2005
7440-36-0	Antimony	1.8	JD	11/09/2024	2005
7440-38-2	Arsenic	130	D	11/09/2024	2005
7440-39-3	Barium	120	D	11/09/2024	2005
7440-41-7	Beryllium	0.62	JD	11/09/2024	2005
7440-43-9	Cadmium	1.1	D	11/09/2024	2005
7440-70-2	Calcium	17000	D	11/09/2024	2005
7440-47-3	Chromium	36	D	11/09/2024	2005
7440-48-4	Cobalt	40	D	11/09/2024	2005
7440-50-8	Copper	84	D	11/09/2024	2005
7439-89-6	Iron	52000	D	11/09/2024	2005
7439-92-1	Lead	86	D	11/09/2024	2005
7439-95-4	Magnesium	12000	D	11/09/2024	2005
7439-96-5	Manganese	1300	D	11/09/2024	2005
7440-02-0	Nickel	38	D	11/09/2024	2005
7440-09-7	Potassium	1500	D	11/09/2024	2005
7782-49-2	Selenium	5.4	UD	11/09/2024	2005
7440-22-4	Silver	1.5	UD	11/09/2024	2005
7440-23-5	Sodium	240	JD	11/09/2024	2005
7440-28-0	Thallium	3.8	UD	11/09/2024	2005
7440-62-2	Vanadium	96	D	11/09/2024	2005
7440-66-6	Zinc	320	D	11/09/2024	2005

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

Comments:

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

MYE4Y5

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

Lab Code: ACE Case No.: 51817 MA No. : 3226.1 SDG No.: MYE4W0

Matrix: SOIL Lab Sample ID: P4524-16

% Solids: 94.6 Date Received: 10/24/2024

Analytical Method: ICP_AES

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

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	23000	D	11/09/2024	2009
7440-36-0	Antimony	1.6	JD	11/09/2024	2009
7440-38-2	Arsenic	28	D	11/09/2024	2009
7440-39-3	Barium	210	D	11/09/2024	2009
7440-41-7	Beryllium	0.82	JD	11/09/2024	2009
7440-43-9	Cadmium	0.58	JD	11/09/2024	2009
7440-70-2	Calcium	7800	D	11/09/2024	2009
7440-47-3	Chromium	60	D	11/09/2024	2009
7440-48-4	Cobalt	29	D	11/09/2024	2009
7440-50-8	Copper	100	D	11/09/2024	2009
7439-89-6	Iron	52000	D	11/09/2024	2009
7439-92-1	Lead	30	D	11/09/2024	2009
7439-95-4	Magnesium	13000	D	11/09/2024	2009
7439-96-5	Manganese	1200	D	11/09/2024	2009
7440-02-0	Nickel	55	D	11/09/2024	2009
7440-09-7	Potassium	3500	D	11/09/2024	2009
7782-49-2	Selenium	6.3	UD	11/09/2024	2009
7440-22-4	Silver	1.8	UD	11/09/2024	2009
7440-23-5	Sodium	190	JD	11/09/2024	2009
7440-28-0	Thallium	4.5	UD	11/09/2024	2009
7440-62-2	Vanadium	110	D	11/09/2024	2009
7440-66-6	Zinc	110	D	11/09/2024	2009

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

Comments:

FORM 1 - IN
INORGANIC ANALYSIS DATA SHEET

MYE4Y6

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

Lab Code: ACE Case No.: 51817 MA No. : 3226.1 SDG No.: MYE4W0

Matrix: SOIL Lab Sample ID: P4524-17

% Solids: 98.6 Date Received: 10/24/2024

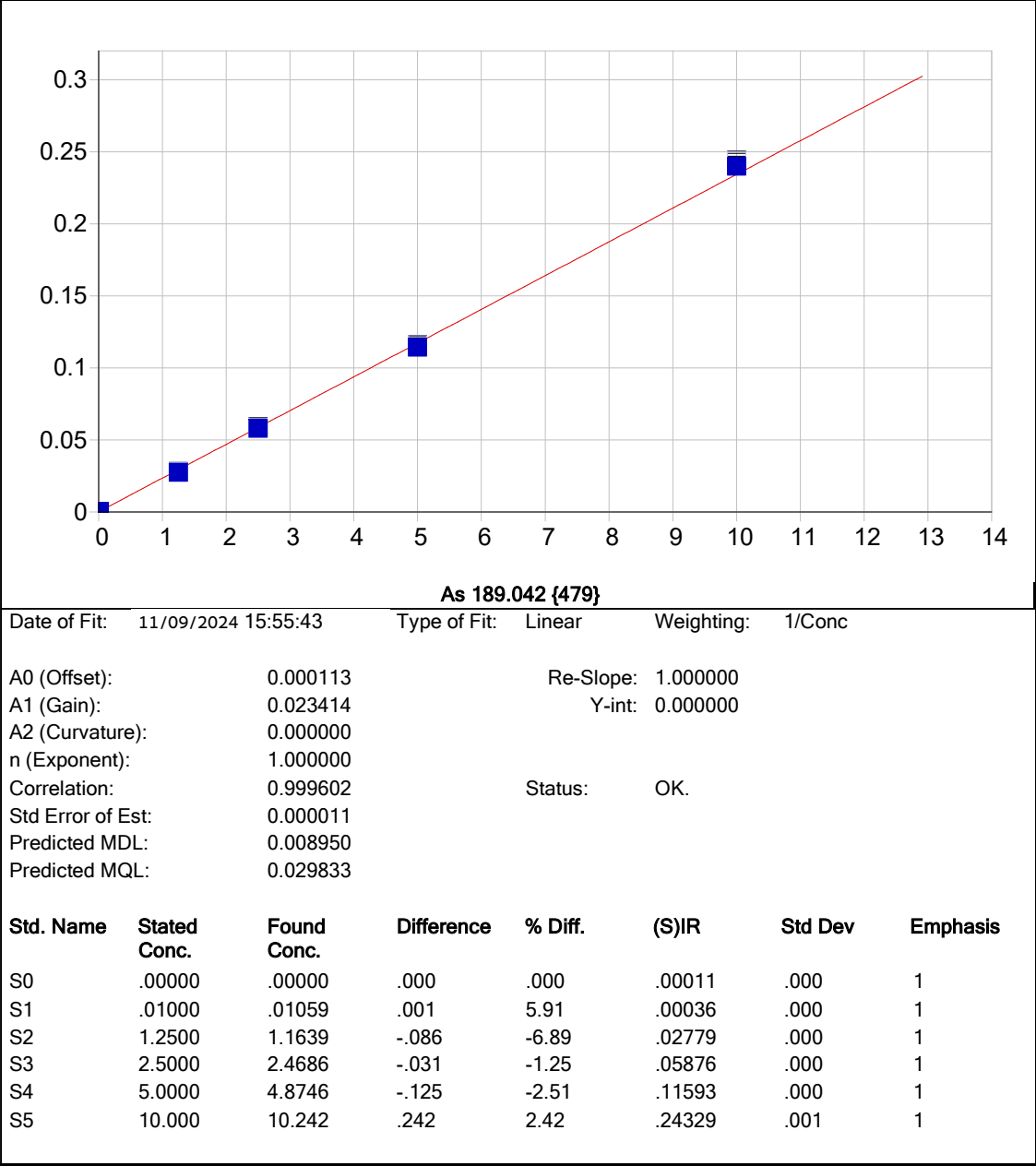
Analytical Method: ICP_AES

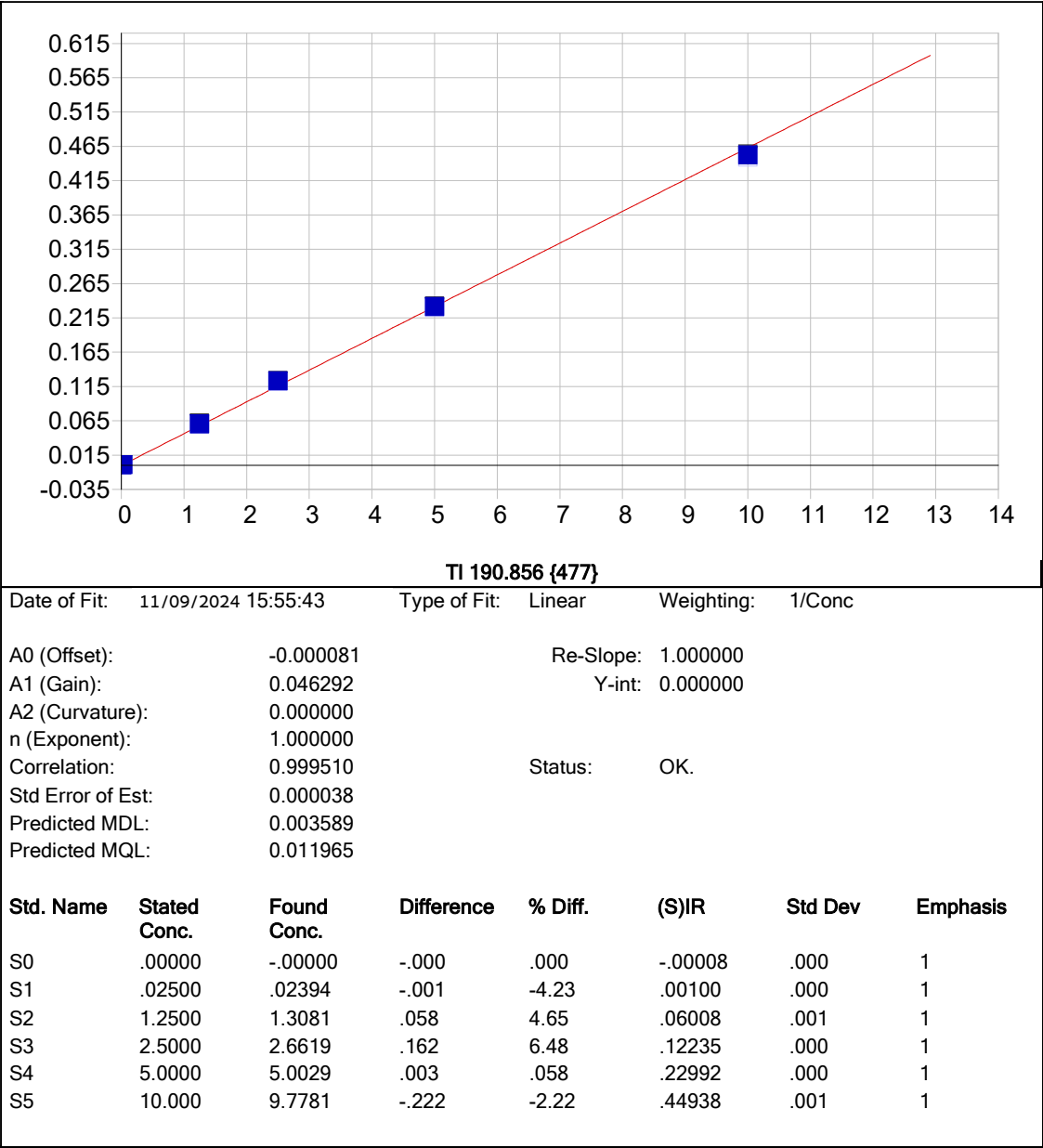
Concentration Units ($\mu\text{g/L}$, mg/L , mg/kg dry weight, μg , or $\mu\text{g/cm}^2$): mg/kg

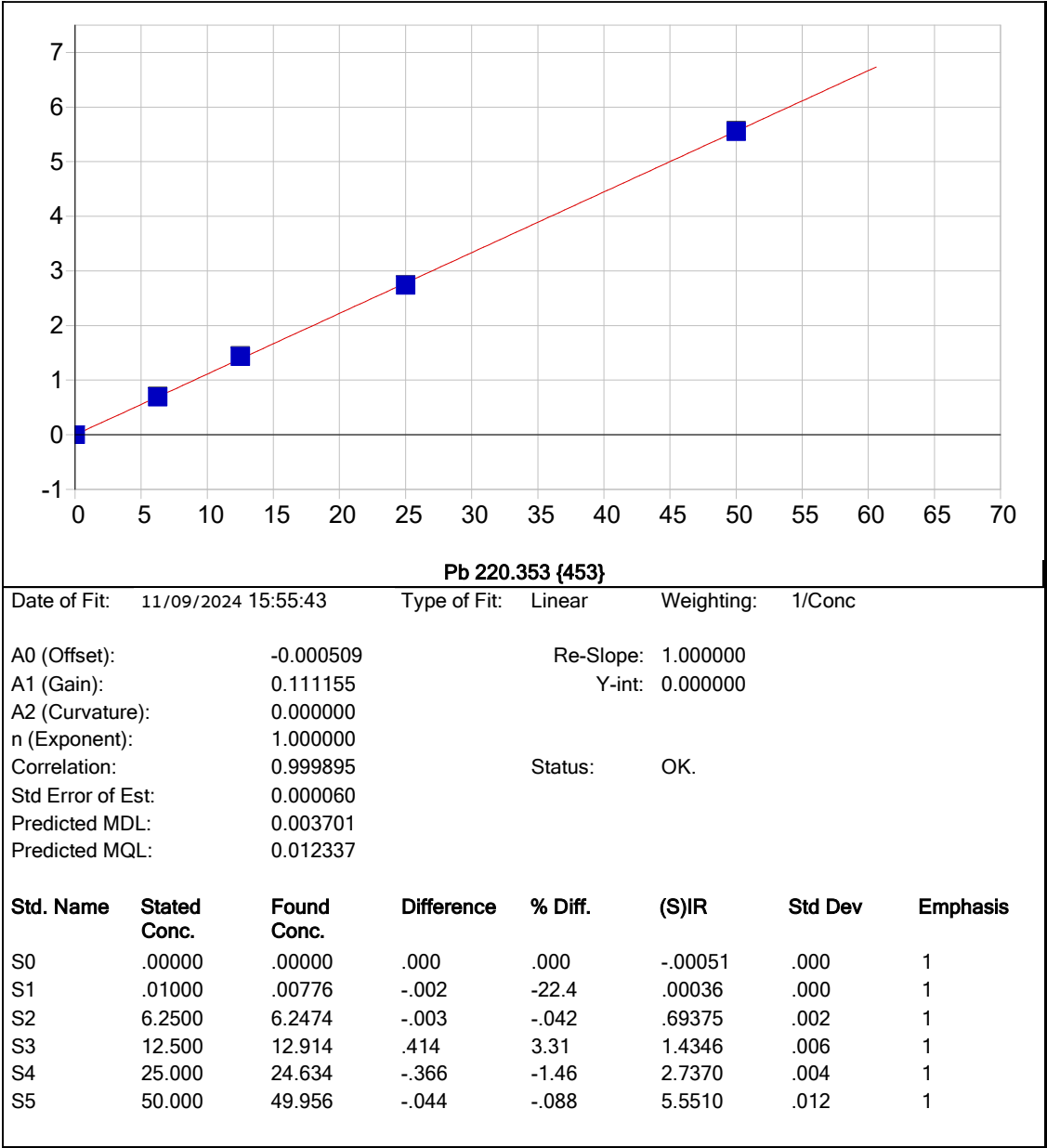
CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	14000	D	11/09/2024	2014
7440-36-0	Antimony	2.4	JD	11/09/2024	2014
7440-38-2	Arsenic	60	D	11/09/2024	2014
7440-39-3	Barium	180	D	11/09/2024	2014
7440-41-7	Beryllium	0.89	D	11/09/2024	2014
7440-43-9	Cadmium	1.2	D	11/09/2024	2014
7440-70-2	Calcium	2500	D	11/09/2024	2014
7440-47-3	Chromium	41	D	11/09/2024	2014
7440-48-4	Cobalt	29	D	11/09/2024	2014
7440-50-8	Copper	140	D	11/09/2024	2014
7439-89-6	Iron	52000	D	11/09/2024	2014
7439-92-1	Lead	57	D	11/09/2024	2014
7439-95-4	Magnesium	7000	D	11/09/2024	2014
7439-96-5	Manganese	1100	D	11/09/2024	2014
7440-02-0	Nickel	45	D	11/09/2024	2014
7440-09-7	Potassium	2900	D	11/09/2024	2014
7782-49-2	Selenium	5.3	UD	11/09/2024	2014
7440-22-4	Silver	1.5	UD	11/09/2024	2014
7440-23-5	Sodium	200	JD	11/09/2024	2014
7440-28-0	Thallium	3.8	UD	11/09/2024	2014
7440-62-2	Vanadium	110	D	11/09/2024	2014
7440-66-6	Zinc	130	D	11/09/2024	2014

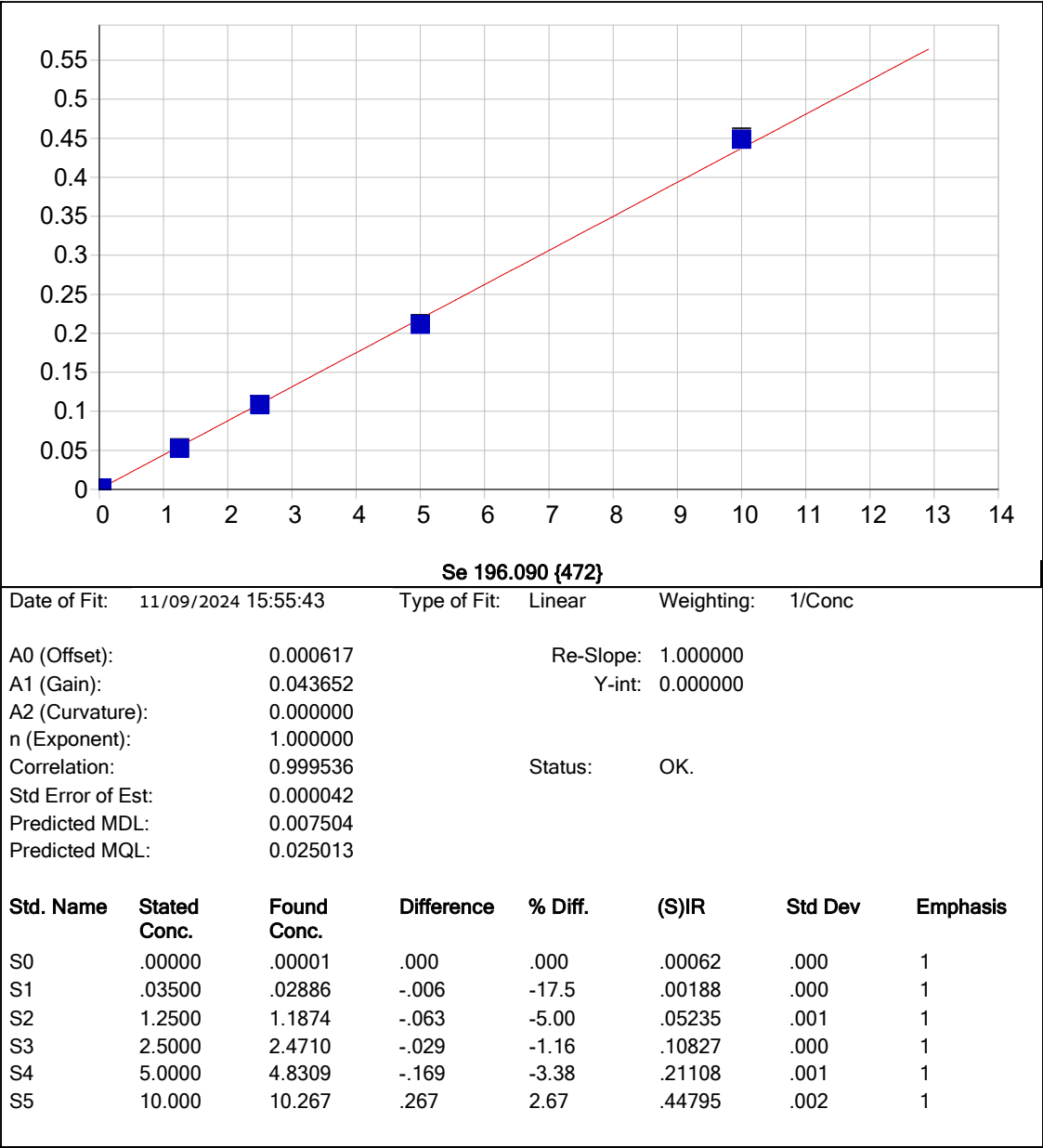
NOTE: Hardness (total) is reported in mg/L

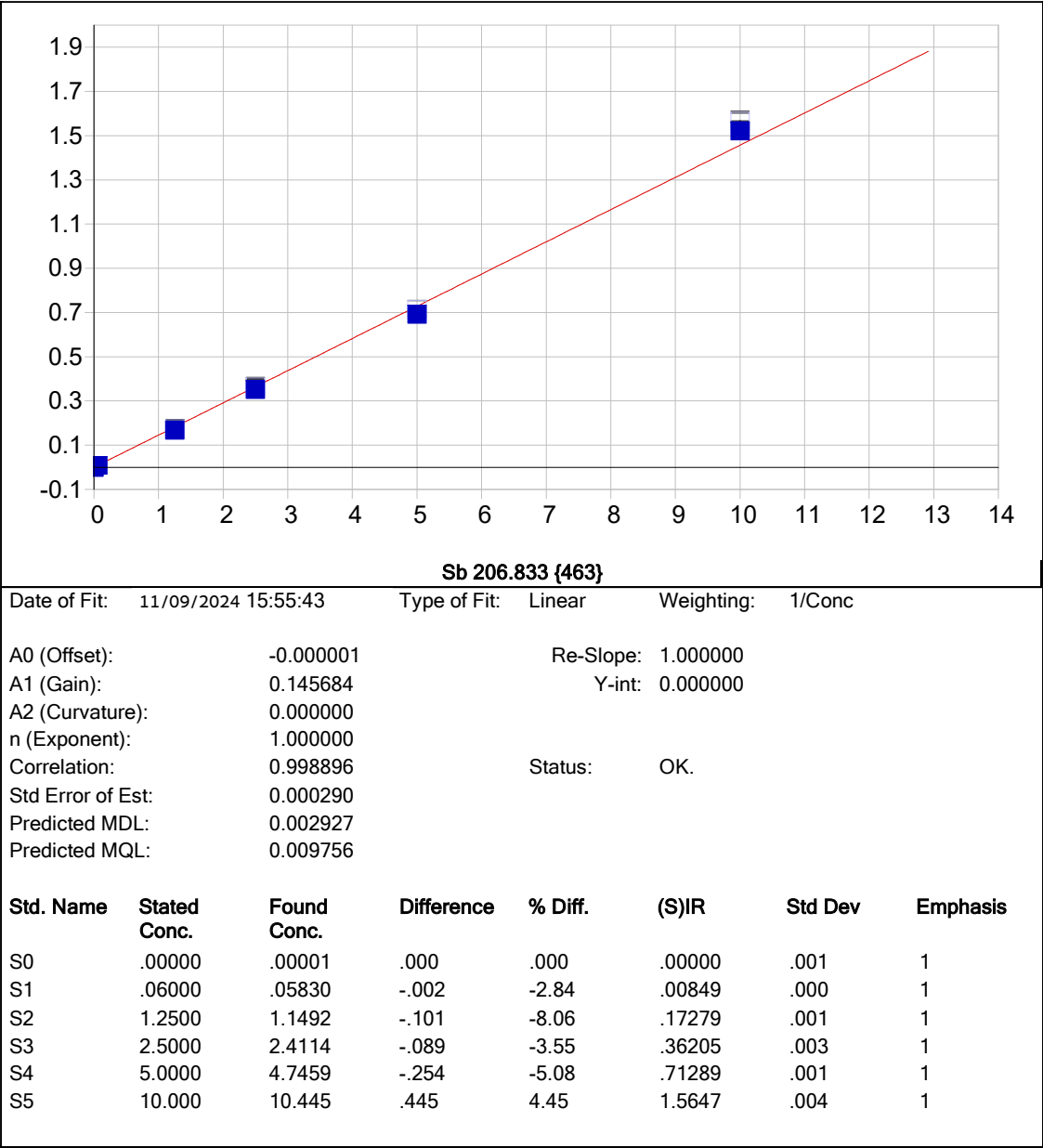
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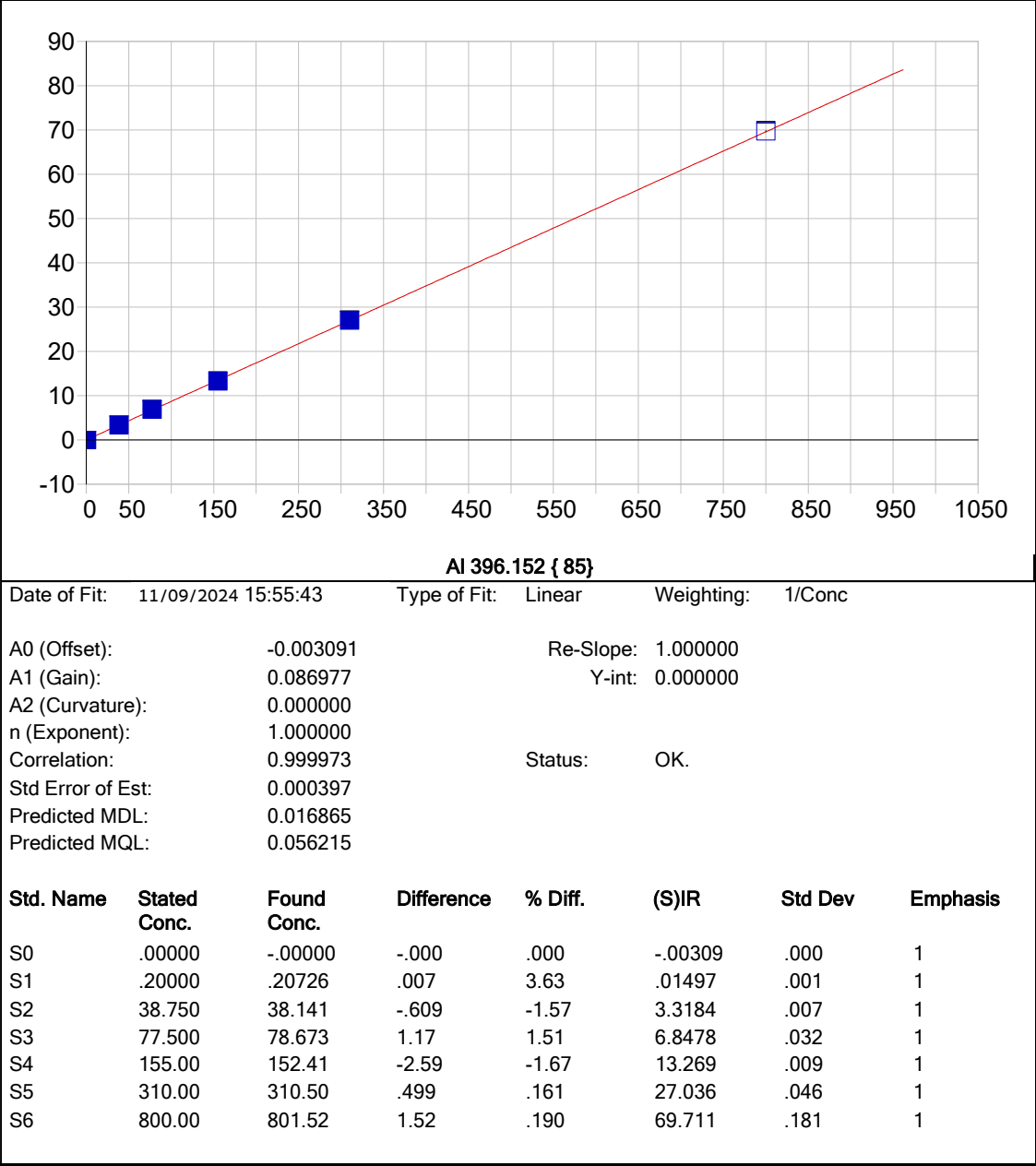


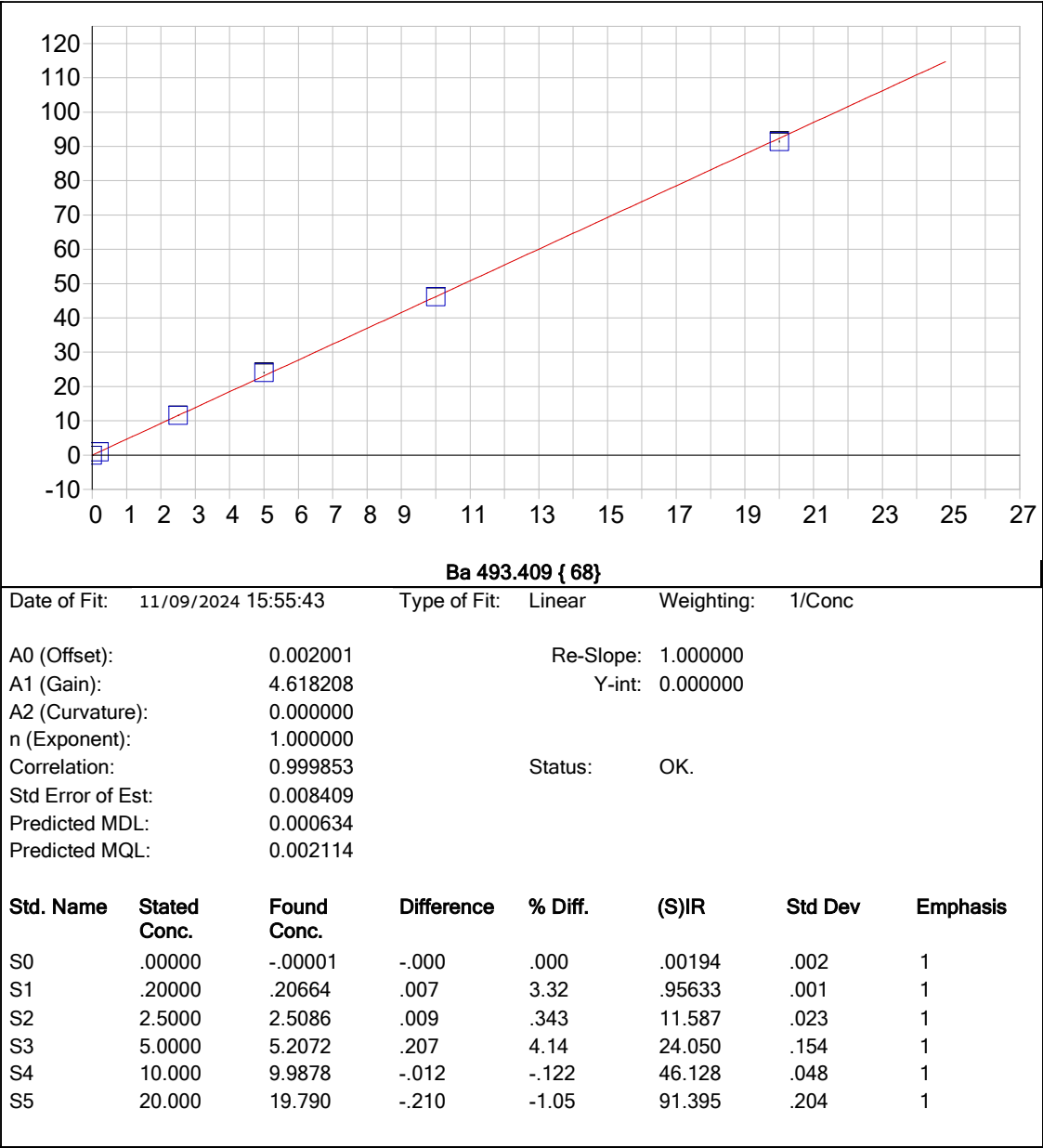


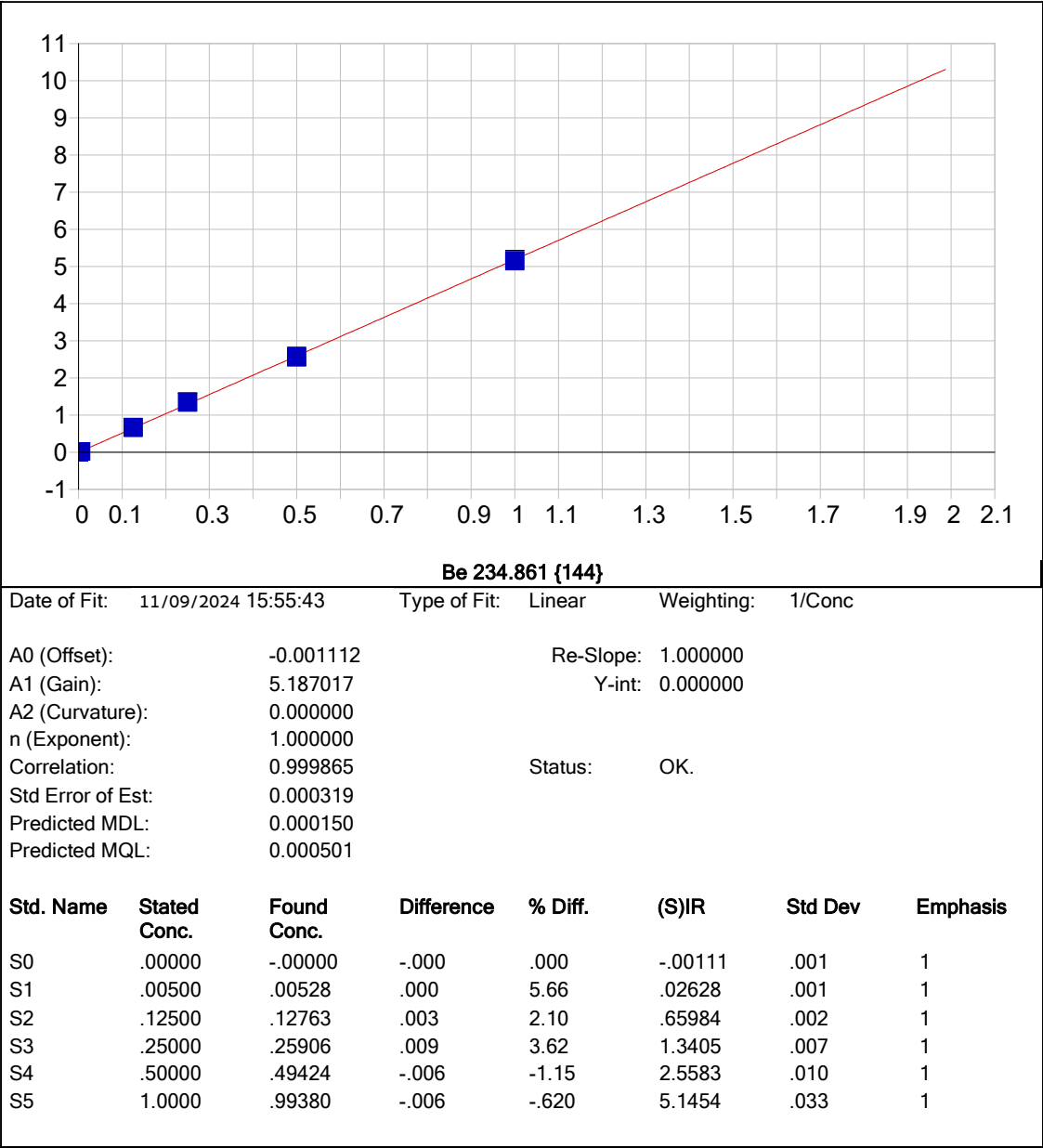


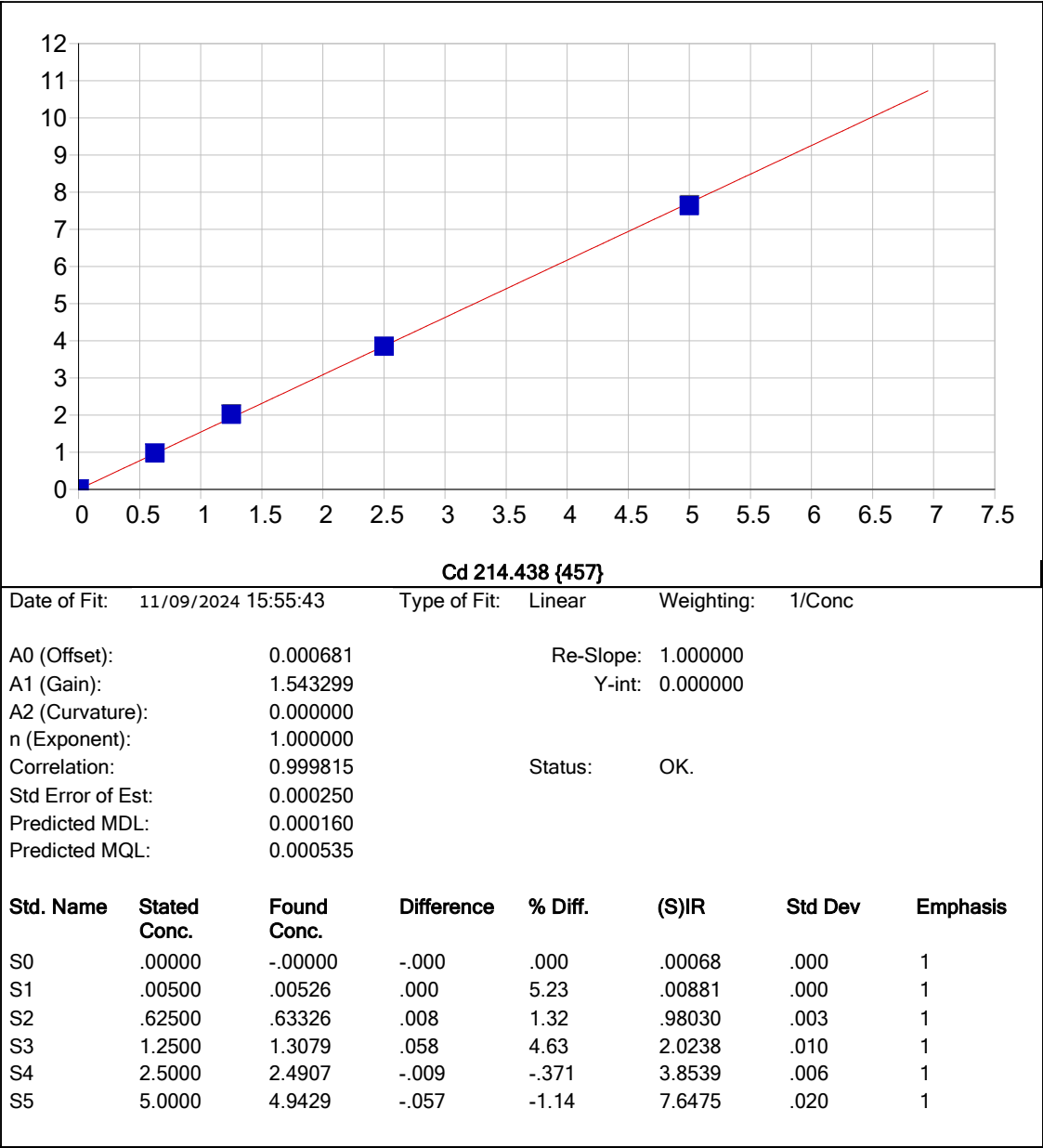


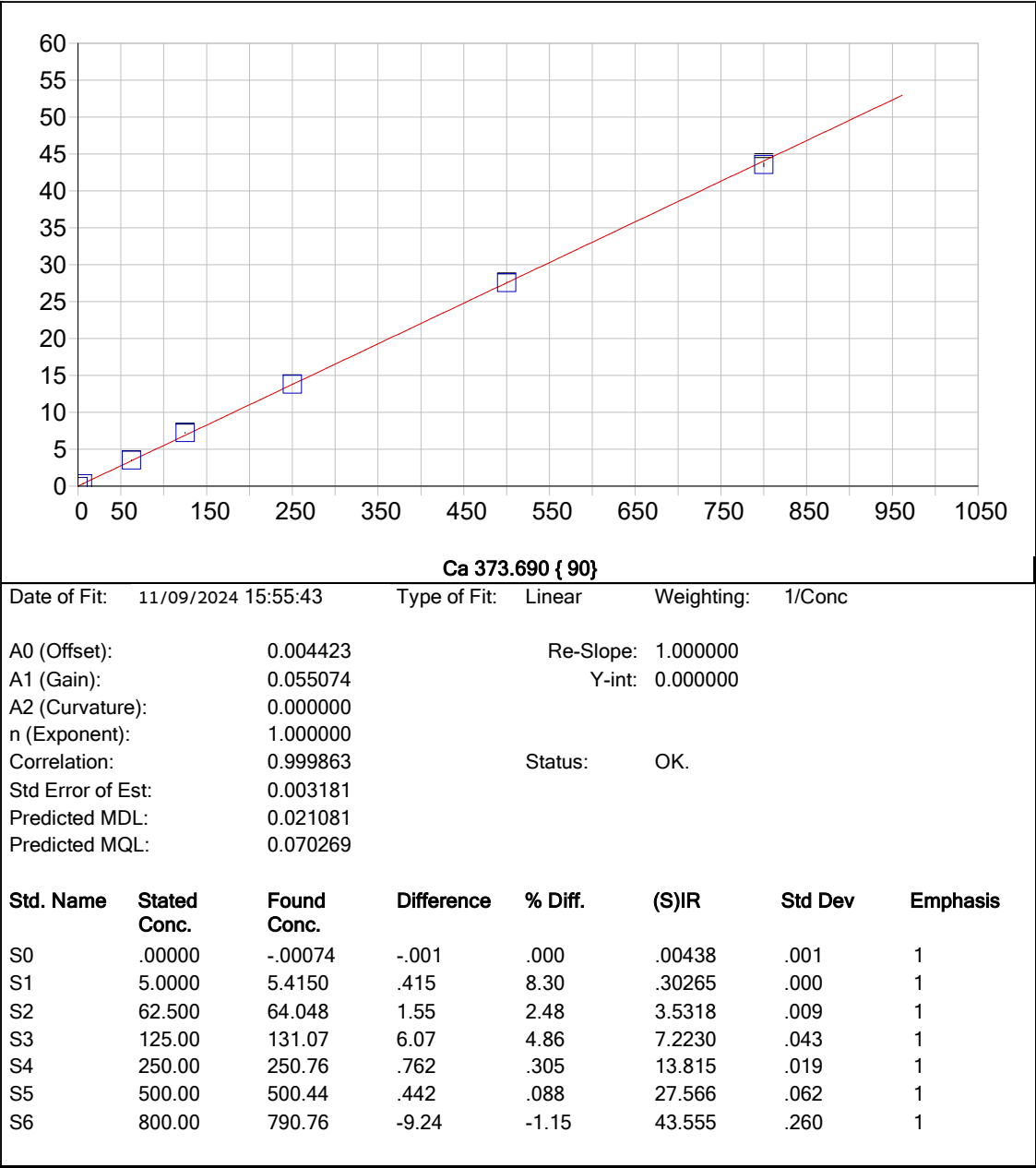


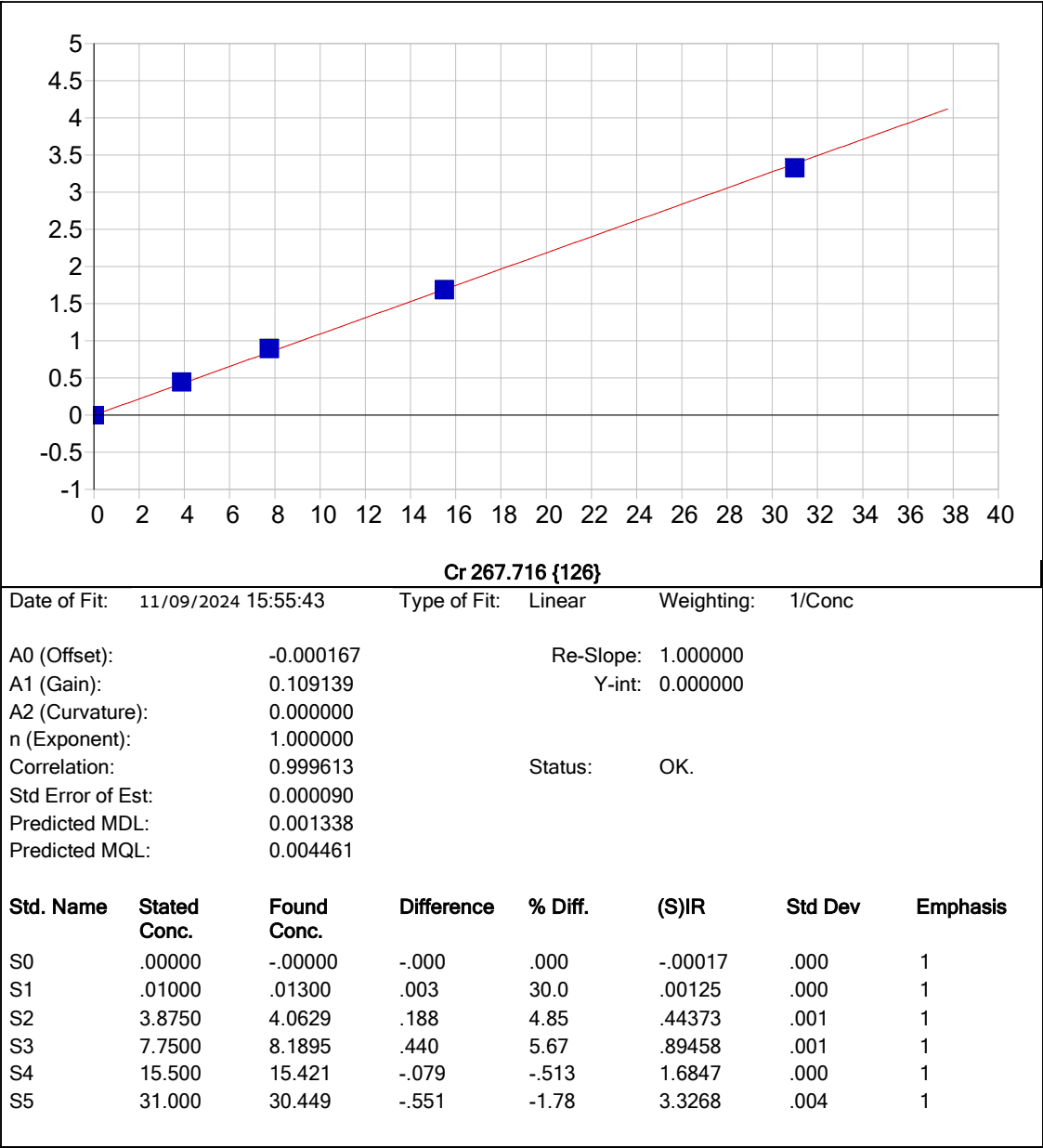


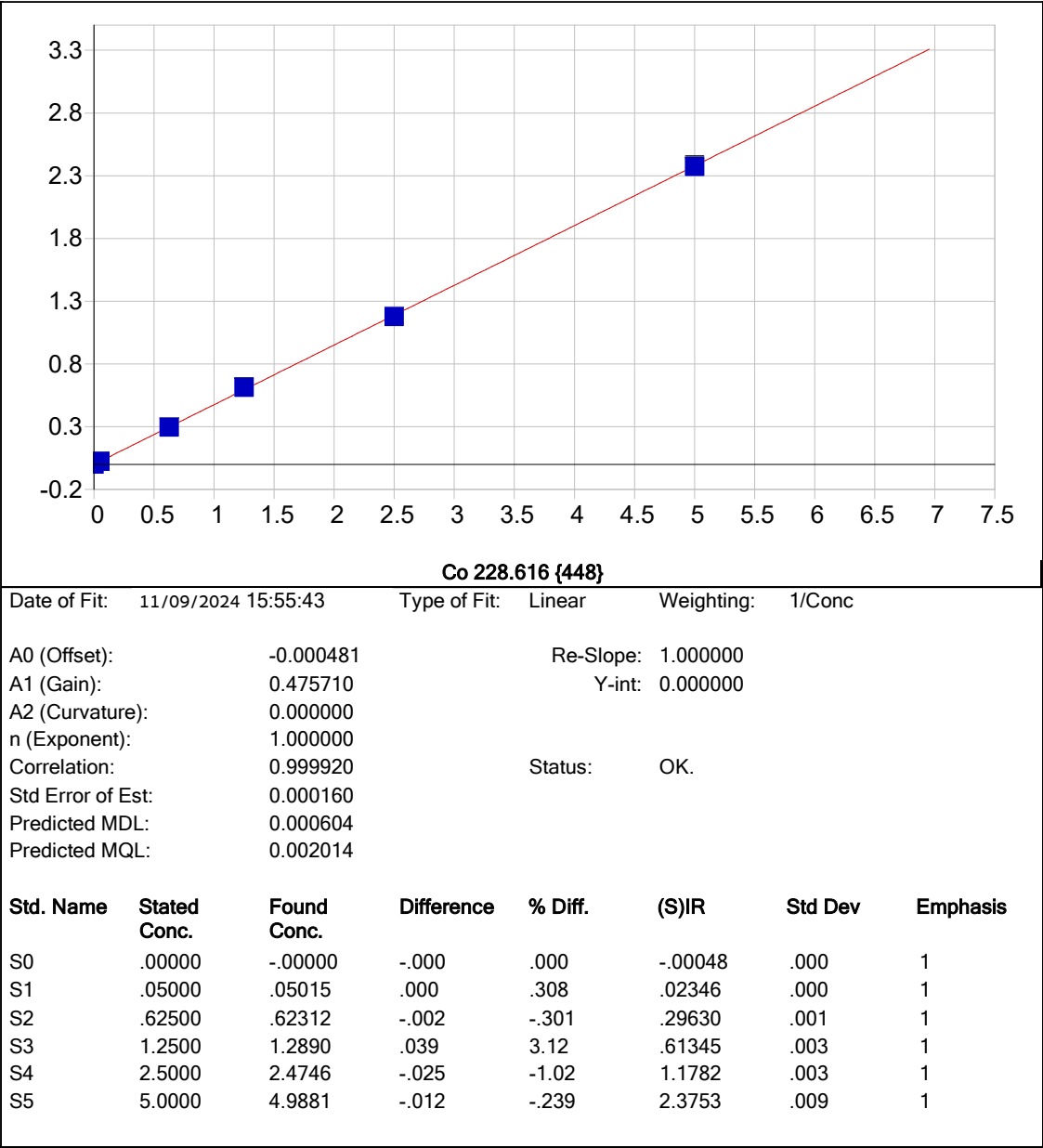


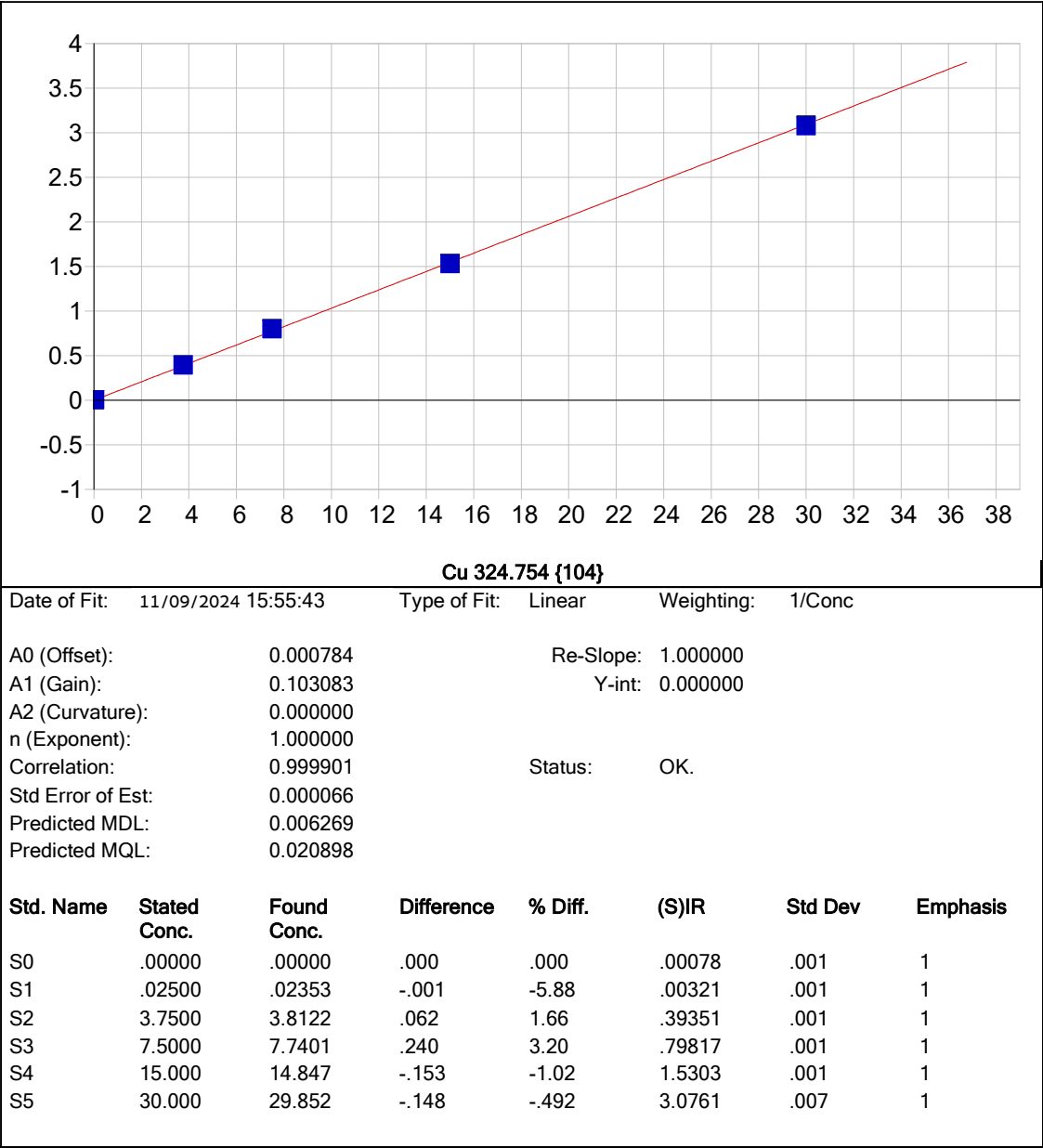


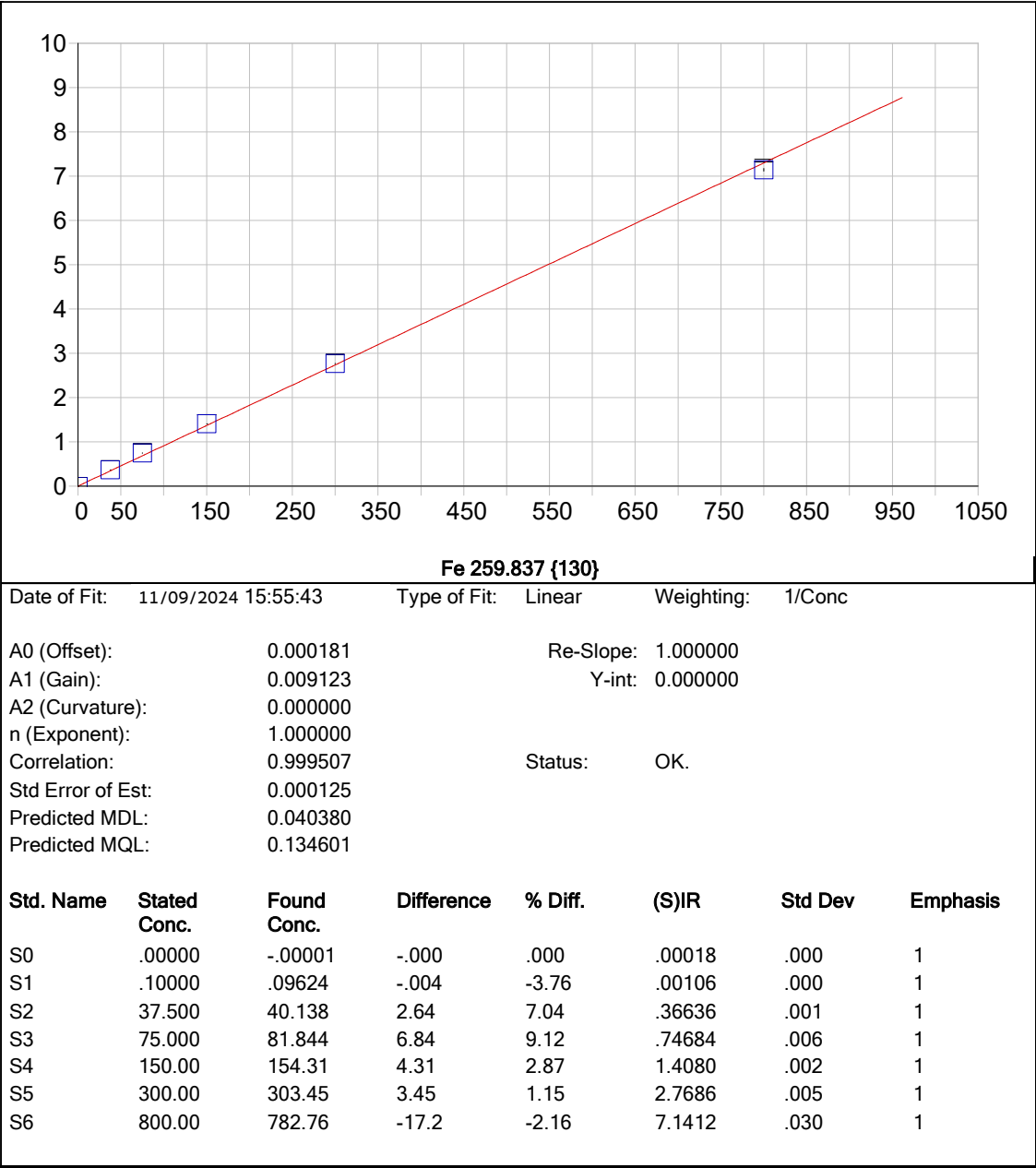


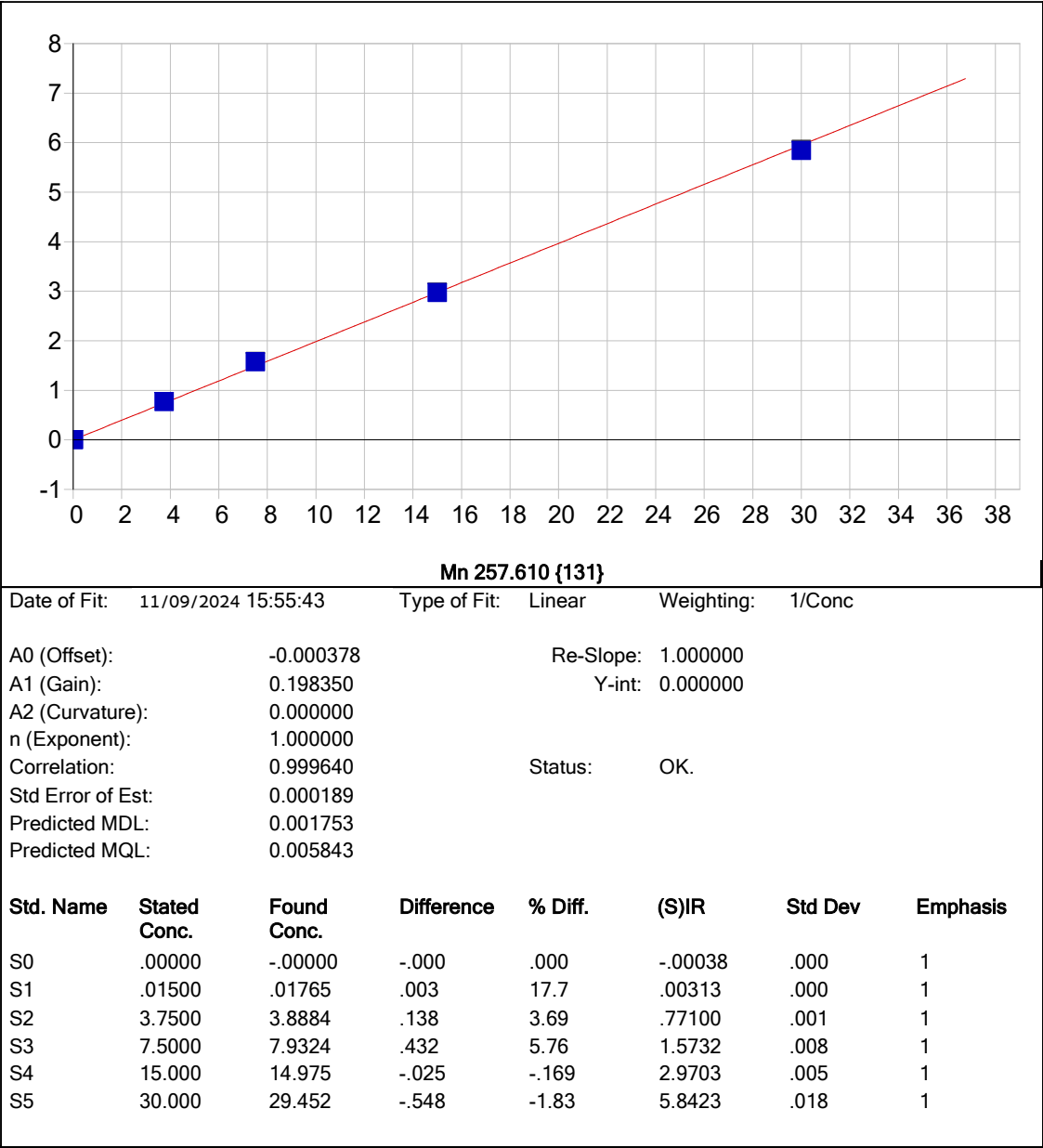


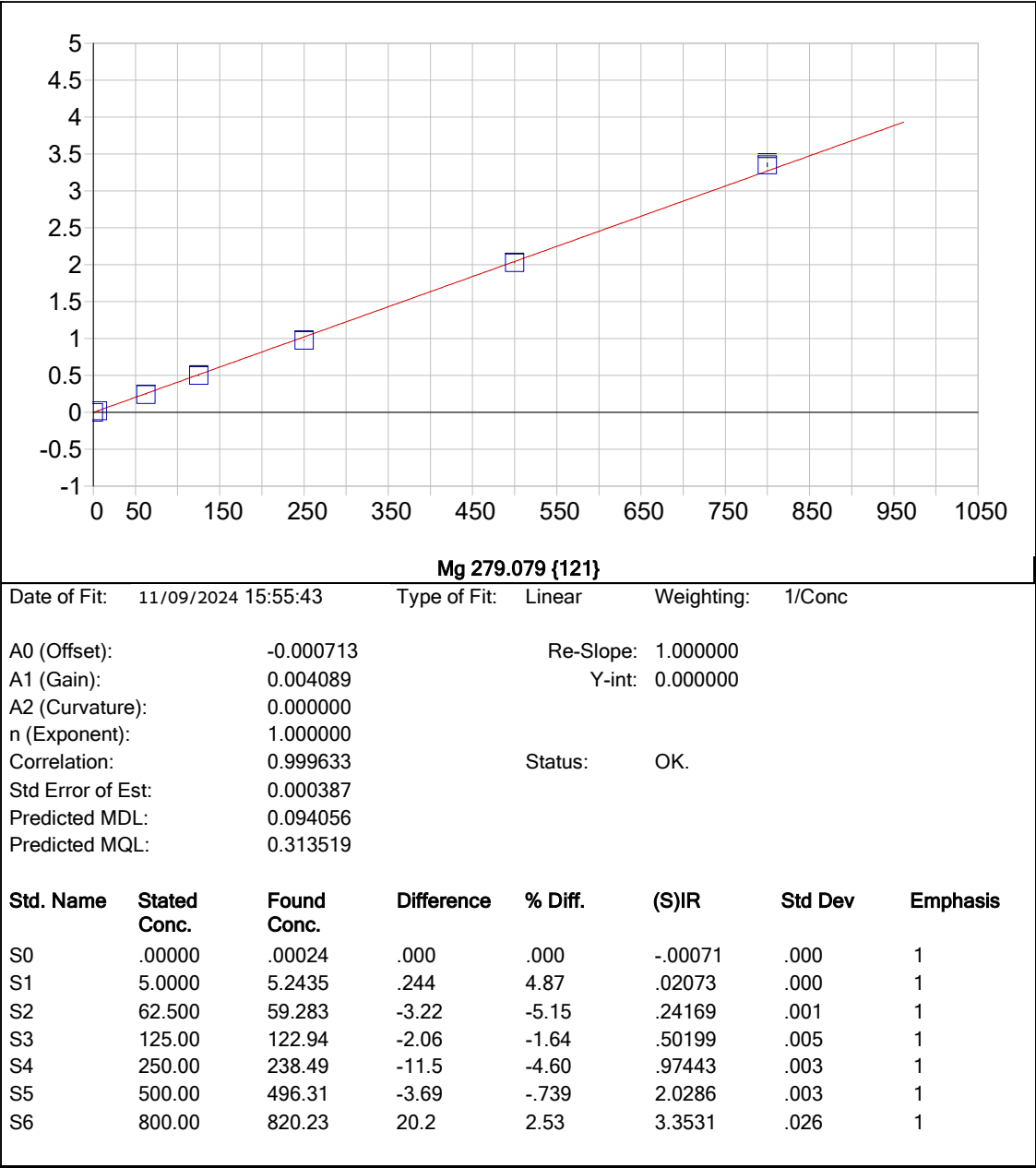


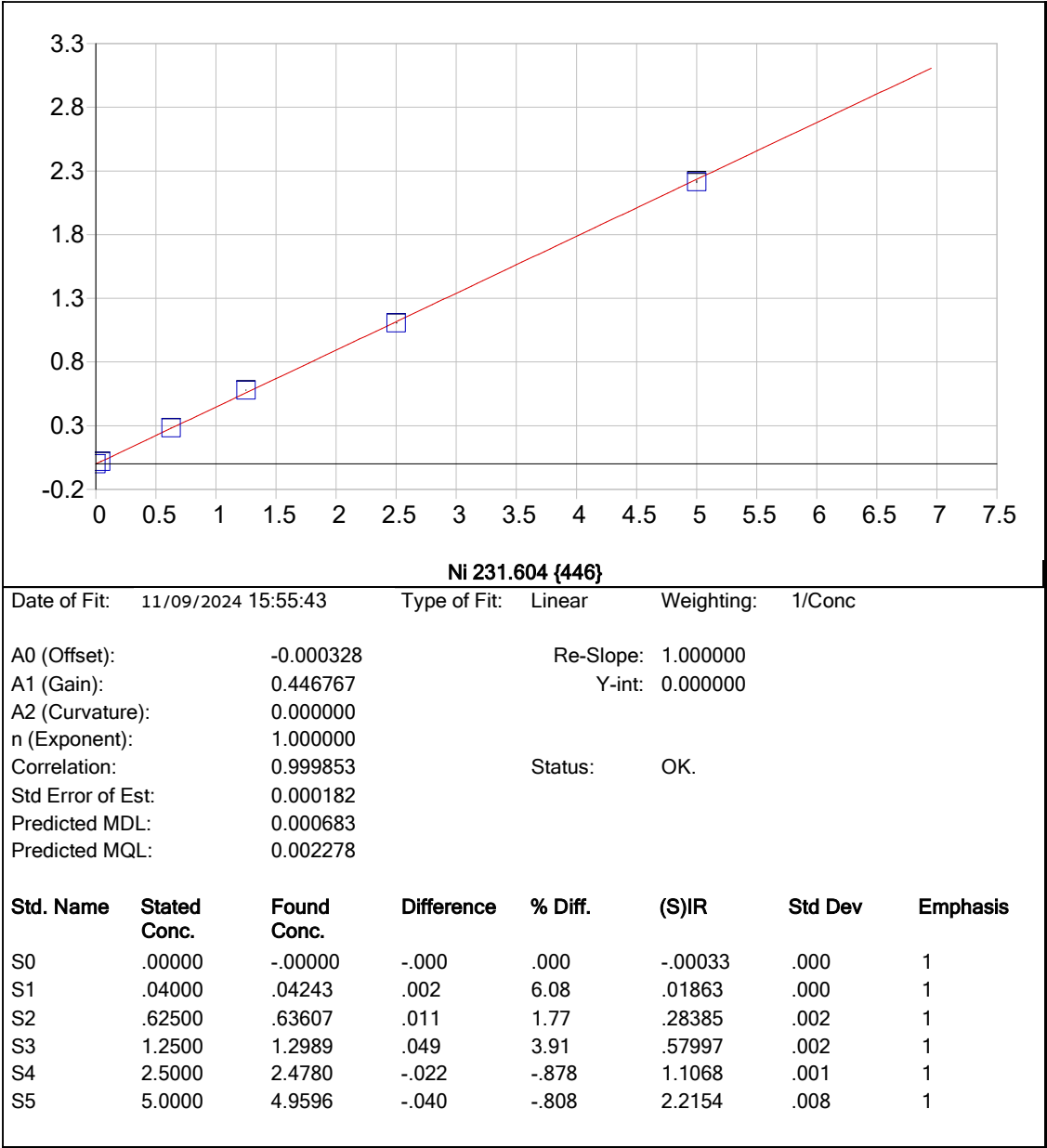


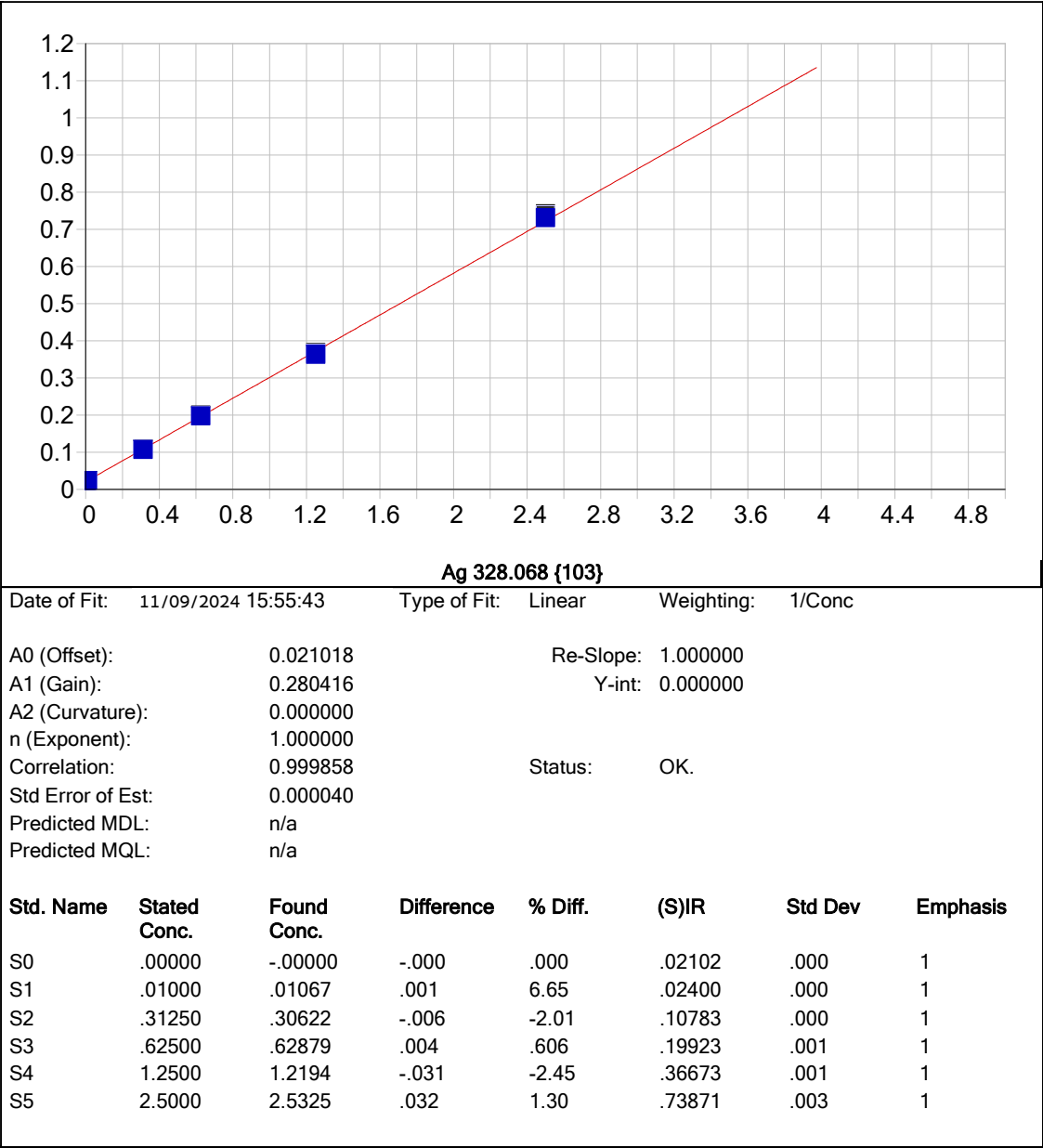


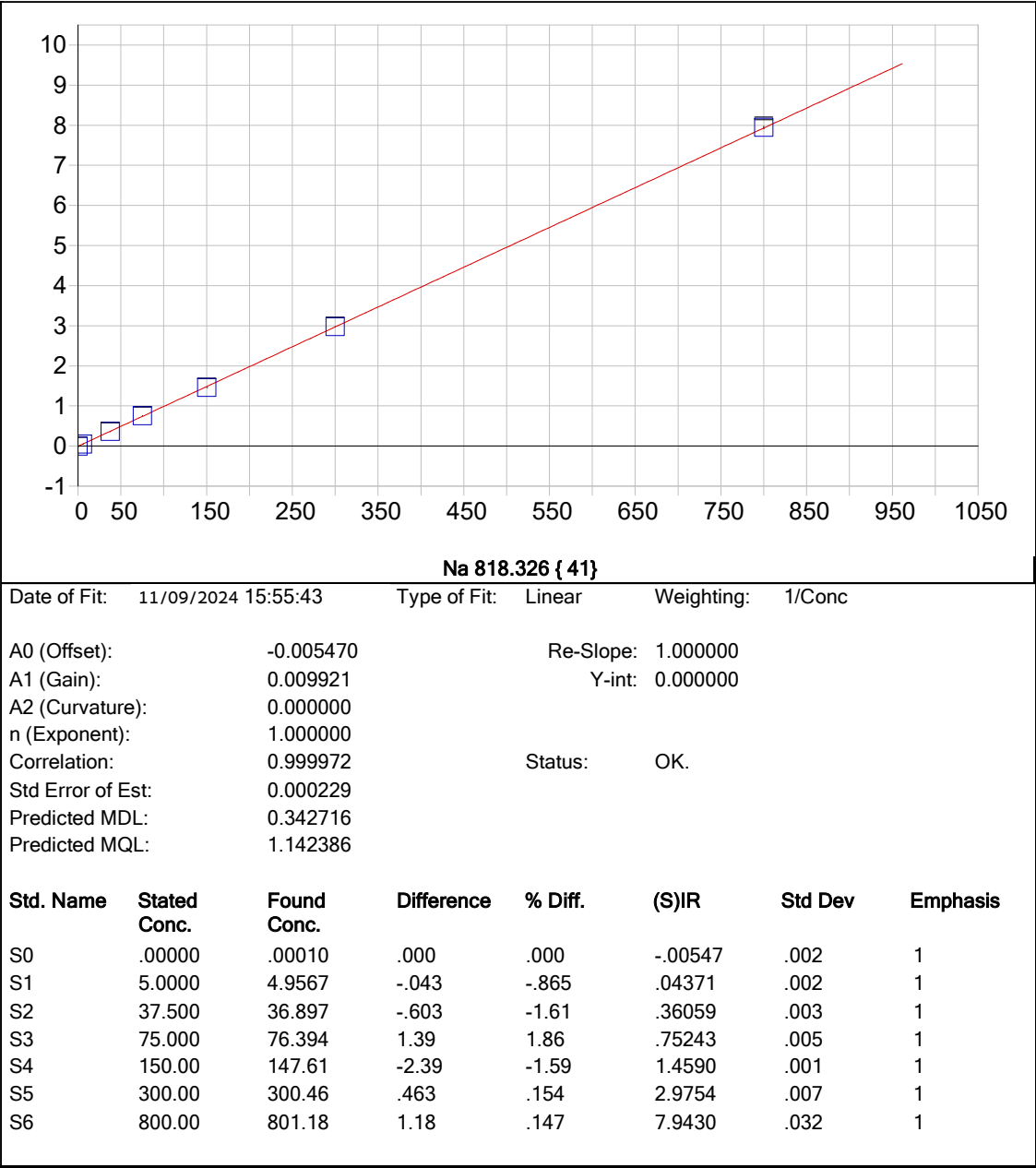


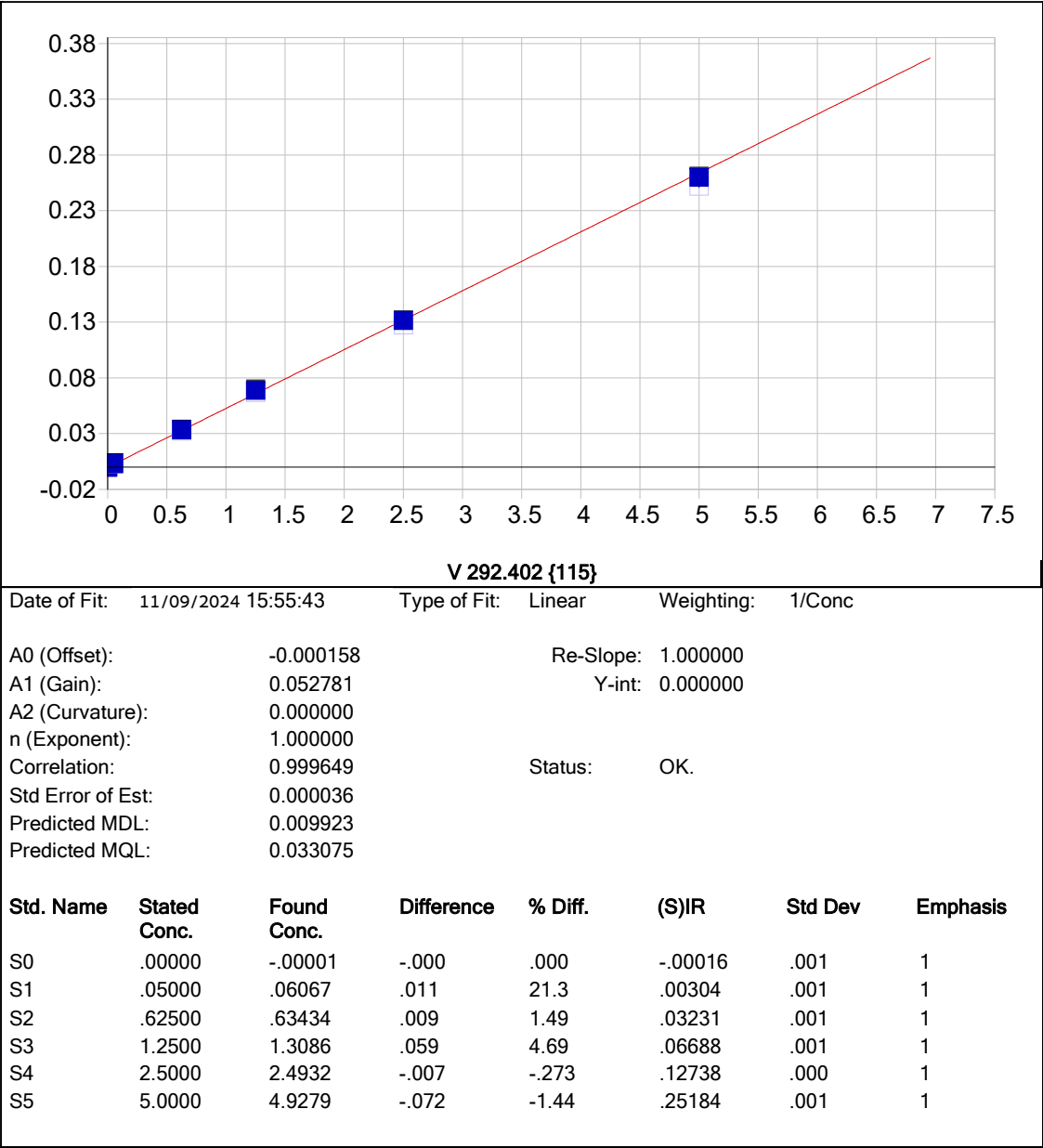


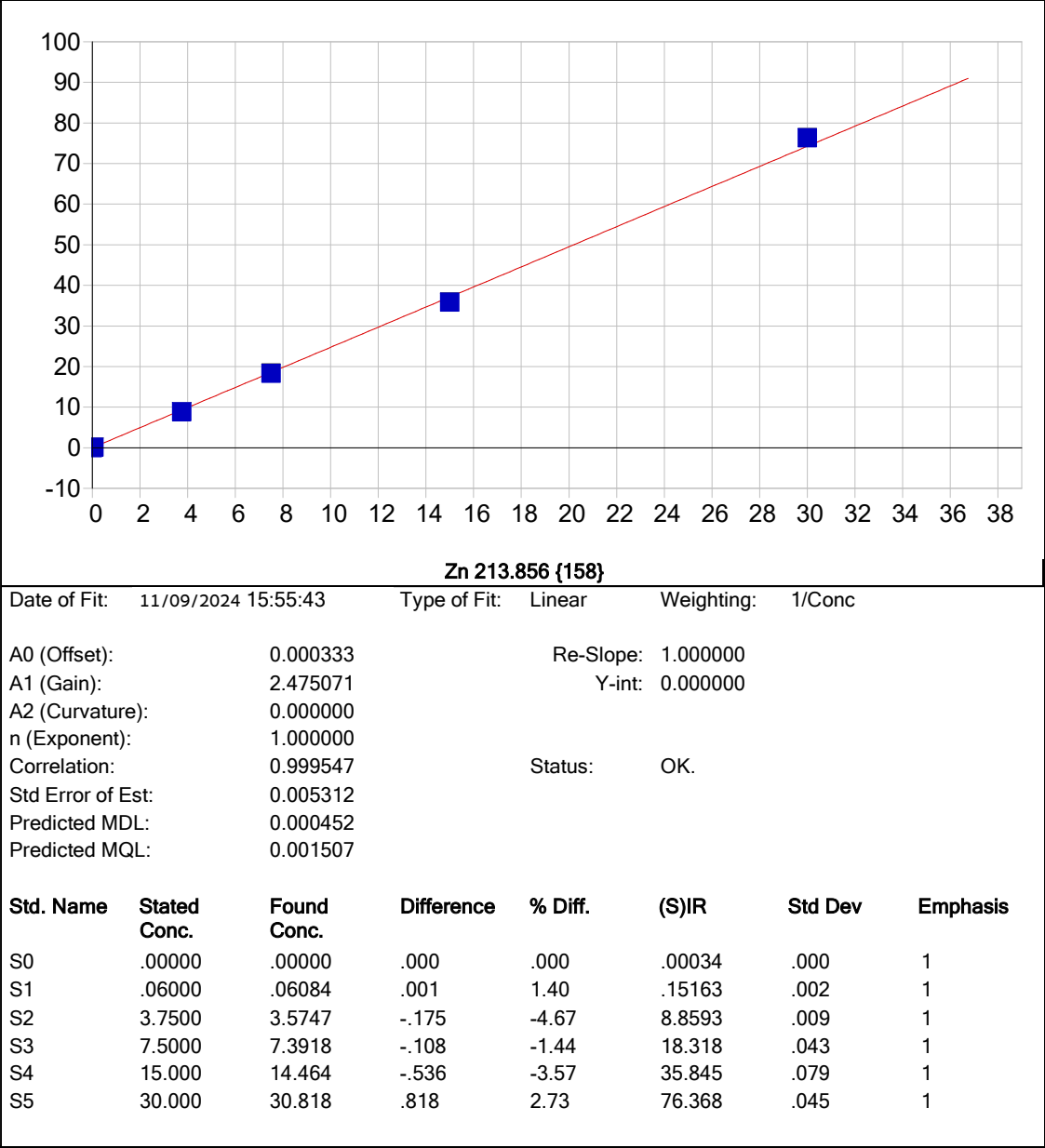


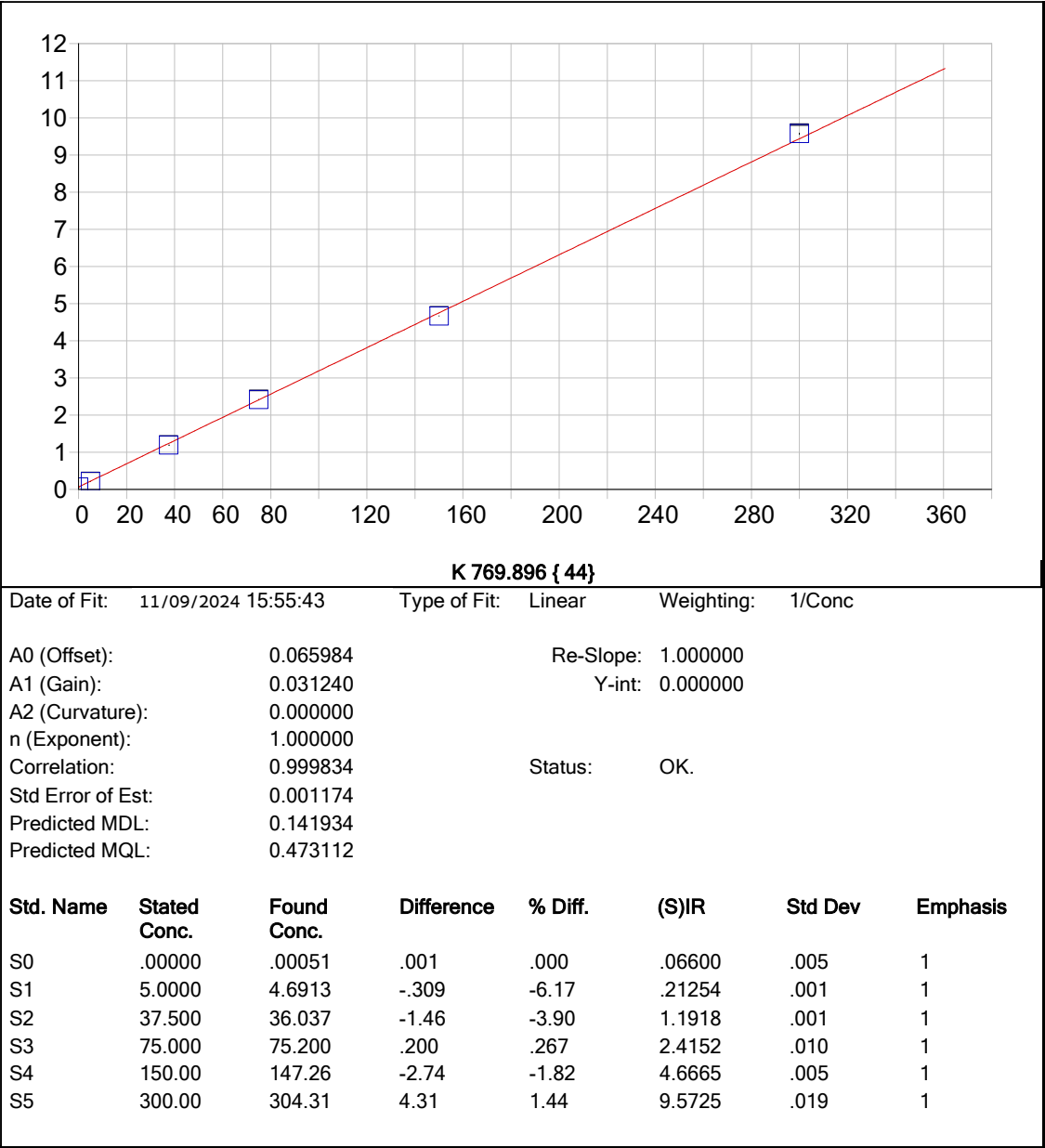


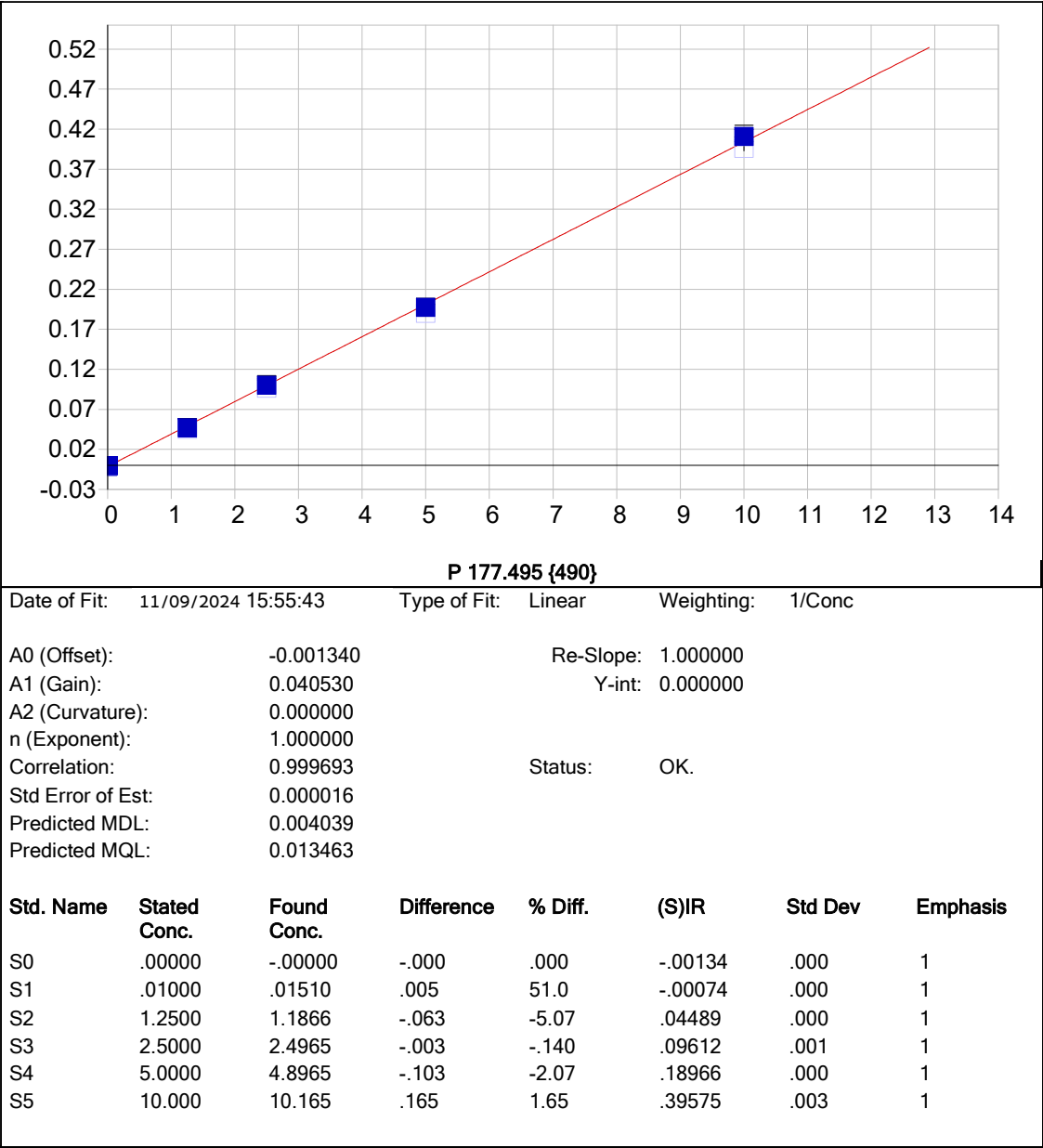


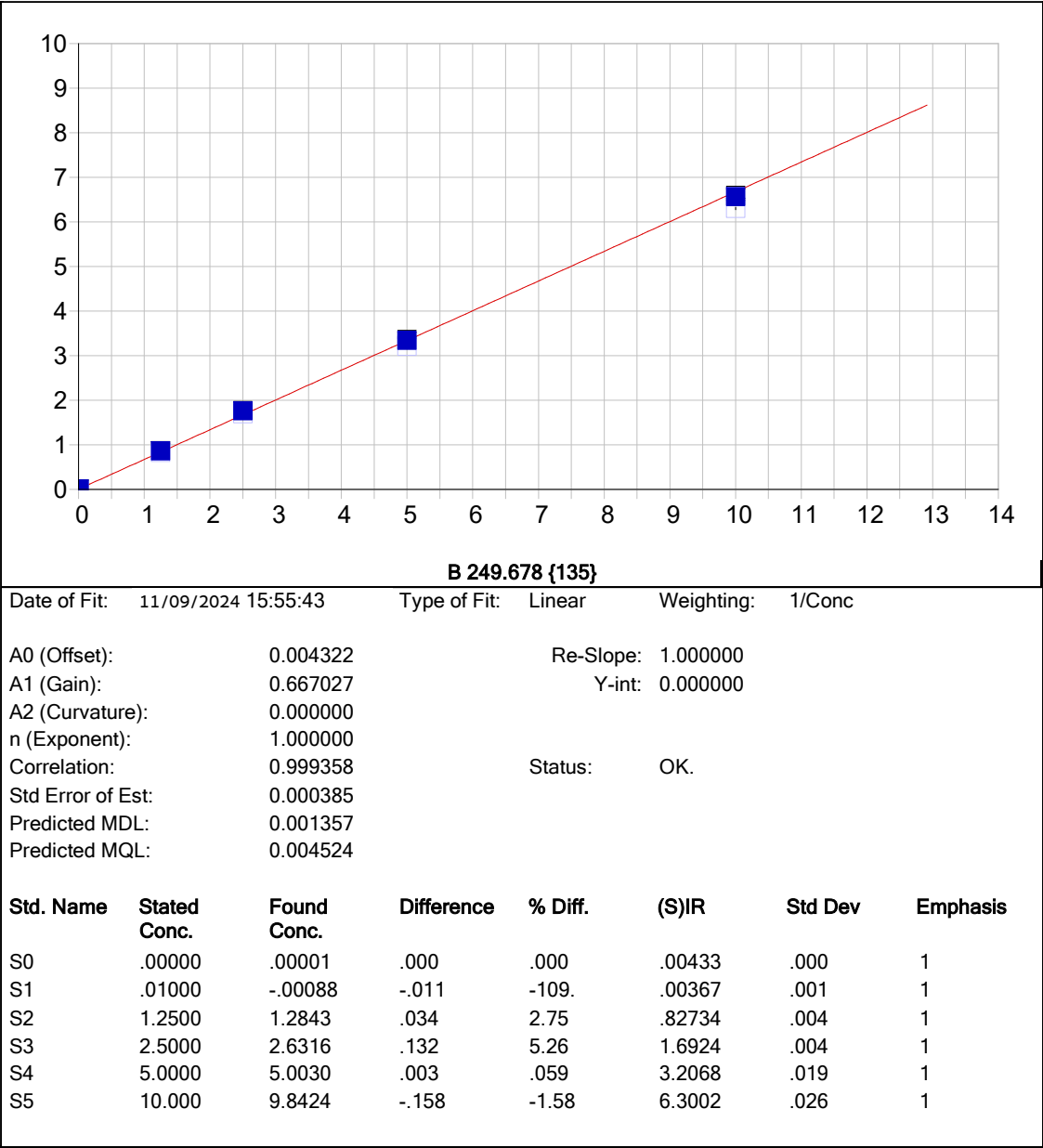


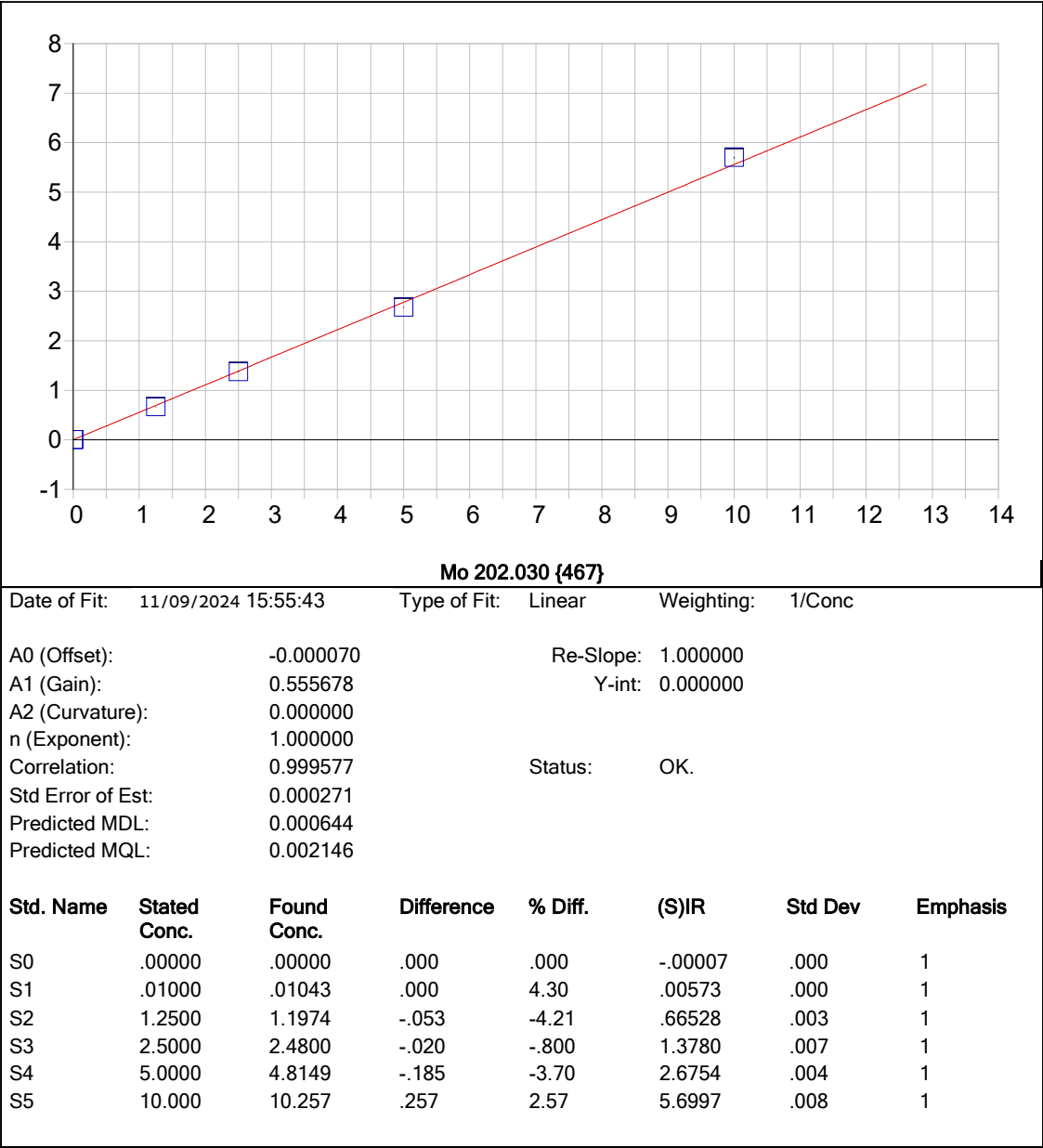


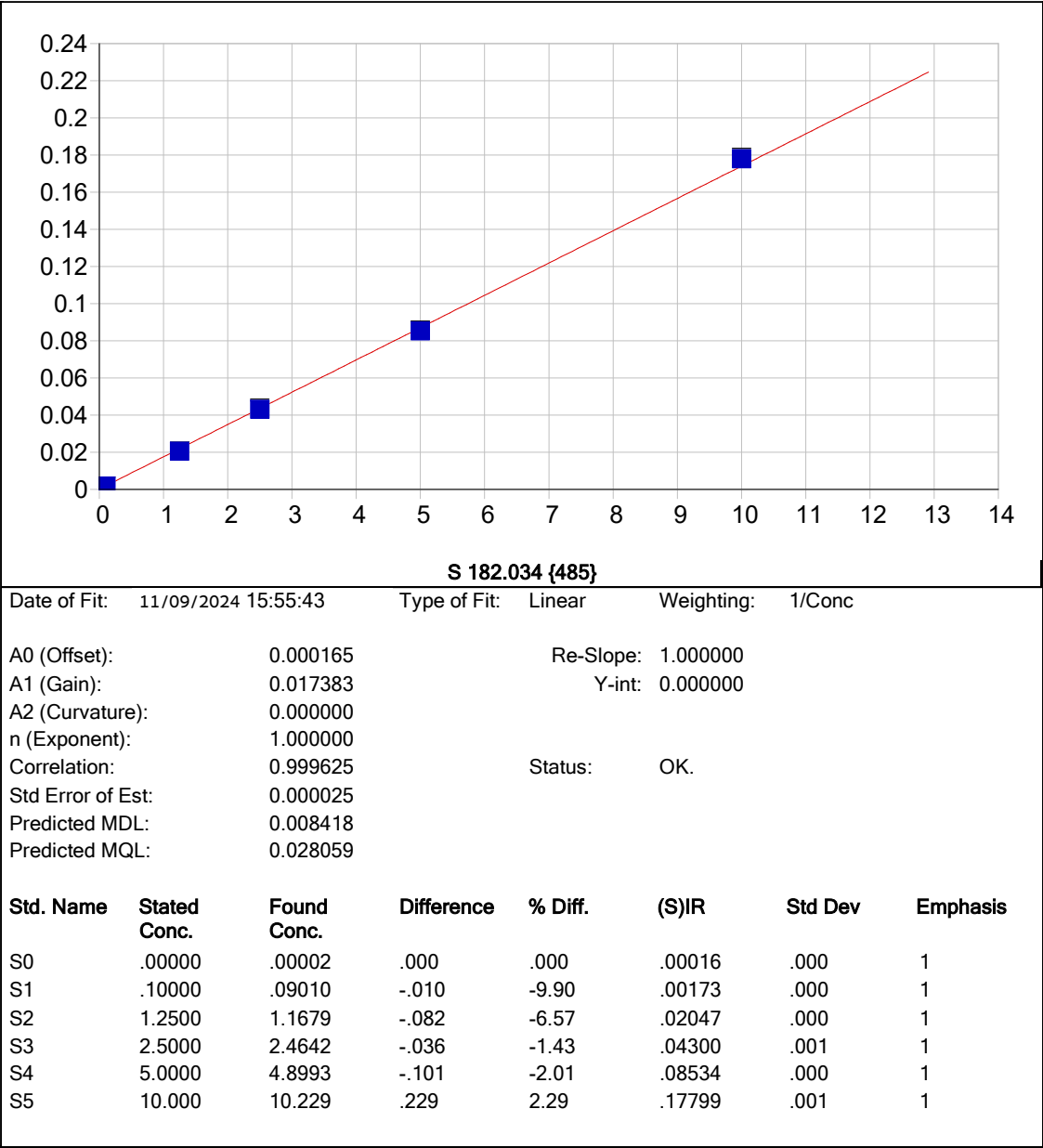


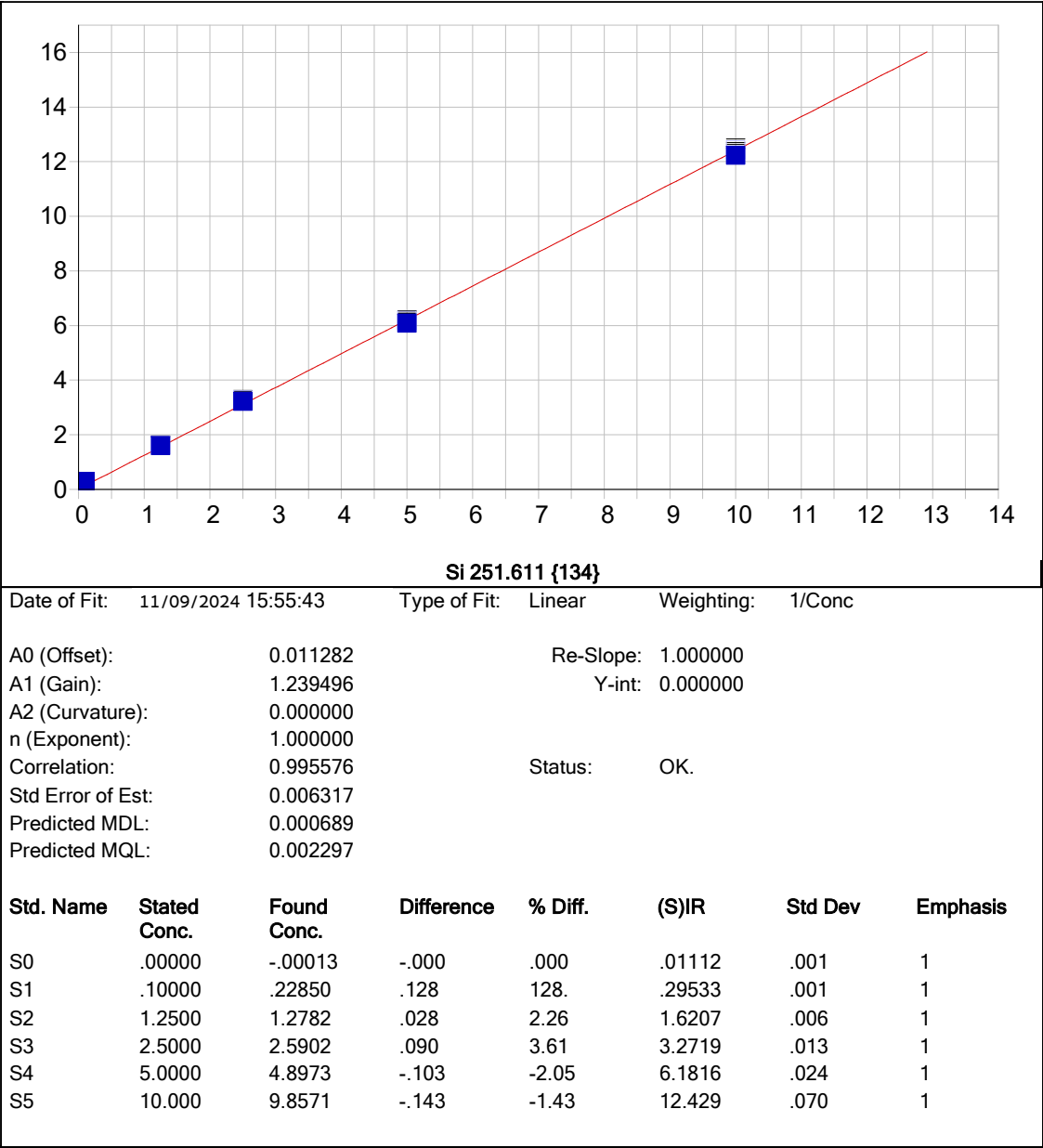


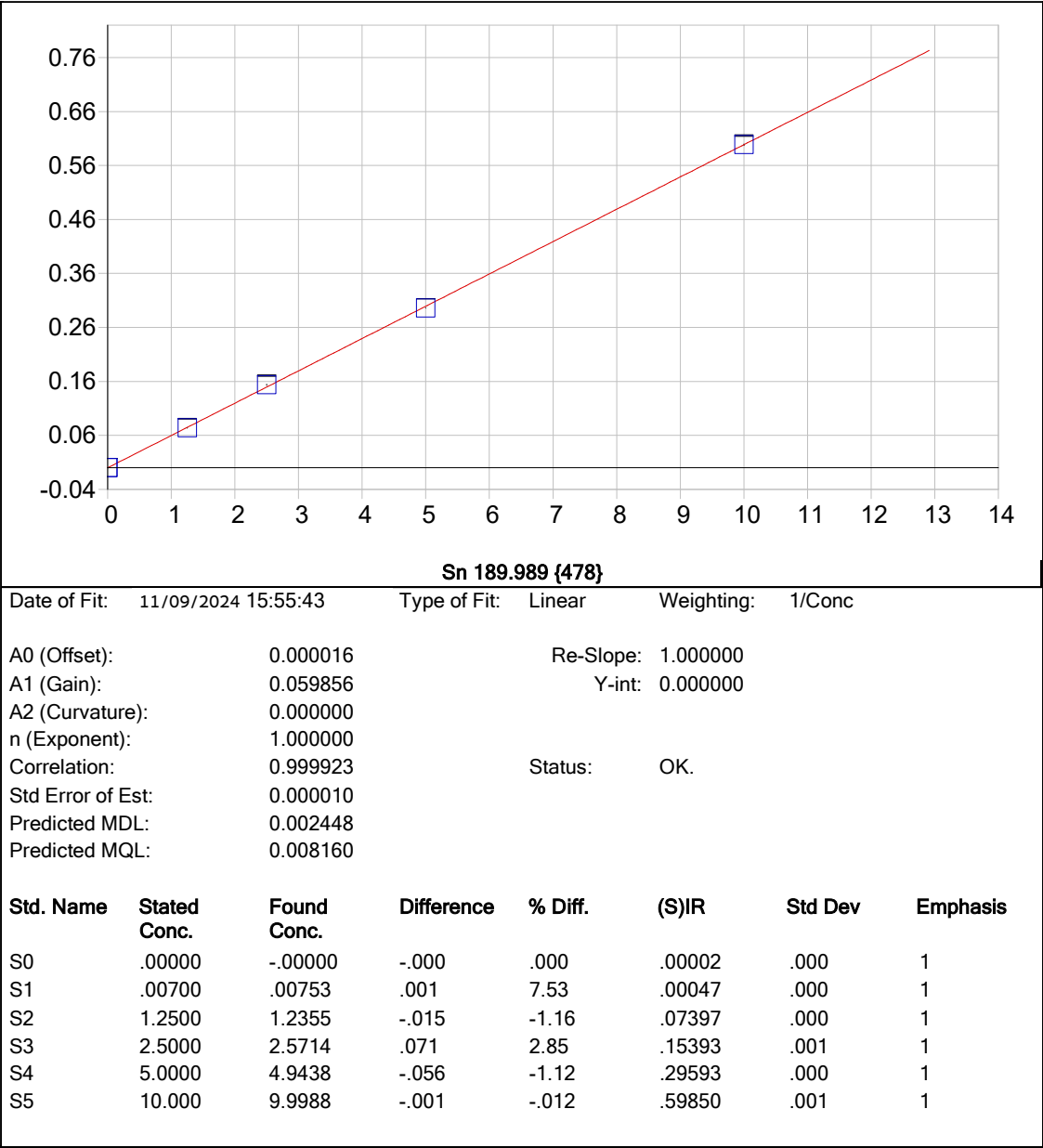


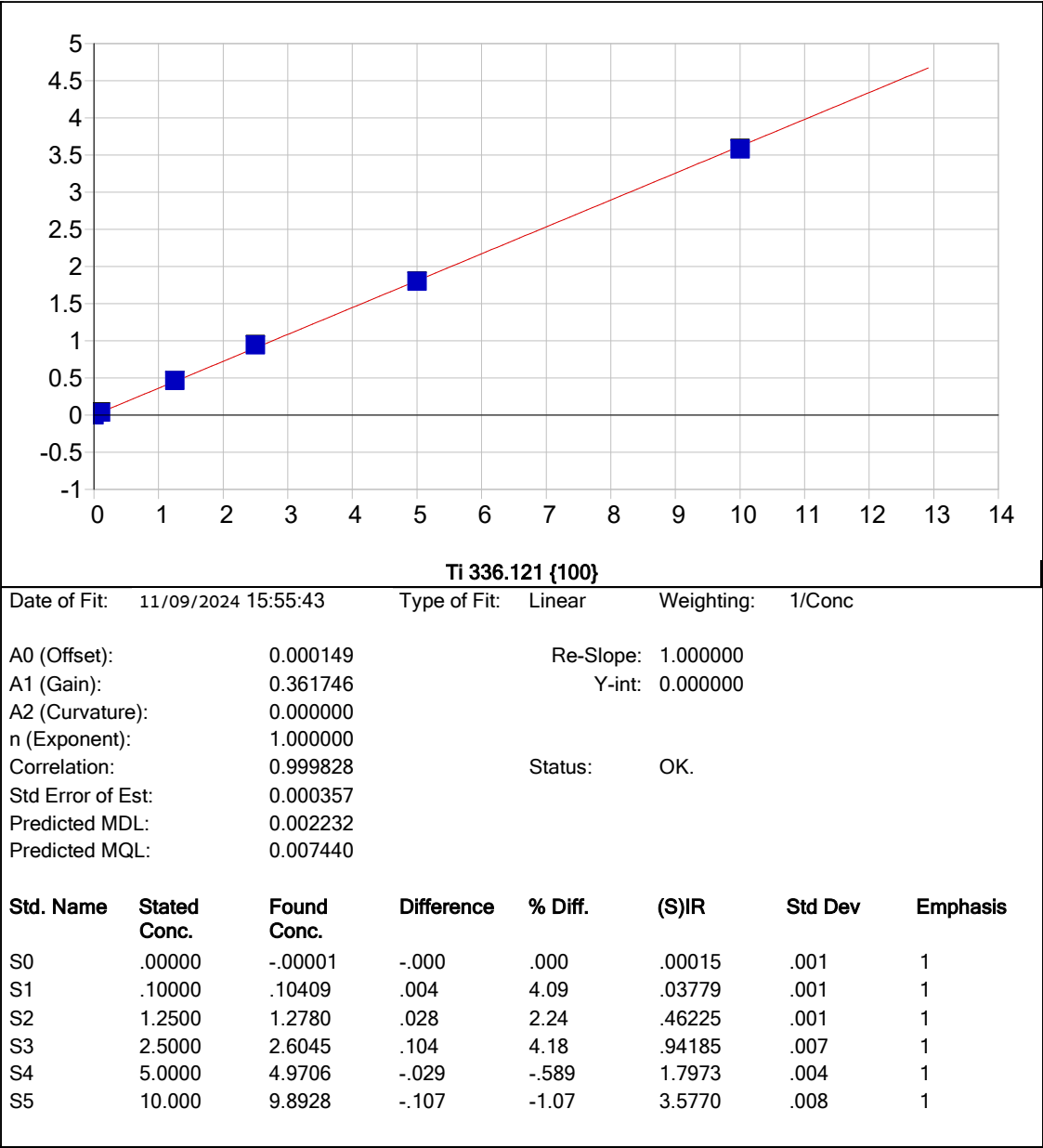


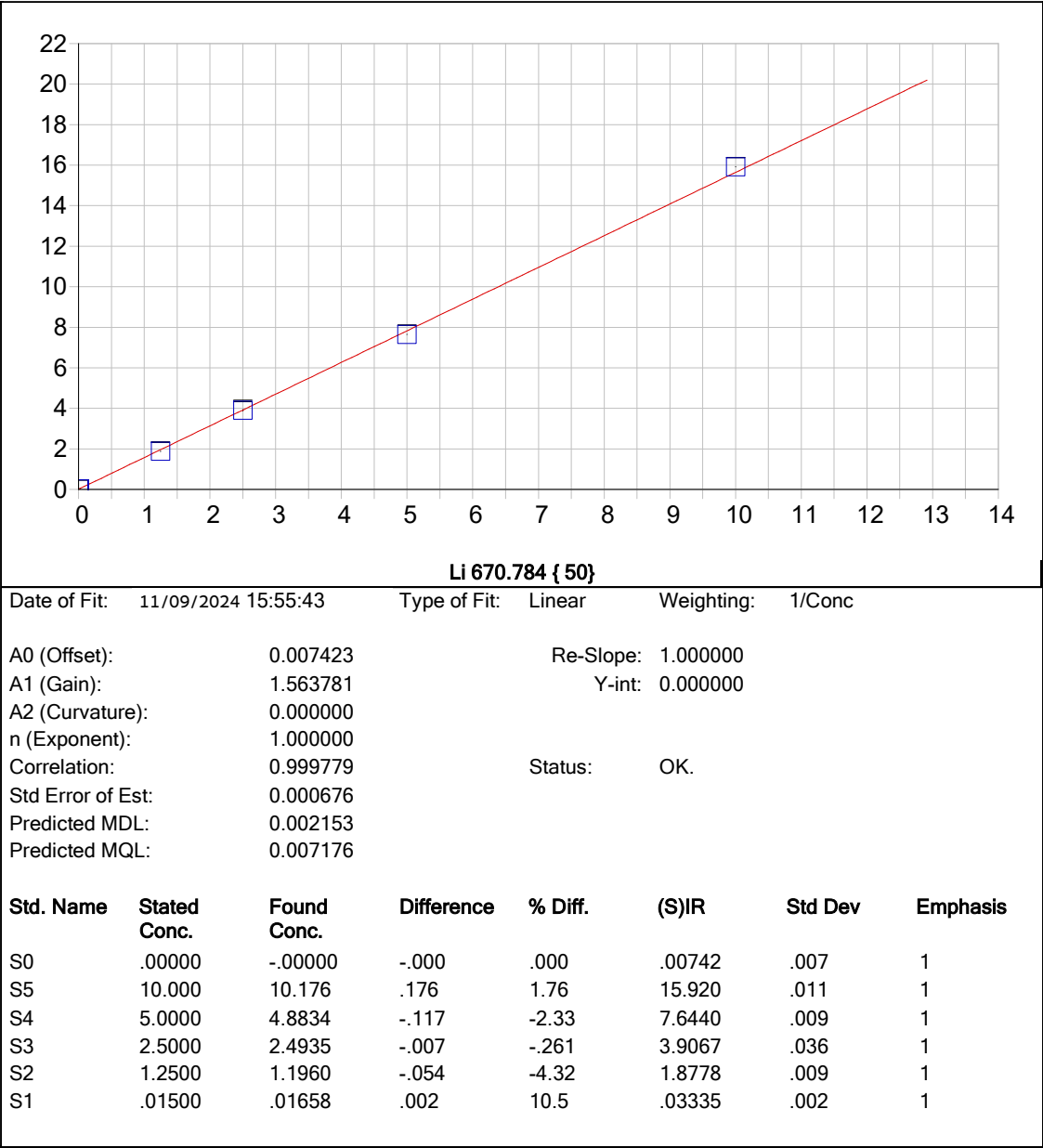


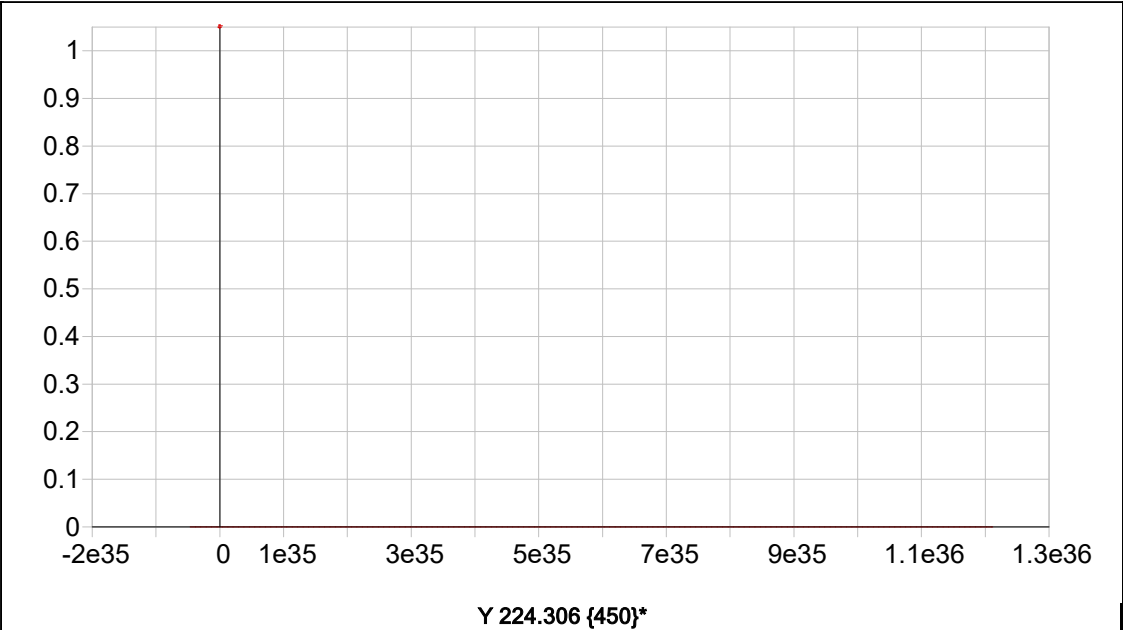






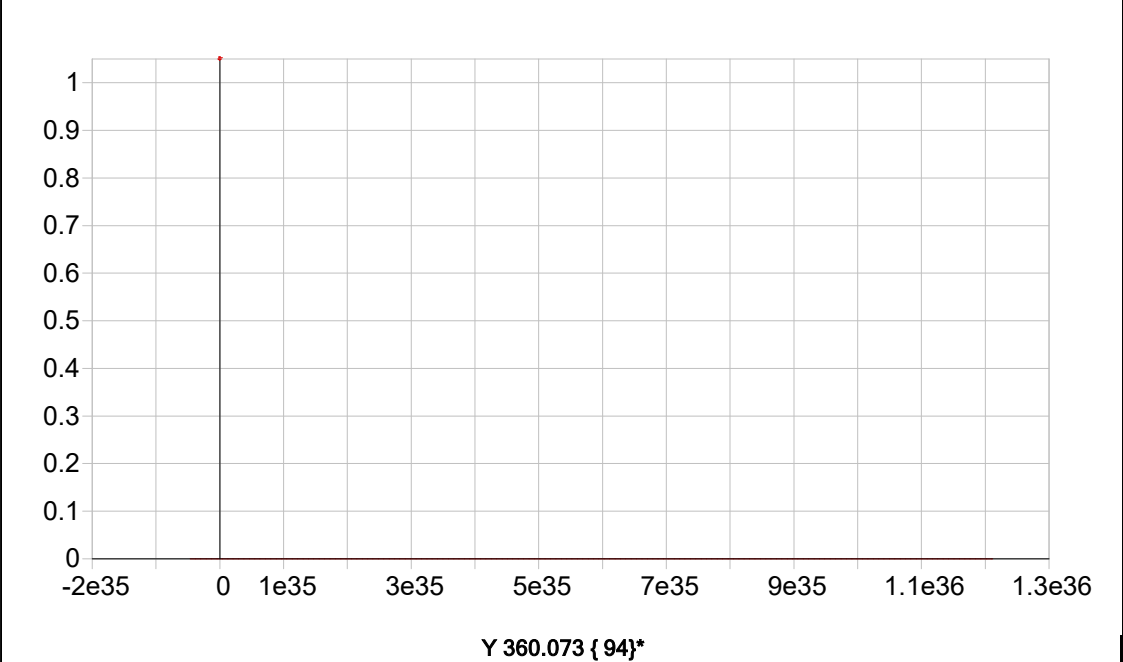




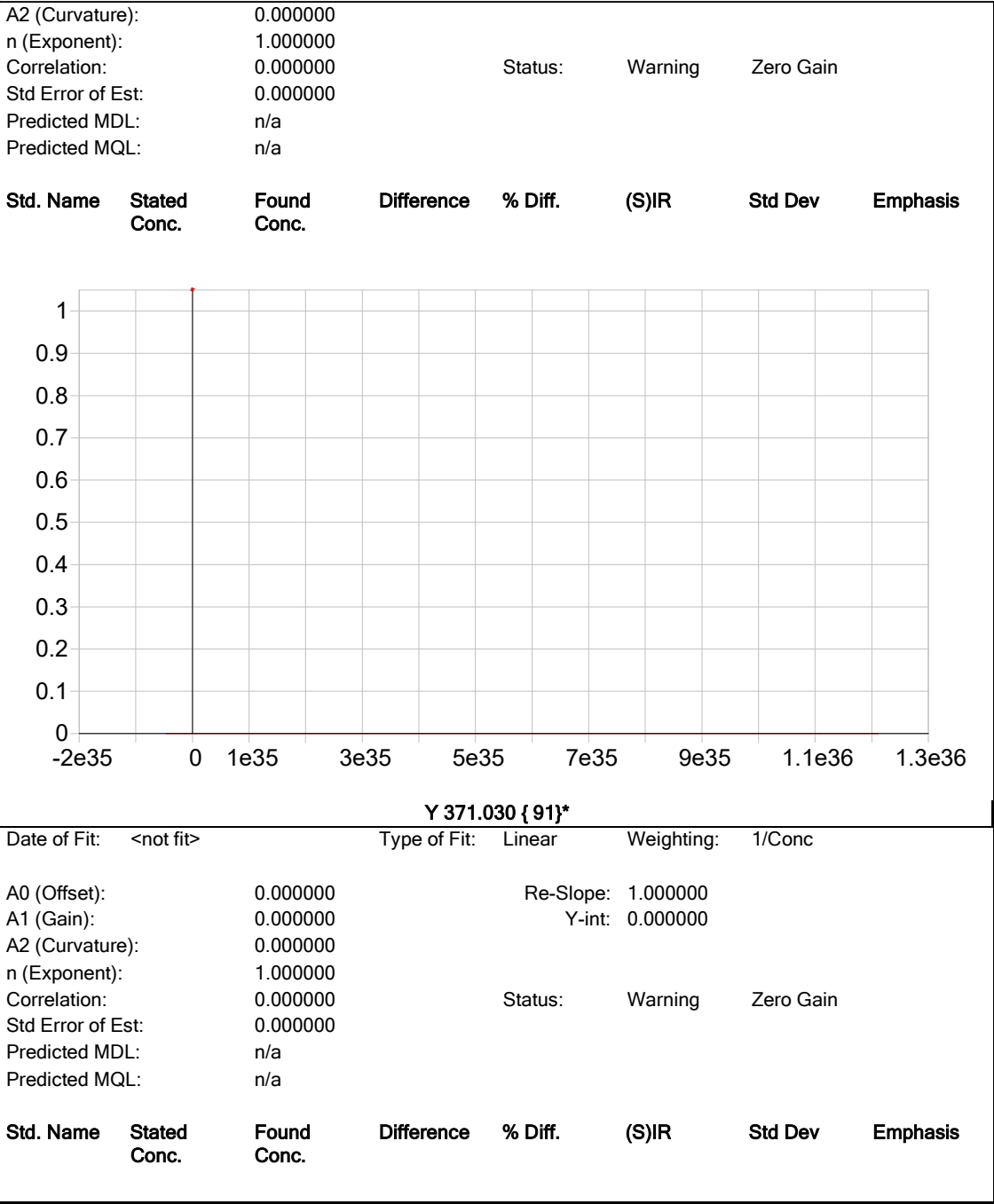


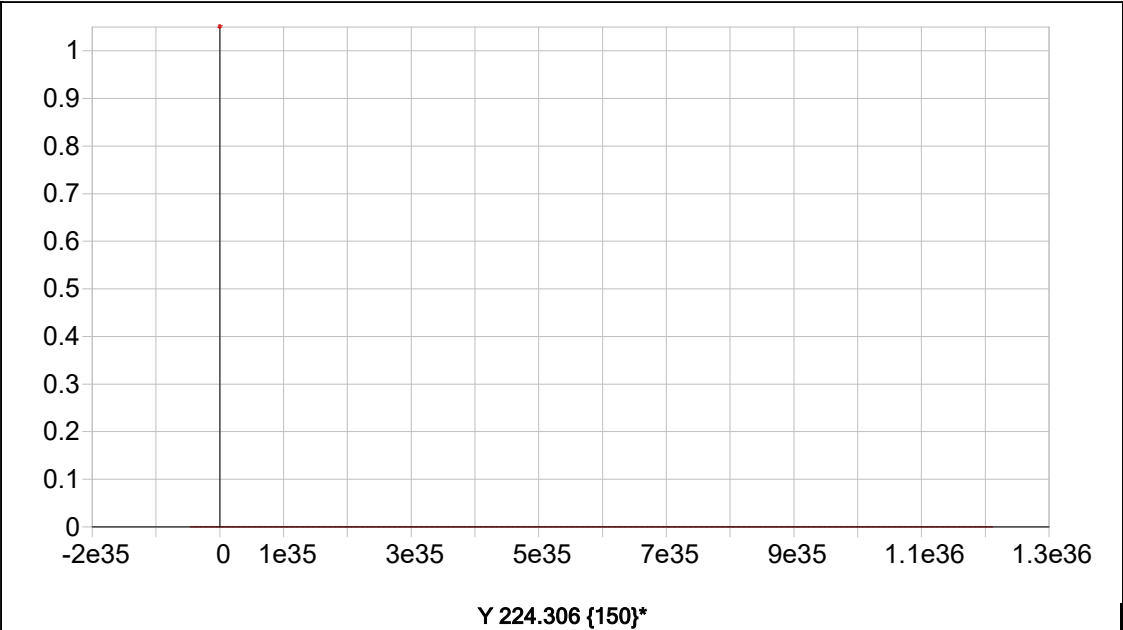
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A0 (Offset):	0.000000		Re-Slope:	1.000000	
A1 (Gain):	0.000000		Y-int:	0.000000	
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000		Status:	Warning	Zero Gain
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted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

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
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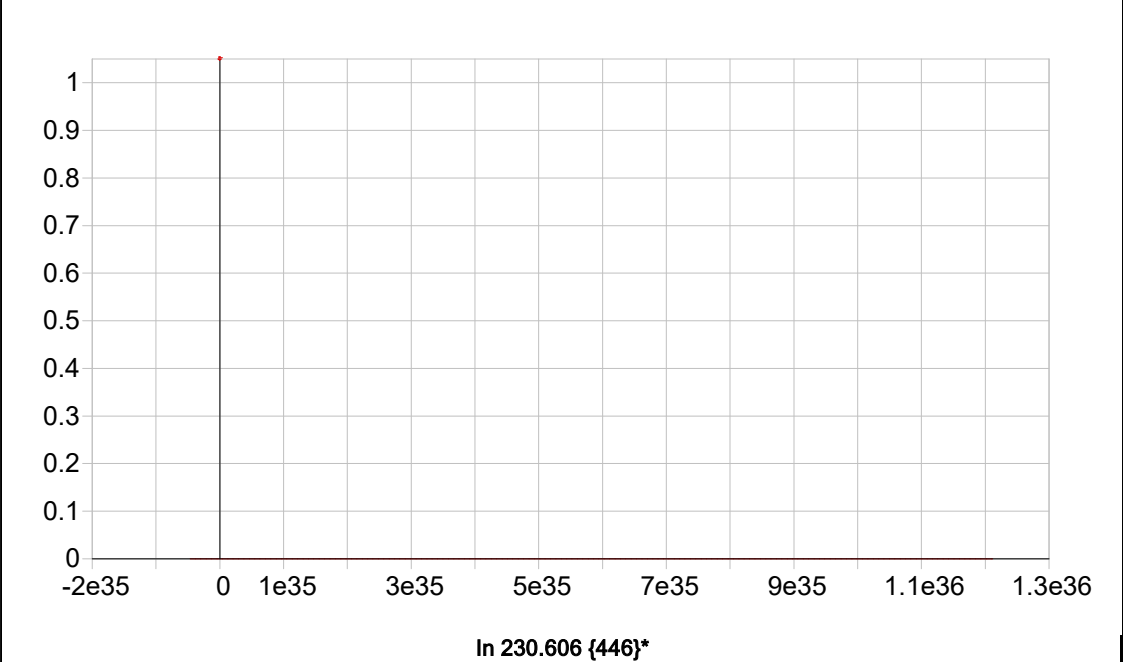


Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc
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A1 (Gain):	0.000000	Y-int:	0.000000		

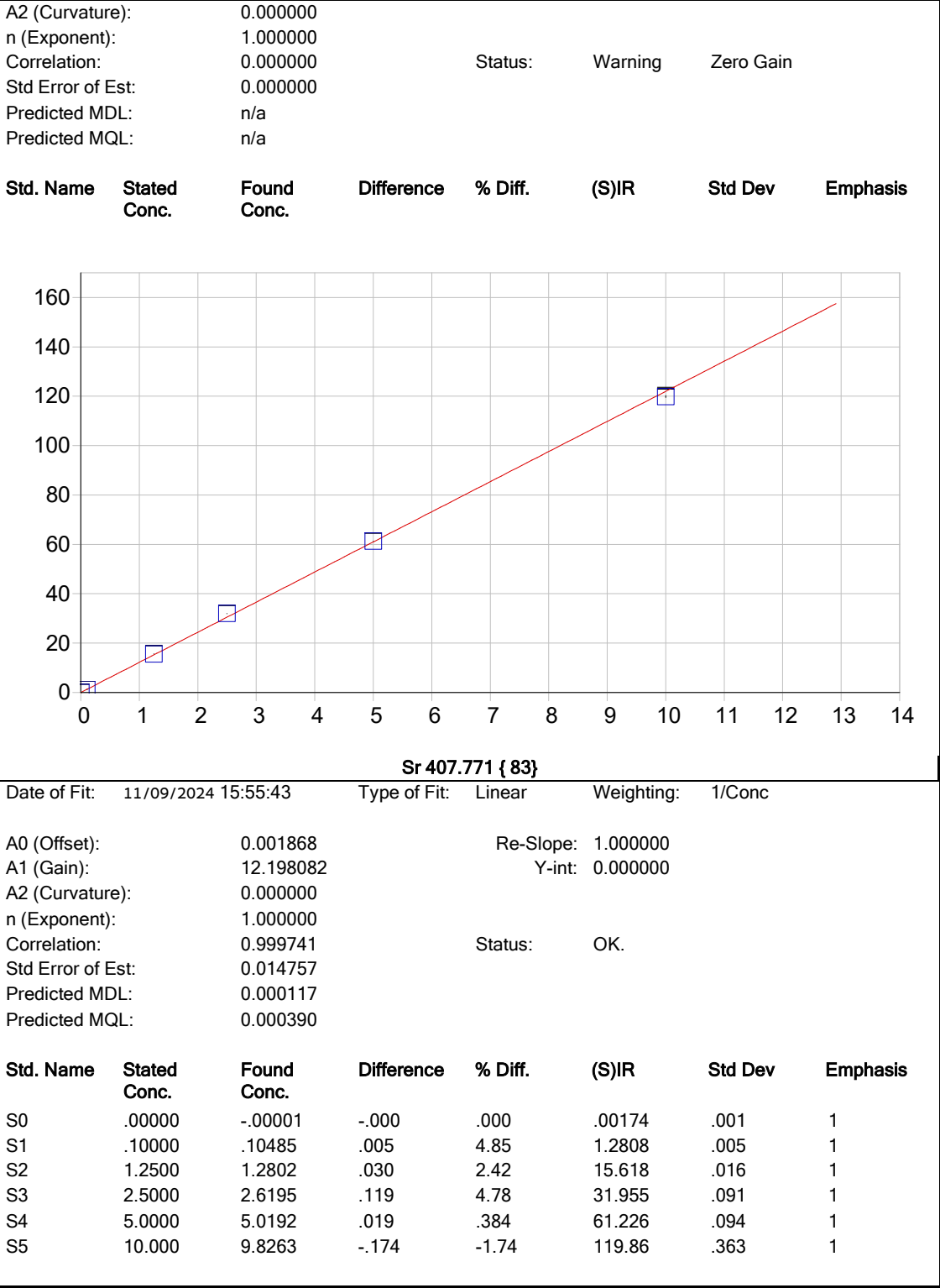




Date of Fit:	<not fit>		Type of Fit:	Linear	Weighting:	1/Conc	
A0 (Offset):	0.000000		Re-Slope:	1.000000			
A1 (Gain):	0.000000		Y-int:	0.000000			
A2 (Curvature):	0.000000						
n (Exponent):	1.000000						
Correlation:	0.000000		Status:	Warning	Zero Gain		
Std Error of Est:	0.000000						
Predicted MDL:	n/a						
Predicted MQL:	n/a						
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis



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			



Sample Name: S0 Acquired: 11/09/2024 16:11:02 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) 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	.00011	-.00008	-.00051	.00062	.00000	-.00309	.00194	-.00111
Stddev	.00007	.00015	.00030	.00005	.00069	.00044	.00213	.00062
%RSD	58.616	188.05	58.291	7.5345	100800.	14.292	109.82	55.861

#1	.00019	.00007	-.00085	.00067	-.00019	-.00348	.00181	-.00072
#2	.00006	-.00009	-.00036	.00058	-.00057	-.00261	.00413	-.00080
#3	.00009	-.00023	-.00032	.00060	.00077	-.00318	-.00012	-.00183

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	.00068	.00438	-.00017	-.00048	.00078	.00018	-.00038	-.00071
Stddev	.00011	.00076	.00007	.00027	.00096	.00015	.00020	.00009
%RSD	16.132	17.262	39.318	55.196	122.61	82.585	53.663	13.326

#1	.00080	.00503	-.00021	-.00019	.00151	.00006	-.00015	-.00078
#2	.00058	.00457	-.00009	-.00071	-.00031	.00035	-.00052	-.00060
#3	.00067	.00355	-.00020	-.00054	.00115	.00014	-.00047	-.00075

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	.02102	-.00547	-.00016	.00034	.06600	-.00134	.00433
Stddev	.00015	.00014	.00209	.00062	.00041	.00542	.00003	.00005
%RSD	44.720	.65773	38.201	387.68	118.82	8.2177	2.5588	1.1363

#1	-.00023	.02113	-.00787	.00033	.00000	.06268	-.00137	.00438
#2	-.00050	.02106	-.00442	.00005	.00079	.06307	-.00130	.00429
#3	-.00026	.02086	-.00411	-.00085	.00023	.07226	-.00135	.00432

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	-.00007	.00016	.01112	.00002	.00015	.00742	.00174	
Stddev	.00008	.00008	.00108	.00004	.00060	.00669	.00076	
%RSD	116.46	48.483	9.6957	274.04	413.62	90.141	43.702	

#1	.00002	.00019	.01097	.00006	-.00029	.00560	.00251	
#2	-.00013	.00007	.01226	.00000	-.00011	.00183	.00099	
#3	-.00011	.00023	.01012	-.00002	.00083	.01483	.00172	

Sample Name: S0 Acquired: 11/09/2024 16:11:02 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) 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	1145.3	29112.	2954.9	1050.7	2207.3
Stddev	2.2	136.	7.9	8.3	.7
%RSD	.18969	.46842	.26574	.79440	.03028
#1	1146.1	29040.	2963.3	1048.4	2206.6
#2	1146.9	29027.	2953.6	1043.8	2207.9
#3	1142.8	29269.	2947.7	1060.0	2207.3

Sample Name: S1 Acquired: 11/09/2024 16:15:41 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) 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	.00036	.00100	.00036	.00188	.00849	.01497	.95633	.02628
Stddev	.00012	.00022	.00037	.00026	.00032	.00055	.00055	.00059
%RSD	33.627	22.030	103.58	13.704	3.7695	3.6434	.05783	2.2528
#1	.00050	.00116	.00062	.00216	.00847	.01477	.95694	.02559
#2	.00028	.00075	-.00007	.00180	.00818	.01558	.95615	.02667
#3	.00031	.00110	.00052	.00167	.00882	.01455	.95588	.02656
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	.00881	.30265	.00125	.02346	.00321	.00106	.00313	.02073
Stddev	.00019	.00032	.00001	.00030	.00055	.00026	.00013	.00014
%RSD	2.1532	.10555	.66842	1.2743	17.016	24.992	4.2748	.68760
#1	.00862	.30282	.00125	.02327	.00381	.00085	.00299	.02086
#2	.00880	.30284	.00126	.02330	.00308	.00097	.00315	.02074
#3	.00900	.30228	.00125	.02380	.00274	.00136	.00325	.02058
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	.01863	.02400	.04371	.00304	.15163	.21254	-.00074	.00367
Stddev	.00028	.00020	.00164	.00065	.00193	.00114	.00008	.00089
%RSD	1.4920	.84204	3.7450	21.301	1.2722	.53421	10.164	24.310
#1	.01849	.02422	.04519	.00356	.15003	.21148	-.00082	.00283
#2	.01895	.02397	.04398	.00231	.15108	.21240	-.00067	.00461
#3	.01845	.02382	.04195	.00324	.15377	.21374	-.00073	.00357
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	.00573	.00173	.29533	.00047	.03779	.03335	1.2808	
Stddev	.00049	.00019	.00123	.00011	.00098	.00163	.0046	
%RSD	8.5323	10.707	.41630	23.230	2.5979	4.8743	.36106	
#1	.00518	.00178	.29400	.00053	.03670	.03154	1.2756	
#2	.00588	.00152	.29558	.00034	.03859	.03468	1.2824	
#3	.00612	.00188	.29642	.00052	.03808	.03383	1.2845	

Sample Name: S1 Acquired: 11/09/2024 16:15:41 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) 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	1147.7	29276.	2928.1	1059.0	2185.9
Stddev	1.6	98.	10.7	2.8	.7
%RSD	.13608	.33388	.36383	.26601	.03369
#1	1148.5	29179.	2937.7	1059.7	2186.4
#2	1145.9	29274.	2916.6	1055.8	2186.3
#3	1148.6	29374.	2930.0	1061.3	2185.1

Sample Name: S2 Acquired: 11/09/2024 16:20:21 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) 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	.02779	.06008	.69375	.05235	.17279	3.3184	11.587	.65984
Stddev	.00032	.00062	.00195	.00072	.00102	.0066	.023	.00193
%RSD	1.1383	1.0262	.28092	1.3706	.59155	.19909	.19423	.29305

#1	.02748	.05939	.69229	.05152	.17236	3.3160	11.592	.65773
#2	.02776	.06025	.69299	.05269	.17206	3.3258	11.607	.66028
#3	.02811	.06059	.69596	.05283	.17396	3.3133	11.563	.66152

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	.98030	3.5318	.44373	.29630	.39351	.36636	.77100	.24169
Stddev	.00347	.0087	.00057	.00117	.00068	.00107	.00059	.00127
%RSD	.35376	.24588	.12805	.39403	.17282	.29301	.07637	.52574

#1	.97774	3.5227	.44314	.29537	.39337	.36724	.77100	.24261
#2	.97892	3.5400	.44378	.29593	.39425	.36667	.77158	.24221
#3	.98425	3.5326	.44427	.29761	.39291	.36516	.77041	.24024

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	.28385	.10783	.36059	.03231	8.8593	1.1918	.04489	.82734
Stddev	.00171	.00017	.00269	.00053	.0089	.0014	.00026	.00427
%RSD	.60376	.15912	.74610	1.6270	.10081	.11895	.57949	.51634

#1	.28222	.10782	.36317	.03183	8.8631	1.1927	.04459	.82272
#2	.28368	.10766	.36078	.03287	8.8491	1.1924	.04503	.83115
#3	.28564	.10800	.35780	.03223	8.8658	1.1901	.04504	.82816

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	.66528	.02047	1.6207	.07397	.46225	1.8778	15.618	
Stddev	.00337	.00018	.0056	.00031	.00133	.0090	.016	
%RSD	.50691	.88101	.34803	.41311	.28717	.47718	.10277	

#1	.66339	.02036	1.6153	.07364	.46115	1.8791	15.631	
#2	.66328	.02036	1.6201	.07401	.46187	1.8860	15.622	
#3	.66917	.02068	1.6266	.07425	.46373	1.8682	15.600	

Sample Name: S2 Acquired: 11/09/2024 16:20:21 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) 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	1090.8	28709.	2930.5	1003.0	1995.0
Stddev	3.9	70.	7.3	3.9	4.8
%RSD	.36194	.24242	.24984	.38434	.23932
#1	1092.7	28666.	2937.7	999.88	1998.6
#2	1093.5	28671.	2923.1	1001.9	1996.9
#3	1086.3	28789.	2930.6	1007.3	1989.6

Sample Name: S3 Acquired: 11/09/2024 16:24:46 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) 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	.05876	.12235	1.4346	.10827	.36205	6.8478	24.050	1.3405
Stddev	.00046	.00004	.0060	.00019	.00265	.0319	.154	.0072
%RSD	.78167	.03584	.41934	.17882	.73163	.46563	.64202	.53770
#1	.05823	.12233	1.4286	.10818	.36177	6.8139	23.877	1.3467
#2	.05909	.12231	1.4347	.10814	.35955	6.8772	24.174	1.3423
#3	.05895	.12240	1.4406	.10849	.36482	6.8522	24.098	1.3326

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	2.0238	7.2230	.89458	.61345	.79817	.74684	1.5732	.50199
Stddev	.0103	.0433	.00138	.00313	.00094	.00587	.0084	.00459
%RSD	.50702	.59912	.15396	.50966	.11790	.78575	.53546	.91409
#1	2.0140	7.1739	.89299	.61048	.79710	.74088	1.5642	.49692
#2	2.0228	7.2556	.89535	.61317	.79853	.75261	1.5808	.50587
#3	2.0345	7.2394	.89541	.61671	.79888	.74703	1.5747	.50317

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	.57997	.19923	.75243	.06688	18.318	2.4152	.09612	1.6924
Stddev	.00245	.00097	.00545	.00081	.043	.0095	.00102	.0045
%RSD	.42248	.48623	.72482	1.2080	.23521	.39553	1.0568	.26295
#1	.57749	.19814	.74638	.06632	18.294	2.4042	.09517	1.6940
#2	.58002	.19955	.75696	.06652	18.292	2.4210	.09600	1.6958
#3	.58239	.20000	.75395	.06781	18.368	2.4204	.09719	1.6873

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	1.3780	.04300	3.2719	.15393	.94185	3.9067	31.955
Stddev	.0068	.00051	.0126	.00103	.00681	.0357	.091
%RSD	.49078	1.1879	.38536	.66741	.72302	.91377	.28608
#1	1.3753	.04267	3.2740	.15278	.93399	3.8661	31.870
#2	1.3731	.04275	3.2834	.15425	.94592	3.9333	32.051
#3	1.3857	.04359	3.2584	.15475	.94565	3.9207	31.943

Sample Name: S3 Acquired: 11/09/2024 16:24:46 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) 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	1044.3	28128.	2896.2	952.46	1888.0
Stddev	3.7	74.	9.1	3.94	4.0
%RSD	.35046	.26471	.31473	.41397	.20965
#1	1043.0	28213.	2901.6	956.05	1891.3
#2	1048.4	28096.	2885.7	953.08	1889.0
#3	1041.5	28074.	2901.3	948.24	1883.6

Sample Name: S4 Acquired: 11/09/2024 16:29:08 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) 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	.11593	.22992	2.7370	.21108	.71289	13.269	46.128	2.5583
Stddev	.00031	.00032	.0038	.00061	.00100	.009	.048	.0098
%RSD	.26312	.14122	.13725	.28786	.14018	.06946	.10430	.38287

#1	.11559	.23008	2.7379	.21038	.71223	13.259	46.083	2.5473
#2	.11603	.22955	2.7329	.21139	.71241	13.272	46.179	2.5619
#3	.11618	.23014	2.7402	.21146	.71404	13.277	46.122	2.5659

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	3.8539	13.815	1.6847	1.1782	1.5303	1.4080	2.9703	.97443
Stddev	.0060	.019	.0005	.0030	.0015	.0019	.0047	.00253
%RSD	.15636	.14006	.02927	.25257	.09516	.13342	.15982	.25965

#1	3.8521	13.799	1.6842	1.1765	1.5290	1.4067	2.9655	.97155
#2	3.8489	13.836	1.6851	1.1764	1.5319	1.4101	2.9705	.97544
#3	3.8606	13.809	1.6849	1.1816	1.5299	1.4071	2.9749	.97630

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	1.1068	.36673	1.4590	.12738	35.845	4.6665	.18966	3.2068
Stddev	.0008	.00143	.0010	.00023	.079	.0047	.00010	.0186
%RSD	.07351	.38955	.06934	.17959	.21937	.10042	.05101	.58008

#1	1.1064	.36685	1.4578	.12723	35.756	4.6612	.18955	3.1880
#2	1.1062	.36809	1.4592	.12764	35.875	4.6682	.18970	3.2074
#3	1.1077	.36524	1.4598	.12727	35.905	4.6701	.18974	3.2251

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	2.6754	.08534	6.1816	.29593	1.7973	7.6440	61.226	
Stddev	.0043	.00023	.0241	.00034	.0042	.0092	.094	
%RSD	.15914	.27430	.38989	.11448	.23356	.11982	.15335	

#1	2.6738	.08539	6.1564	.29587	1.8013	7.6353	61.204	
#2	2.6722	.08554	6.1842	.29563	1.7929	7.6535	61.146	
#3	2.6803	.08508	6.2044	.29630	1.7978	7.6431	61.329	

Sample Name: S4 Acquired: 11/09/2024 16:29:08 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) 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	987.79	27421.	2861.1	877.86	1787.4
Stddev	1.48	94.	4.5	2.06	3.8
%RSD	.14950	.34106	.15777	.23469	.21134
#1	988.56	27341.	2865.5	878.65	1788.7
#2	988.73	27398.	2856.4	875.52	1790.3
#3	986.09	27524.	2861.3	879.41	1783.1

Sample Name: S5 Acquired: 11/09/2024 16:33:26 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) 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	.24329	.44938	5.5510	.44795	1.5647	27.036	91.395	5.1454
Stddev	.00068	.00089	.0116	.00247	.0043	.046	.204	.0332
%RSD	.27793	.19845	.20923	.55201	.27645	.17187	.22278	.64491

#1	.24288	.44926	5.5401	.44914	1.5666	27.060	91.510	5.1678
#2	.24292	.44856	5.5497	.44511	1.5597	27.064	91.515	5.1611
#3	.24407	.45033	5.5632	.44961	1.5677	26.982	91.160	5.1073

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	7.6475	27.566	3.3268	2.3753	3.0761	2.7686	5.8423	2.0286
Stddev	.0198	.062	.0041	.0086	.0067	.0055	.0176	.0030
%RSD	.25891	.22589	.12333	.36119	.21657	.19748	.30065	.14752

#1	7.6288	27.603	3.3233	2.3660	3.0807	2.7691	5.8487	2.0301
#2	7.6455	27.600	3.3259	2.3770	3.0791	2.7738	5.8558	2.0305
#3	7.6683	27.494	3.3313	2.3829	3.0684	2.7629	5.8224	2.0252

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	2.2154	.73871	2.9754	.25184	76.368	9.5725	.39575	6.3002
Stddev	.0077	.00311	.0073	.00084	.045	.0195	.00265	.0263
%RSD	.34855	.42095	.24700	.33501	.05832	.20363	.67078	.41728

#1	2.2079	.73582	2.9789	.25224	76.334	9.5665	.39354	6.3115
#2	2.2152	.73831	2.9803	.25240	76.419	9.5942	.39501	6.3190
#3	2.2233	.74200	2.9670	.25087	76.351	9.5566	.39870	6.2702

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	5.6997	.17799	12.429	.59850	3.5770	15.920	119.86	
Stddev	.0083	.00060	.070	.00130	.0084	.011	.36	
%RSD	.14538	.33573	.56306	.21645	.23623	.07197	.30284	

#1	5.7047	.17748	12.452	.59715	3.5793	15.920	119.57	
#2	5.6901	.17782	12.485	.59864	3.5842	15.931	120.27	
#3	5.7043	.17865	12.351	.59973	3.5677	15.908	119.75	

Sample Name: S5 Acquired: 11/09/2024 16:33:26 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) 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	878.96	26591.	2806.5	744.09	1654.3
Stddev	.64	85.	11.5	.54	4.1
%RSD	.07306	.32038	.40967	.07246	.24599
#1	878.74	26608.	2796.4	743.88	1658.9
#2	879.68	26665.	2804.0	744.71	1652.7
#3	878.45	26498.	2819.0	743.70	1651.2

Sample Name: S6 Acquired: 11/09/2024 16:37:54 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) 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	69.711	43.555	7.1412	3.3531	7.9430
Stddev	.181	.260	.0295	.0256	.0321
%RSD	.26018	.59622	.41311	.76376	.40432
#1	69.824	43.752	7.1655	3.3738	7.9598
#2	69.502	43.260	7.1084	3.3244	7.9059
#3	69.806	43.652	7.1497	3.3610	7.9632
Int. Std.	Y_3710				
Units	Cts/S				
Avg	2745.8				
Stddev	17.8				
%RSD	.64939				
#1	2730.8				
#2	2765.5				
#3	2741.2				

Sample Name: ICV007 Acquired: 11/09/2024 16:52:22 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV007 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.065991	1.040482	.9660102	.9860477	.9444190	2.442781
Stddev	.011578	.002304	.0037796	.0075258	.0076063	.009674
%RSD	1.086157	.2214079	.3912569	.7632313	.8053904	.3960380
#1	1.076122	1.039626	.9640182	.9843160	.9404217	2.443484
#2	1.068480	1.038730	.9703692	.9942884	.9396449	2.432774
#3	1.053370	1.043092	.9636434	.9795387	.9531905	2.452085

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5100541	.5204549	.4945258	10.04951	.5569412	.4892092
Stddev	.0006502	.0011829	.0007729	.02923	.0024216	.0011637
%RSD	.1274793	.2272767	.1562875	.2908785	.4347951	.2378653
#1	.5107490	.5218086	.4938032	10.07508	.5581420	.4883565
#2	.5099528	.5196206	.4944335	10.05579	.5585276	.4887363
#3	.5094605	.5199355	.4953406	10.01764	.5541539	.4905349

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4823018	10.69572	.5329777	6.045603	.4992950	.2394658
Stddev	.0033352	.09710	.0049721	.084665	.0010559	.0004673
%RSD	.6915214	.9078664	.9329004	1.400436	.2114848	.1951201
#1	.4836733	10.58588	.5291641	6.128147	.4995064	.2398329
#2	.4784995	10.77011	.5386013	5.958966	.4981493	.2396246
#3	.4847325	10.73119	.5311677	6.049698	.5002292	.2389398

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.373609	.5312356	.9869910	10.16259	F .0075920	F .0139688
Stddev	.018608	.0056238	.0039274	.16531	.0037363	.0007791
%RSD	.1985144	1.058620	.3979188	1.626611	49.21374	5.577206
#1	9.395077	.5374972	.9824619	9.98911	.0093882	.0135358
#2	9.363640	.5295952	.9890547	10.31828	.0032968	.0148682
#3	9.362108	.5266145	.9894563	10.18038	.0100910	.0135025

Sample Name: ICV007 Acquired: 11/09/2024 16:52:22 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV007 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.000294	F .0157144	F .0016184	F -.001203	F .0006656	F .0053203
Stddev	.000836	.0048182	.0009020	.001711	.0014376	.0010737
%RSD	283.7620	30.66120	55.73419	142.1881	215.9810	20.18112
#1	-.001058	.0133166	.0005769	-.002122	.0022151	.0063050
#2	.000598	.0125655	.0021450	.000771	.0004063	.0054804
#3	-.000424	.0212611	.0021334	-.002259	-.000625	.0041756

Elem	Sr4077
Units	ppm
Avg	F .0014232
Stddev	.0000947
%RSD	6.655394
#1	.0014456
#2	.0015047
#3	.0013192

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1135.866	29040.00	2919.442	1048.672	2153.315
Stddev	1.656	39.81	14.113	3.922	3.294
%RSD	.1457964	.1370758	.4834043	.3739692	.1529531
#1	1134.374	29011.10	2903.600	1052.974	2154.090
#2	1137.648	29023.50	2924.055	1045.296	2156.153
#3	1135.577	29085.41	2930.671	1047.747	2149.703

Sample Name: ICB007 Acquired: 11/09/2024 16:56:49 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB007 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0047610	-.005166	.0012382	.0030553	-.000415	.0186092	.0000447
Stddev	.0032038	.001089	.0037814	.0059716	.000638	.0076215	.0003611
%RSD	67.29174	21.07339	305.3853	195.4520	153.6646	40.95551	807.6908
#1	.0015665	-.006331	.0051467	.0039409	-.000764	.0199959	.0003129
#2	.0079739	-.004995	.0009697	-.003310	.000321	.0103896	.0001872
#3	.0047426	-.004174	-.002402	.008535	-.000801	.0254422	-.000366
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000149	-.000114	.0051566	-.000269	.0002785	-.001706	-.002941
Stddev	.000098	.000067	.0253089	.000394	.0006189	.003801	.031090
%RSD	65.96189	58.65281	490.8027	146.5686	222.1947	222.8736	1057.253
#1	-.000044	-.000136	-.024067	.000060	.0004222	.002358	-.035076
#2	-.000238	-.000039	.019954	-.000161	-.000400	-.002300	.026987
#3	-.000165	-.000168	.019583	-.000706	.000813	-.005174	-.000734
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0022136	.1162663	-.000067	.0002266	-.084323	-.005485	.0003675
Stddev	.0003951	.0987772	.000330	.0002920	.310500	.008974	.0007256
%RSD	17.85013	84.95773	496.5399	128.8397	368.2258	163.6164	197.4713
#1	.0020744	.2170738	-.000183	.0000081	.041851	-.007649	.0011764
#2	.0019068	.0196529	.000306	.0001136	.143228	.004373	.0001523
#3	.0026595	.1120723	-.000323	.0005582	-.438048	-.013180	-.000226
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2213615	.0025051	.0015417	.0001041	.0002185	-.000478	-.001628
Stddev	.1081808	.0017217	.0013473	.0001684	.0015987	.000328	.002115
%RSD	48.87064	68.72951	87.39464	161.6806	731.5791	68.53683	129.9647
#1	.3397621	.0043475	.0002852	.0002981	.0016170	-.000455	-.003578
#2	.1276785	.0009370	.0029644	-.000005	.0005630	-.000817	-.001926
#3	.1966438	.0022307	.0013754	.000019	-.001524	-.000163	.000621

Sample Name: ICB007 Acquired: 11/09/2024 16:56:49 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB007 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0007171	.0046680	.0000876
Stddev	.0023866	.0030730	.0000481
%RSD	332.8314	65.83116	54.97922
#1	-.002038	.0021105	.0001029
#2	.002044	.0080770	.0000336
#3	.002145	.0038166	.0001262

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1139.026	28967.36	2871.501	1044.740	2199.412
Stddev	3.245	57.22	1.937	1.413	4.003
%RSD	.2848519	.1975388	.0674457	.1352019	.1820175
#1	1135.448	28906.16	2872.129	1043.325	2196.624
#2	1139.854	29019.53	2869.329	1046.150	2203.999
#3	1141.776	28976.40	2873.046	1044.746	2197.614

Sample Name: ICSA007 Acquired: 11/09/2024 17:01:24 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA007 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.009209	-.021569	-.005904	-.016979	.0026811	245.6308
Stddev	.007133	.002375	.001953	.009990	.0016075	.5383
%RSD	77.45771	11.01122	33.07716	58.83491	59.95512	.2191486

#1	-.015365	-.018849	-.007837	-.005518	.0045279	245.9509
#2	-.001392	-.022630	-.005941	-.023840	.0019192	245.9321
#3	-.010871	-.023229	-.003932	-.021580	.0015963	245.0093

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0073138	.0004302	-.000031	253.6299	.0543293	.0014012
Stddev	.0003582	.0001508	.000251	.5414	.0019201	.0003507
%RSD	4.897976	35.04271	802.7889	.2134582	3.534240	25.02541

#1	.0074485	.0004373	-.000207	253.5424	.0551829	.0017680
#2	.0069077	.0002760	.000257	254.2098	.0556745	.0010693
#3	.0075851	.0005773	-.000143	253.1376	.0521303	.0013664

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.013508	106.4779	.0135309	253.1966	.0046187	.0029788
Stddev	.003997	.0743	.0005409	.4824	.0003032	.0008860
%RSD	29.58740	.0698189	3.997495	.1905153	6.563679	29.74413

#1	-.014363	106.4237	.0129824	252.6463	.0044368	.0037881
#2	-.009153	106.4474	.0135465	253.3975	.0049687	.0031161
#3	-.017008	106.5626	.0140639	253.5461	.0044507	.0020321

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.221809	.0032189	.0169017	-.145093	.0077179	F .0955465
Stddev	.240480	.0122245	.0003148	.085671	.0067562	.0011025
%RSD	108.4178	379.7727	1.862293	59.04563	87.53917	1.153929

#1	-.494030	.0169554	.0172376	-.172588	.0134732	.0946072
#2	-.133155	-.000835	.0168539	-.049050	.0094013	.0967604
#3	-.038241	-.006464	.0166136	-.213640	.0002792	.0952719

Sample Name: ICSA007 Acquired: 11/09/2024 17:01:24 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA007 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000995	.0055834	.0010555	-.003258	-.000814	.0053297
Stddev	.000447	.0063481	.0008726	.002608	.000333	.0010933
%RSD	44.92260	113.6953	82.67981	80.05023	40.84143	20.51369
#1	-.000489	.0007538	.0002716	-.003227	-.001096	.0044650
#2	-.001157	.0032229	.0008991	-.005883	-.000447	.0049656
#3	-.001337	.0127737	.0019957	-.000666	-.000900	.0065587

Elem	Sr4077
Units	ppm
Avg	F .1047879
Stddev	.0003337
%RSD	.3184202
#1	.1049894
#2	.1049716
#3	.1044028

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1061.741	27509.11	2865.002	987.9056	1840.377
Stddev	1.895	109.52	11.004	2.3294	3.276
%RSD	.1784983	.3981273	.3840791	.2357894	.1780073
#1	1062.541	27392.40	2858.337	990.3616	1838.878
#2	1063.105	27525.26	2858.966	987.6275	1844.134
#3	1059.577	27609.65	2877.703	985.7278	1838.118

Sample Name: ICSAB007 Acquired: 11/09/2024 17:05:54 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB007 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1076413	.0860750	.0475132	.0367994	.5784320	246.3033
Stddev	.0154589	.0043504	.0058449	.0140214	.0035711	.1265
%RSD	14.36147	5.054203	12.30174	38.10225	.6173776	.0513590

#1	.1189951	.0860172	.0528267	.0420850	.5817182	246.4134
#2	.0900357	.0904540	.0412525	.0209035	.5746317	246.3315
#3	.1138932	.0817537	.0484603	.0474098	.5789461	246.1651

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5290174	.5318365	1.040451	255.7369	.6061298	.5182874
Stddev	.0013300	.0025988	.003134	.1380	.0005319	.0018107
%RSD	.2514146	.4886438	.3012433	.0539699	.0877528	.3493691

#1	.5304868	.5288394	1.038613	255.6096	.6057170	.5162425
#2	.5278958	.5334647	1.038671	255.8836	.6067301	.5189321
#3	.5286697	.5332053	1.044070	255.7175	.6059425	.5196875

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4925164	107.3633	.5442695	254.5977	1.037384	.1910537
Stddev	.0097662	.3193	.0026462	.1163	.003557	.0003549
%RSD	1.982925	.2974105	.4861851	.0456850	.3428455	.1857676

#1	.4812492	107.0168	.5454369	254.4669	1.034318	.1914147
#2	.4977421	107.4275	.5412404	254.6370	1.036551	.1910411
#3	.4985579	107.6457	.5461312	254.6893	1.041283	.1907052

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0909255	.5365262	.9788435	-.429325	F .0164827	F .0958220
Stddev	.2822404	.0135568	.0052442	.077712	.0079992	.0014003
%RSD	310.4084	2.526778	.5357544	18.10086	48.53123	1.461313

#1	.0765299	.5397820	.9827611	-.491600	.0201044	.0970571
#2	-.183842	.5481586	.9808835	-.342237	.0073131	.0961080
#3	.380088	.5216379	.9728858	-.454139	.0220305	.0943008

Sample Name: ICSAB007 Acquired: 11/09/2024 17:05:54 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB007 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000992	.0041539	.0016163	-.002214	-.003176	.0040476
Stddev	.001029	.0231866	.0007455	.001991	.001266	.0020933
%RSD	103.7553	558.1825	46.12426	89.88935	39.86133	51.71818
#1	-.002075	.0259712	.0014907	-.001553	-.002942	.0043631
#2	-.000028	-.020194	.0024165	-.004451	-.004543	.0018144
#3	-.000872	.006685	.0009415	-.000639	-.002044	.0059652

Elem	Sr4077
Units	ppm
Avg	F .1048308
Stddev	.0001099
%RSD	.1048513
#1	.1049574
#2	.1047750
#3	.1047599

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1057.917	27549.26	2870.240	982.5717	1846.453
Stddev	1.095	53.51	12.337	4.5102	1.974
%RSD	.1034843	.1942289	.4298130	.4590227	.1068887
#1	1057.581	27528.86	2883.271	979.6274	1848.382
#2	1059.140	27508.95	2858.740	980.3236	1846.540
#3	1057.030	27609.97	2868.710	987.7641	1844.437

Sample Name: CCV045 Acquired: 11/09/2024 17:10:17 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV045 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.146598	4.858827	24.95178	4.829058	4.962554	408.3487	10.26042
Stddev	.011822	.009438	.06588	.003866	.005816	1.5947	.03734
%RSD	.2297118	.1942513	.2640453	.0800628	.1171889	.3905270	.3639006
#1	5.155169	4.849458	24.91272	4.824712	4.957905	410.1529	10.30240
#2	5.151515	4.868334	24.91476	4.832117	4.969075	407.7660	10.23092
#3	5.133111	4.858690	25.02784	4.830344	4.960681	407.1274	10.24794
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5056660	2.500605	410.9750	15.57202	2.525035	15.26081	419.1216
Stddev	.0029274	.003920	1.5326	.00332	.004301	.05407	1.3857
%RSD	.5789099	.1567514	.3729079	.0213054	.1703212	.3542891	.3306216
#1	.5085072	2.501900	412.7443	15.56830	2.522060	15.31669	420.7165
#2	.5058313	2.496202	410.1189	15.57306	2.523079	15.25697	418.2125
#3	.5026595	2.503714	410.0617	15.57469	2.529966	15.20876	418.4358
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.19767	418.5323	2.509125	1.261832	409.4612	2.516885	14.82269
Stddev	.05250	2.1568	.007102	.003191	2.3019	.015380	.10356
%RSD	.3454297	.5153142	.2830428	.2529251	.5621849	.6110619	.6986691
#1	15.25829	420.9181	2.507670	1.258420	412.1185	2.505871	14.93487
#2	15.16767	417.9578	2.502863	1.264743	408.1859	2.534456	14.80247
#3	15.16706	416.7209	2.516841	1.262333	408.0792	2.510326	14.73073
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	155.6408	5.024628	5.198430	4.890199	5.148828	5.090834	5.038214
Stddev	.4721	.013790	.028053	.012758	.012912	.025338	.012486
%RSD	.3033409	.2744522	.5396456	.2608805	.2507663	.4977207	.2478290
#1	156.1854	5.015410	5.217178	4.880046	5.163014	5.109405	5.036292
#2	155.3479	5.017993	5.211934	4.886031	5.137764	5.101129	5.026801
#3	155.3890	5.040482	5.166179	4.904519	5.145705	5.061969	5.051550

Sample Name: CCV045 Acquired: 11/09/2024 17:10:17 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV045 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.029288	5.156190	5.084889
Stddev	.025416	.024437	.015571
%RSD	.5053557	.4739420	.3062275

#1	5.057940	5.183348	5.101676
#2	5.009459	5.135976	5.082072
#3	5.020466	5.149245	5.070918

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	935.8614	26418.27	2784.384	843.9921	1664.006
Stddev	1.5635	34.13	13.775	5.2186	2.334
%RSD	.1670680	.1291987	.4947315	.6183190	.1402716

#1	937.3875	26439.79	2771.201	838.0240	1665.425
#2	935.9336	26436.12	2783.269	846.2555	1665.280
#3	934.2630	26378.92	2798.684	847.6968	1661.312

Sample Name: CCB045 Acquired: 11/09/2024 17:14:32 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB045 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0026259	-.001360	-.000736	-.001498	.0006870	.0315129	.0005582
Stddev	.0019313	.005692	.000099	.005153	.0025036	.0134995	.0003713
%RSD	73.54757	418.4370	13.48965	344.0639	364.4074	42.83808	66.52260
#1	.0045370	.003472	-.000646	-.007226	-.000437	.0406281	.0002525
#2	.0026654	-.007634	-.000842	.002759	-.001057	.0160044	.0004506
#3	.0006751	.000082	-.000719	-.000026	.003556	.0379063	.0009714
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000076	.0001544	.0411890	.0011452	.0004811	.0028321	.0228624
Stddev	.000019	.0001149	.0205117	.0004255	.0000773	.0024997	.0173284
%RSD	25.43642	74.39140	49.79901	37.15053	16.06488	88.26174	75.79445
#1	-.000064	.0000309	.0242415	.0006746	.0005151	.0000910	.0058602
#2	-.000066	.0001742	.0353340	.0012586	.0005356	.0034199	.0222275
#3	-.000099	.0002581	.0639917	.0015026	.0003927	.0049856	.0404996
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006574	.0628784	.0007818	.0007585	.0385006	-.000040	.0006285
Stddev	.0021610	.0997500	.0004432	.0003328	.1360997	.003556	.0001631
%RSD	328.7273	158.6396	56.68645	43.87611	353.5003	8800.948	25.95539
#1	.0009489	.1737904	.0004086	.0005005	-.089529	.004060	.0005715
#2	-.001635	-.019484	.0012717	.0006408	.181442	-.001891	.0008125
#3	.002658	.034329	.0006652	.0011341	.023589	-.002290	.0005015
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1787595	.0048656	.0066480	.0004383	.0001263	.0005684	.0003939
Stddev	.1089088	.0018903	.0004895	.0004303	.0021724	.0006363	.0010488
%RSD	60.92478	38.84976	7.362518	98.16835	1720.270	111.9371	266.2482
#1	.1828313	.0027258	.0072109	.0005214	.0013121	-.000035	-.000711
#2	.2855753	.0063086	.0064103	.0008209	-.002381	.001233	.001375
#3	.0678719	.0055623	.0063228	-.000027	.001448	.000508	.000518

Sample Name: CCB045 Acquired: 11/09/2024 17:14:32 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB045 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0004886	.0044276	.0000861
Stddev	.0015023	.0015562	.0000827
%RSD	307.4795	35.14772	96.08319
#1	.0022064	.0034526	.0001489
#2	-.000579	.0036079	.0001171
#3	-.000161	.0062223	-.000008

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1132.244	28650.61	2886.211	1038.586	2191.029
Stddev	4.171	73.40	20.159	3.841	5.940
%RSD	.3684145	.2561731	.6984557	.3698764	.2711106
#1	1127.480	28593.06	2882.318	1034.263	2184.339
#2	1134.013	28733.27	2868.282	1039.887	2195.684
#3	1135.240	28625.52	2908.032	1041.609	2193.064

Sample Name: PB164598BL Acquired: 11/09/2024 17:19:06 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS598 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0045271	-.006277	-.001282	-.008267	-.000172	-.007327	.0003711
Stddev	.0034787	.000368	.002543	.004680	.001886	.001332	.0005690
%RSD	76.84305	5.861028	198.4256	56.61024	1095.309	18.17614	153.3172
#1	.0006864	-.006017	-.003751	-.003224	-.002349	-.007600	-.000053
#2	.0054281	-.006698	.001329	-.009106	.000898	-.008501	.001018
#3	.0074666	-.006115	-.001424	-.012470	.000935	-.005880	.000149
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000191	.0000178	-.010340	.0007144	.0003796	.0009914	-.037576
Stddev	.000052	.0001557	.018171	.0005289	.0001693	.0037154	.028337
%RSD	27.01877	872.5835	175.7372	74.03574	44.60413	374.7651	75.41344
#1	-.000250	-.000016	-.021372	.0002214	.0004982	.0050782	-.019810
#2	-.000168	.000188	.010633	.0006486	.0004549	.0000787	-.070255
#3	-.000154	-.000118	-.020280	.0012730	.0001857	-.002183	-.022662
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0010874	.1109719	-.000297	.0009364	-.181553	-.003308	.0002448
Stddev	.0028493	.0412364	.000605	.0002717	.247872	.014615	.0001838
%RSD	262.0340	37.15931	203.7363	29.01185	136.5289	441.7997	75.06140
#1	-.000322	.1353589	-.000305	.0006474	-.384561	-.018426	.0004428
#2	.004367	.0633610	.000312	.0009754	-.254781	-.002245	.0000796
#3	-.000782	.1341960	-.000899	.0011865	.094683	.010746	.0002121
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.045691	.0074930	.0017273	-.000098	-.001152	.0004609	.0023254
Stddev	.064995	.0009405	.0008114	.000595	.008719	.0001799	.0024034
%RSD	142.2501	12.55129	46.97447	608.1667	757.0541	39.04266	103.3536
#1	-.088077	.0068339	.0020253	.000575	.008373	.0006562	.0016999
#2	-.078134	.0085700	.0008090	-.000553	-.003087	.0004247	.0049797
#3	.029139	.0070751	.0023475	-.000315	-.008741	.0003018	.0002966

Sample Name: PB164598BL Acquired: 11/09/2024 17:19:06 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS598 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0024450	.0049050	.0000363
Stddev	.0010222	.0036561	.0000768
%RSD	41.81031	74.53743	211.6614
#1	.0036151	.0052186	.0001246
#2	.0019944	.0083942	-.000014
#3	.0017254	.0011023	-.000002

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1137.034	28905.29	2875.230	1046.876	2204.201
Stddev	2.453	57.42	9.850	4.639	3.592
%RSD	.2156985	.1986639	.3425871	.4431071	.1629777
#1	1134.589	28881.23	2864.025	1051.604	2200.070
#2	1137.019	28863.81	2879.139	1046.691	2205.936
#3	1139.494	28970.83	2882.525	1042.332	2206.596

Sample Name: PB164598BS Acquired: 11/09/2024 17:23:41 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS598 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0233021	.0498440	.0183195	.0657213	.1125633	.4068404
Stddev	.0025916	.0059811	.0030829	.0047761	.0020143	.0083208
%RSD	11.12158	11.99956	16.82851	7.267162	1.789465	2.045212

#1	.0214550	.0465752	.0172924	.0604971	.1105496	.4140387
#2	.0221867	.0462096	.0158812	.0668030	.1125622	.3977301
#3	.0262647	.0567471	.0217848	.0698636	.1145782	.4087523

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4147085	.0107076	.0105662	10.69272	.0223705	.0998552
Stddev	.0001243	.0001883	.0001641	.02071	.0012509	.0002417
%RSD	.0299770	1.758537	1.552900	.1937028	5.591501	.2420776

#1	.4145695	.0104996	.0106516	10.66925	.0224783	.0997934
#2	.4147470	.0108664	.0103770	10.70049	.0210693	.0996504
#3	.4148090	.0107569	.0106699	10.70842	.0235640	.1001219

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0506961	.1891101	.0330441	10.46201	.0833129	.0222012
Stddev	.0028133	.0106981	.0016118	.06039	.0006658	.0004576
%RSD	5.549265	5.657096	4.877819	.5772136	.7992037	2.061012

#1	.0536140	.1778596	.0330876	10.44771	.0826900	.0216831
#2	.0504736	.1903174	.0314110	10.52826	.0832340	.0223705
#3	.0480007	.1991535	.0346337	10.41005	.0840147	.0225500

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.35377	.1107749	.1175157	9.791654	.0226567	F .0023348
Stddev	.21548	.0111681	.0007828	.014447	.0023822	.0017261
%RSD	2.081208	10.08176	.6660843	.1475401	10.51414	73.92748

#1	10.13910	.0984540	.1168665	9.802305	.0220811	.0003652
#2	10.35216	.1202327	.1183849	9.775210	.0206151	.0030553
#3	10.57006	.1136379	.1172956	9.797448	.0252740	.0035840

Sample Name: PB164598BS Acquired: 11/09/2024 17:23:41 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS598 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0194711	.1803006	F .4554484	.0139421	.2056740	.0329395
Stddev	.0006609	.0075501	.0019880	.0039386	.0007053	.0020557
%RSD	3.394369	4.187525	.4365034	28.24983	.3429365	6.240895
#1	.0200852	.1729993	.4541522	.0143681	.2064882	.0314193
#2	.0187717	.1798253	.4544557	.0176505	.2052493	.0321208
#3	.0195565	.1880771	.4577373	.0098078	.2052844	.0352785

Elem	Sr4077
Units	ppm
Avg	.2083096
Stddev	.0003976
%RSD	.1908550
#1	.2078611
#2	.2084489
#3	.2086187

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1128.558	28839.21	2889.906	1037.359	2139.967
Stddev	1.638	50.26	5.885	4.524	4.529
%RSD	.1451164	.1742794	.2036393	.4361454	.2116247
#1	1128.688	28897.17	2883.557	1041.342	2143.654
#2	1130.127	28812.78	2895.179	1032.440	2141.334
#3	1126.859	28807.69	2890.982	1038.296	2134.912

Sample Name: PB164600BL Acquired: 11/09/2024 17:28:13 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS600 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0034350	-.002450	-.002412	.0037968	.0010007	.0063554	-.000124
Stddev	.0032778	.000837	.000868	.0045842	.0025131	.0101944	.000796
%RSD	95.42345	34.15470	35.99077	120.7379	251.1426	160.4057	643.3398
#1	.0036925	-.002078	-.002756	.0067269	.0008038	.0129438	-.000228
#2	.0065766	-.001864	-.003055	.0061496	.0036064	-.005387	-.000862
#3	.0000361	-.003409	-.001425	-.001486	-.001408	.011509	.000719
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000072	-.000034	-.003487	.0017404	.0003691	.0042549	-.035709
Stddev	.000099	.000167	.012557	.0001408	.0003757	.0025934	.010698
%RSD	137.8377	491.5791	360.0733	8.092213	101.7995	60.95207	29.96028
#1	-.000166	-.000153	.007375	.0018503	-.000064	.0017371	-.026487
#2	-.000079	.000156	-.000601	.0015816	.000601	.0069179	-.033200
#3	.000031	-.000105	-.017236	.0017893	.000570	.0041096	-.047438
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0015179	.0097041	-.000454	.0006484	.0209845	.0033052	.0001486
Stddev	.0004572	.1073443	.000505	.0002750	.0705367	.0071181	.0003904
%RSD	30.12069	1106.175	111.1347	42.41633	336.1371	215.3606	262.6935
#1	.0016981	.0929094	.000128	.0007614	.0910755	-.001067	.0004049
#2	.0018575	-.111463	-.000727	.0003349	-.049990	.011519	.0003417
#3	.0009980	.047666	-.000763	.0008489	.021868	-.000536	-.000301
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0267429	.0062947	.0009669	-.000072	.0046470	-.000300	.0008513
Stddev	.1968824	.0018847	.0005247	.000165	.0134385	.000200	.0014036
%RSD	736.2055	29.94132	54.26220	228.5954	289.1868	66.70581	164.8717
#1	.1671119	.0045395	.0014689	-.000246	.0011561	-.000069	.0001036
#2	.1114295	.0060580	.0004222	.000082	.0194865	-.000418	-.000020
#3	-.198313	.0082866	.0010097	-.000052	-.006702	-.000414	.002471

Sample Name: PB164600BL Acquired: 11/09/2024 17:28:13 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS600 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0011373	.0018396	-.000006
Stddev	.0007081	.0022524	.000228
%RSD	62.26702	122.4397	3989.714
#1	.0011656	.0018977	.000252
#2	.0004154	-.000441	-.000090
#3	.0018308	.004062	-.000179

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1126.042	28823.56	2871.392	1044.591	2183.399
Stddev	.898	53.95	5.746	1.456	4.154
%RSD	.0797325	.1871847	.2000979	.1393379	.1902534
#1	1125.025	28799.97	2872.704	1045.950	2182.082
#2	1126.378	28785.41	2865.104	1043.055	2180.063
#3	1126.724	28885.29	2876.368	1044.766	2188.052

Sample Name: PB164600BS Acquired: 11/09/2024 17:32:48 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS600 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0170645	.0456908	.0174362	.0757896	.1138239	.3976863
Stddev	.0110874	.0059970	.0012959	.0062688	.0026974	.0114546
%RSD	64.97338	13.12527	7.431985	8.271298	2.369814	2.880308

#1	.0220504	.0491227	.0185457	.0692078	.1112548	.4091144
#2	.0247836	.0491834	.0160120	.0764715	.1166335	.3862054
#3	.0043595	.0387661	.0177509	.0816897	.1135835	.3977390

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4206567	.0108982	.0104444	10.81407	.0223724	.0999228
Stddev	.0012735	.0000670	.0001015	.04803	.0005489	.0002967
%RSD	.3027428	.6151011	.9716868	.4440998	2.453474	.2969372

#1	.4192783	.0109311	.0103592	10.75911	.0229664	.0998597
#2	.4209021	.0109424	.0105567	10.84796	.0218840	.0996627
#3	.4217896	.0108211	.0104174	10.83513	.0222667	.1002460

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0547903	.2017378	.0324952	10.61175	.0835252	.0224060
Stddev	.0075744	.0068541	.0000372	.03266	.0007185	.0005294
%RSD	13.82430	3.397521	.1146288	.3077886	.8602274	2.362636

#1	.0558397	.2079162	.0324914	10.64864	.0839928	.0223765
#2	.0467460	.1943650	.0325341	10.60012	.0838850	.0229495
#3	.0617853	.2029320	.0324599	10.58649	.0826979	.0218920

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.12227	.1138547	.1168499	9.780436	.0236556	F .0020952
Stddev	.17546	.0085351	.0017643	.091775	.0013345	.0020061
%RSD	1.733417	7.496516	1.509908	.9383493	5.641492	95.74445

#1	9.92165	.1043332	.1153880	9.758869	.0233967	-.000085
#2	10.24708	.1208186	.1163520	9.881073	.0251006	.003864
#3	10.19809	.1164123	.1188096	9.701365	.0224695	.002507

Sample Name: PB164600BS Acquired: 11/09/2024 17:32:48 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS600 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0197950	.1777135	F .4562991	.0144830	.2086157	.0317966
Stddev	.0002392	.0014571	.0014796	.0009648	.0020654	.0020583
%RSD	1.208635	.8199197	.3242606	6.661451	.9900492	6.473237
#1	.0195323	.1793165	.4551504	.0155359	.2074407	.0341665
#2	.0198522	.1773547	.4579687	.0142715	.2110005	.0304557
#3	.0200004	.1764694	.4557783	.0136415	.2074058	.0307677

Elem	Sr4077
Units	ppm
Avg	.2098629
Stddev	.0006136
%RSD	.2923821
#1	.2100320
#2	.2103741
#3	.2091824

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1125.450	28801.93	2901.823	1043.490	2141.897
Stddev	1.395	60.24	11.189	1.688	4.172
%RSD	.1239333	.2091625	.3855701	.1617242	.1947895
#1	1124.362	28790.92	2912.107	1044.491	2137.418
#2	1127.023	28747.96	2889.909	1044.438	2145.674
#3	1124.967	28866.92	2903.454	1041.542	2142.598

Sample Name: PB164623BL Acquired: 11/09/2024 17:37:20 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS623 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0059780	-.002278	-.000295	-.001850	.0010163	.0083027	-.000015
Stddev	.0025454	.003035	.000834	.004948	.0036468	.0058106	.000250
%RSD	42.57952	133.2204	283.2254	267.4525	358.8200	69.98441	1713.507
#1	.0089172	-.001459	-.000710	-.005865	.0045818	.0121876	-.000246
#2	.0045062	-.005638	-.000840	.003678	.0011737	.0110978	-.000048
#3	.0045107	.000263	.000666	-.003363	-.002707	.0016228	.000251
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000124	-.000067	-.000524	.0013849	.0003543	.0012613	-.035640
Stddev	.000134	.000123	.014510	.0003325	.0004263	.0056149	.008628
%RSD	108.0863	182.6642	2767.016	24.00930	120.3002	445.1858	24.20917
#1	-.000107	-.000011	-.007236	.0016609	.0006976	.0066788	-.032143
#2	-.000266	-.000209	.016126	.0010158	.0004883	-.004532	-.045468
#3	.000001	.000018	-.010463	.0014780	-.000123	.001637	-.029310
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0028520	.0101788	.0004413	.0009646	-.314553	-.004643	.0002371
Stddev	.0006768	.0158187	.0005529	.0006094	.351644	.002688	.0002660
%RSD	23.73084	155.4086	125.2940	63.17989	111.7917	57.89254	112.1903
#1	.0034864	-.004713	-.000197	.0013721	.053192	-.002321	.0003232
#2	.0021396	.026785	.000744	.0012577	-.349342	-.007588	-.000061
#3	.0029301	.008464	.000777	.0002640	-.647511	-.004022	.000449
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002197	.0006022	-.000036	.0002045	.0020375	-.000386	-.001565
Stddev	.151239	.0034262	.000190	.0004294	.0062520	.000623	.003496
%RSD	6883.538	568.9665	532.5264	209.9368	306.8512	161.7160	223.3877
#1	.135990	.0011939	-.000255	.0005018	.0032389	-.000738	.001071
#2	-.163765	-.003081	.000075	.0003996	.0076016	-.000753	-.000236
#3	.021184	.003694	.000072	-.000288	-.004728	.000334	-.005530

Sample Name: PB164623BL Acquired: 11/09/2024 17:37:20 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS623 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0017845	-.000202	-.000024
Stddev	.0012193	.002530	.000088
%RSD	68.32666	1249.399	368.3555

#1	.0004001	.002662	.000007
#2	.0026985	-.001136	-.000124
#3	.0022549	-.002133	.000045

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1130.567	28751.74	2885.652	1042.717	2195.718
Stddev	3.304	138.10	2.615	7.509	1.464
%RSD	.2922426	.4803057	.0906356	.7201520	.0666684

#1	1127.179	28685.54	2888.621	1041.617	2195.374
#2	1133.780	28659.22	2883.689	1035.818	2197.324
#3	1130.742	28910.48	2884.646	1050.715	2194.457

Sample Name: PB164623BS Acquired: 11/09/2024 17:41:54 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS623 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0190169	.0449624	.0209464	.0665080	.1120496	.3839280
Stddev	.0104204	.0011374	.0009896	.0064546	.0004793	.0082566
%RSD	54.79521	2.529700	4.724199	9.704944	.4277431	2.150563

#1	.0104300	.0450336	.0219226	.0592062	.1124613	.3920051
#2	.0160110	.0437911	.0209727	.0714529	.1121641	.3842760
#3	.0306099	.0460626	.0199440	.0688650	.1115234	.3755029

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4121510	.0107511	.0103133	10.68810	.0222526	.0985591
Stddev	.0008400	.0001014	.0001263	.05845	.0013876	.0007154
%RSD	.2038198	.9427460	1.224116	.5468883	6.235535	.7259047

#1	.4114806	.0107791	.0104467	10.65001	.0232855	.0982375
#2	.4118790	.0106386	.0101957	10.65890	.0206754	.0980609
#3	.4130933	.0108355	.0102974	10.75540	.0227969	.0993789

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0477218	.1518463	.0330737	10.61987	.0828169	.0222063
Stddev	.0123894	.0104093	.0015682	.16821	.0003249	.0002187
%RSD	25.96175	6.855135	4.741423	1.583885	.3923313	.9847171

#1	.0532992	.1609584	.0345067	10.72047	.0826124	.0221552
#2	.0335240	.1540785	.0313985	10.42569	.0826468	.0224459
#3	.0563421	.1405020	.0333158	10.71347	.0831916	.0220176

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.822284	.1126361	.1162659	9.799402	.0199820	F .0014922
Stddev	.180736	.0044263	.0005353	.066686	.0012323	.0012370
%RSD	1.840057	3.929695	.4604321	.6805079	6.167120	82.90154

#1	9.667333	.1105162	.1156579	9.722468	.0189375	.0010592
#2	9.778690	.1096685	.1164730	9.835083	.0196674	.0005298
#3	10.02083	.1177236	.1166667	9.840657	.0213411	.0028875

Sample Name: PB164623BS Acquired: 11/09/2024 17:41:54 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS623 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0198976	.1827731	F .4531631	.0141124	.2044914	.0292515
Stddev	.0006031	.0031441	.0031926	.0021058	.0012824	.0029490
%RSD	3.031202	1.720232	.7045234	14.92173	.6271113	10.08148
#1	.0192178	.1851329	.4532599	.0158005	.2047027	.0258562
#2	.0203687	.1792038	.4499232	.0117527	.2056550	.0307237
#3	.0201061	.1839825	.4563063	.0147841	.2031165	.0311745

Elem	Sr4077
Units	ppm
Avg	.2077747
Stddev	.0002023
%RSD	.0973388
#1	.2079792
#2	.2077701
#3	.2075748

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1135.043	28922.17	2883.914	1045.245	2154.283
Stddev	2.624	20.92	14.315	.281	3.640
%RSD	.2311430	.0723491	.4963587	.0269210	.1689769
#1	1135.569	28931.69	2880.289	1045.441	2151.240
#2	1137.363	28898.18	2899.693	1045.371	2158.316
#3	1132.196	28936.64	2871.761	1044.922	2153.293

Sample Name: PB164633BL Acquired: 11/09/2024 17:55:33 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS633 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000350	-.005136	-.000356	-.004821	.0010559	.0085059	.0007334
Stddev	.007703	.002576	.002742	.001353	.0026212	.0147475	.0006001
%RSD	2199.900	50.15235	769.6209	28.06436	248.2349	173.3797	81.82582

#1	.008533	-.005229	.002710	-.006206	.0025228	.0205687	.0000406
#2	-.005183	-.007665	-.002573	-.003503	-.001970	.0128839	.0010943
#3	-.004400	-.002515	-.001205	-.004755	.002615	-.007935	.0010651

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000089	-.000019	-.000138	-.000393	.0003020	.0062267	-.021044
Stddev	.000089	.000139	.011382	.000780	.0006716	.0020888	.007648
%RSD	99.34908	745.2000	8274.388	198.6854	222.4133	33.54528	36.34296

#1	-.000170	-.000095	.001475	.000280	-.000411	.0040935	-.021717
#2	.000006	.000142	.010352	-.001248	.000922	.0082681	-.013081
#3	-.000103	-.000103	-.012239	-.000211	.000395	.0063186	-.028332

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0013874	.0551209	-.000221	.0013361	-.648085	.0089187	-.000129
Stddev	.0010900	.0176151	.000396	.0004910	.083973	.0027566	.000289
%RSD	78.56140	31.95717	179.2236	36.74733	12.95708	30.90838	223.3448

#1	.0002115	.0723739	-.000251	.0019024	-.738846	.0101451	.000139
#2	.0015869	.0558242	.000189	.0010750	-.632257	.0108494	-.000434
#3	.0023639	.0371647	-.000601	.0010308	-.573153	.0057617	-.000093

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.085863	.0056081	-.000986	.0004202	.0097807	.0001176	.0024072
Stddev	.133840	.0021729	.001869	.0002160	.0028484	.0005030	.0013977
%RSD	155.8767	38.74501	189.5468	51.40282	29.12259	427.7500	58.06589

#1	.042883	.0045001	-.002648	.0005051	.0071276	.0006169	.0034882
#2	-.076199	.0042126	-.001348	.0005809	.0094238	-.000389	.0029046
#3	-.224274	.0081116	.001038	.0001747	.0127908	.000125	.0008288

Sample Name: PB164633BL Acquired: 11/09/2024 17:55:33 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS633 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0033718	-.000886	.0000149
Stddev	.0025113	.001061	.0000724
%RSD	74.47903	119.7566	487.0954
#1	.0049436	-.001598	.0000962
#2	.0046962	.000334	-.000043
#3	.0004755	-.001394	-.000009

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1130.307	28889.78	2872.843	1050.985	2202.235
Stddev	1.678	51.21	21.528	3.127	1.989
%RSD	.1484692	.1772644	.7493743	.2975329	.0903047
#1	1129.231	28838.72	2873.796	1053.354	2200.916
#2	1129.449	28941.14	2850.854	1052.160	2201.267
#3	1132.241	28889.49	2893.879	1047.441	2204.523

Sample Name: PB164633BS Acquired: 11/09/2024 18:00:08 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS633 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0240849	.0484796	.0184470	.0605785	.1184433	.4037005
Stddev	.0060385	.0008574	.0028204	.0073931	.0005054	.0085199
%RSD	25.07172	1.768553	15.28944	12.20413	.4267218	2.110454

#1	.0299345	.0488377	.0183633	.0666999	.1189637	.3990068
#2	.0244463	.0490999	.0213083	.0523647	.1179544	.3985598
#3	.0178738	.0475012	.0156693	.0626709	.1184119	.4135351

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4315901	.0109751	.0107149	11.12878	.0235689	.1025842
Stddev	.0007636	.0000955	.0000959	.07096	.0001267	.0003215
%RSD	.1769202	.8704368	.8953769	.6375958	.5376336	.3133955

#1	.4308001	.0108650	.0107792	11.10463	.0236065	.1022946
#2	.4316460	.0110245	.0107608	11.07304	.0236726	.1025280
#3	.4323242	.0110358	.0106046	11.20866	.0234277	.1029301

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0519519	.2077579	.0351715	10.91798	.0852934	.0234011
Stddev	.0059784	.0524893	.0015164	.07169	.0003099	.0003027
%RSD	11.50766	25.26463	4.311428	.6566138	.3632995	1.293341

#1	.0543272	.1716039	.0350139	10.91252	.0855375	.0233113
#2	.0563776	.2679631	.0337400	10.84918	.0853981	.0237385
#3	.0451508	.1837066	.0367605	10.99225	.0849448	.0231535

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.990906	.1220135	.1206177	10.12003	.0216507	F -.000068
Stddev	.302855	.0064629	.0005988	.06709	.0029201	.001502
%RSD	3.031302	5.296855	.4964421	.6629082	13.48732	2198.941

#1	10.26176	.1179319	.1207697	10.16156	.0183289	-.000893
#2	9.66391	.1186437	.1199575	10.04264	.0228101	.001665
#3	10.04705	.1294649	.1211258	10.15589	.0238130	-.000977

Sample Name: PB164633BS Acquired: 11/09/2024 18:00:08 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS633 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0205732	.1847107	F .4676009	.0131882	.2120021	.0289729
Stddev	.0004845	.0054423	.0036366	.0024929	.0022221	.0001068
%RSD	2.355145	2.946383	.7777204	18.90237	1.048162	.3684676
#1	.0210899	.1784476	.4659954	.0159143	.2143543	.0289847
#2	.0205006	.1873961	.4650434	.0110247	.2099382	.0288608
#3	.0201290	.1882883	.4717640	.0126255	.2117138	.0290734

Elem	Sr4077
Units	ppm
Avg	.2155813
Stddev	.0004894
%RSD	.2270158
#1	.2156034
#2	.2150813
#3	.2160593

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1126.087	28802.79	2901.547	1044.635	2148.666
Stddev	2.262	70.29	8.364	3.382	1.727
%RSD	.2008625	.2440309	.2882665	.3237320	.0803750
#1	1123.577	28722.42	2902.731	1041.483	2150.530
#2	1127.967	28833.19	2909.256	1048.208	2148.347
#3	1126.718	28852.77	2892.654	1044.213	2147.120

Sample Name: PB164598BSD Acquired: 11/09/2024 18:04:41 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCSD598 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0141666	.0204278	.0077296	.0342299	.0572003	.2263533	.2073741
Stddev	.0060268	.0036268	.0017402	.0066009	.0009541	.0089865	.0020354
%RSD	42.54243	17.75434	22.51349	19.28415	1.668065	3.970112	.9815371
#1	.0097633	.0167032	.0057585	.0408928	.0572237	.2365783	.2085466
#2	.0117013	.0206321	.0090533	.0341041	.0562347	.2197101	.2050238
#3	.0210352	.0239482	.0083769	.0276927	.0581426	.2227713	.2085520
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0052931	.0050339	5.408622	.0107916	.0491631	.0291149	.0929508
Stddev	.0000892	.0000367	.029392	.0014634	.0005280	.0038113	.0500113
%RSD	1.685172	.7280702	.5434292	13.56074	1.074014	13.09053	53.80400
#1	.0053697	.0050499	5.406864	.0124797	.0489018	.0291773	.1443649
#2	.0053144	.0049920	5.380149	.0100147	.0488167	.0252728	.0444716
#3	.0051951	.0050598	5.438854	.0098805	.0497709	.0328946	.0900160
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0162946	5.207630	.0418457	.0115310	5.042356	.0609555	.0589518
Stddev	.0001887	.175758	.0007273	.0005586	.402409	.0072649	.0003632
%RSD	1.157819	3.375011	1.738181	4.844476	7.980578	11.91842	.6161467
#1	.0162021	5.398048	.0425473	.0113099	5.469019	.0535345	.0586363
#2	.0165116	5.051621	.0418946	.0111168	4.988407	.0680536	.0588702
#3	.0161700	5.173220	.0410951	.0121663	4.669643	.0612782	.0593489
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.038769	.0122553	.0003852	.0096490	.0860818	.2289359	.0060928
Stddev	.056697	.0011499	.0005204	.0001726	.0013712	.0004618	.0015249
%RSD	1.125219	9.382916	135.1159	1.789102	1.592926	.2017204	25.02793
#1	5.017894	.0110288	-.000022	.0097763	.0867766	.2289679	.0075791
#2	5.102944	.0133091	.000206	.0097182	.0845023	.2284590	.0061671
#3	4.995469	.0124278	.000971	.0094525	.0869666	.2293810	.0045321

Sample Name: PB164598BSD Acquired: 11/09/2024 18:04:41 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCSD598 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1048331	.0149428	.1047882
Stddev	.0009421	.0010102	.0003152
%RSD	.8986942	6.760346	.3008421
#1	.1039326	.0156302	.1051338
#2	.1047546	.0137829	.1047143
#3	.1058120	.0154152	.1045164

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1135.835	28962.73	2893.637	1050.274	2181.347
Stddev	.681	35.42	5.646	2.885	4.392
%RSD	.0599784	.1222856	.1951037	.2746475	.2013243
#1	1136.381	28967.73	2887.650	1048.341	2185.462
#2	1135.072	28995.39	2898.864	1048.890	2176.723
#3	1136.051	28925.08	2894.396	1053.589	2181.856

Sample Name: PB164600BSD Acquired: 11/09/2024 18:09:15 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCSD600 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0104046	.0245267	.0094116	.0334350	.0565145	.1961843	.2068524
Stddev	.0037021	.0013393	.0009373	.0032354	.0022744	.0080841	.0006131
%RSD	35.58103	5.460685	9.958807	9.676740	4.024402	4.120644	.2963747
#1	.0072283	.0233002	.0088791	.0371466	.0539053	.1909175	.2074911
#2	.0144704	.0259558	.0088619	.0312106	.0580779	.1921433	.2062687
#3	.0095152	.0243240	.0104939	.0319479	.0575603	.2054921	.2067975
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0054302	.0051921	5.352404	.0117741	.0499122	.0233995	.0922533
Stddev	.0000755	.0000680	.023889	.0002358	.0001637	.0049934	.0323378
%RSD	1.390916	1.309195	.4463228	2.002834	.3280001	21.33958	35.05329
#1	.0055085	.0052381	5.338774	.0118061	.0497616	.0251938	.1239901
#2	.0053578	.0052242	5.338450	.0115239	.0500864	.0177570	.0593463
#3	.0054244	.0051140	5.379988	.0119923	.0498884	.0272478	.0934235
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0158037	5.216176	.0412649	.0112345	4.537848	.0573239	.0588253
Stddev	.0013310	.149716	.0007783	.0002035	.426617	.0048571	.0008178
%RSD	8.422188	2.870234	1.886120	1.811649	9.401317	8.473023	1.390231
#1	.0144022	5.319349	.0403870	.0114693	4.347261	.0597684	.0590189
#2	.0170507	5.044458	.0418702	.0111069	5.026537	.0517302	.0595289
#3	.0159581	5.284720	.0415376	.0111275	4.239746	.0604730	.0579280
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.744210	.0110956	-.000497	.0097699	.0925516	.2294413	.0068144
Stddev	.110481	.0013950	.001238	.0001981	.0072321	.0009436	.0003222
%RSD	2.328755	12.57258	249.1399	2.027385	7.814144	.4112423	4.728540
#1	4.845465	.0115511	-.001926	.0095412	.0920947	.2286339	.0066966
#2	4.760787	.0095298	.000252	.0098882	.1000014	.2292115	.0071789
#3	4.626377	.0122059	.000183	.0098802	.0855588	.2304785	.0065676

Sample Name: PB164600BSD Acquired: 11/09/2024 18:09:15 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCSD600 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1038076	.0140722	.1037615
Stddev	.0024584	.0003926	.0002248
%RSD	2.368255	2.790249	.2166620
#1	.1011584	.0136572	.1036253
#2	.1060155	.0141214	.1040210
#3	.1042489	.0144379	.1036382

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1133.845	29092.04	2876.955	1050.732	2175.652
Stddev	.932	53.66	3.284	4.409	2.298
%RSD	.0822123	.1844449	.1141336	.4195834	.1056236
#1	1133.449	29043.24	2877.550	1045.818	2174.557
#2	1134.910	29149.51	2873.414	1052.040	2178.293
#3	1133.177	29083.37	2879.900	1054.339	2174.107

Sample Name: PB164623BSD Acquired: 11/09/2024 18:13:48 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCSD623 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0059990	.0239485	.0118142	.0321129	.0580905	.1867590	.2107059
Stddev	.0090546	.0019857	.0031972	.0129733	.0023392	.0034247	.0002830
%RSD	150.9354	8.291631	27.06211	40.39904	4.026870	1.833749	.1342910
#1	.0128541	.0249804	.0115459	.0273933	.0579777	.1902830	.2109901
#2	.0094081	.0252058	.0087597	.0221601	.0604840	.1865508	.2107036
#3	-.004265	.0216593	.0151371	.0467854	.0558096	.1834431	.2104242
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0054445	.0052297	5.477463	.0116950	.0506984	.0249921	.0691951
Stddev	.0001816	.0000479	.022546	.0006769	.0001379	.0031077	.0220268
%RSD	3.335574	.9156811	.4116143	5.787986	.2720096	12.43484	31.83292
#1	.0054400	.0051994	5.451896	.0109328	.0506299	.0282111	.0474949
#2	.0056283	.0052048	5.494495	.0119264	.0508571	.0247560	.0915346
#3	.0052652	.0052849	5.485998	.0122259	.0506081	.0220091	.0685556
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0160143	5.416771	.0428128	.0113961	4.956066	.0556198	.0598489
Stddev	.0016456	.241016	.0006782	.0003874	.121088	.0029401	.0006808
%RSD	10.27557	4.449433	1.584030	3.399267	2.443229	5.286028	1.137595
#1	.0148082	5.283795	.0421574	.0109701	4.833428	.0555675	.0595513
#2	.0178889	5.271537	.0435116	.0114909	4.959228	.0585857	.0606279
#3	.0153457	5.694982	.0427695	.0117273	5.075542	.0527062	.0593676
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.885213	.0157941	-.000631	.0102651	.0851951	.2341238	.0055274
Stddev	.081285	.0026674	.000986	.0003084	.0107819	.0005311	.0017621
%RSD	1.663905	16.88846	156.3053	3.004324	12.65554	.2268274	31.87922
#1	4.899963	.0138463	-.000503	.0104736	.0727827	.2346094	.0071269
#2	4.958113	.0188343	.000285	.0099109	.0905661	.2335567	.0036386
#3	4.797562	.0147018	-.001675	.0104110	.0922367	.2342052	.0058167

Sample Name: PB164623BSD Acquired: 11/09/2024 18:13:48 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCSD623 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1047612	.0151173	.1061313
Stddev	.0019772	.0011497	.0002538
%RSD	1.887386	7.604952	.2391173
#1	.1054035	.0162330	.1062259
#2	.1063374	.0139364	.1058438
#3	.1025426	.0151825	.1063241

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1132.736	29025.82	2893.000	1052.807	2170.687
Stddev	3.069	29.44	10.220	7.697	6.917
%RSD	.2709453	.1014276	.3532538	.7310833	.3186774
#1	1129.447	29055.62	2890.793	1061.442	2163.465
#2	1135.523	29025.11	2904.143	1046.666	2177.253
#3	1133.238	28996.75	2884.064	1050.314	2171.344

Sample Name: PB164633BSD Acquired: 11/09/2024 18:22:56 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCSD633 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0144399	.0247395	.0094008	.0347010	.0583135	.2054965	.2140800
Stddev	.0098042	.0045699	.0032130	.0009017	.0018761	.0147631	.0009203
%RSD	67.89686	18.47227	34.17812	2.598521	3.217266	7.184101	.4299059
#1	.0243863	.0196670	.0130398	.0343231	.0602297	.2145907	.2150666
#2	.0047843	.0285355	.0069554	.0357302	.0564803	.1884626	.2132447
#3	.0141490	.0260160	.0082073	.0340497	.0582304	.2134361	.2139287
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0054239	.0052057	5.544889	.0118510	.0502417	.0269229	.0660922
Stddev	.0001065	.0000200	.045130	.0006276	.0008936	.0027750	.0386182
%RSD	1.964136	.3847845	.8139049	5.295305	1.778555	10.30716	58.43079
#1	.0055164	.0052060	5.573401	.0111880	.0493232	.0268081	.0275822
#2	.0054478	.0052255	5.492857	.0124357	.0511080	.0242072	.0658767
#3	.0053074	.0051855	5.568409	.0119293	.0502940	.0297536	.1048177
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0177559	5.463503	.0425830	.0110805	4.862410	.0497808	.0627713
Stddev	.0022036	.072203	.0002022	.0002067	.209972	.0023076	.0014620
%RSD	12.41054	1.321560	.4749039	1.865193	4.318272	4.635438	2.329017
#1	.0178536	5.479156	.0428016	.0108461	4.854124	.0496730	.0623995
#2	.0155051	5.384757	.0424026	.0112367	4.656703	.0521404	.0643832
#3	.0199091	5.526596	.0425450	.0111586	5.076402	.0475290	.0615311
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.925840	.0084050	-.000849	.0097122	.0857190	.2324209	.0067300
Stddev	.029353	.0018819	.000465	.0005826	.0044199	.0012915	.0012318
%RSD	.5959046	22.39079	54.73682	5.998453	5.156291	.5556883	18.30312
#1	4.896909	.0070583	-.000991	.0097840	.0814015	.2336370	.0071464
#2	4.955598	.0076013	-.001227	.0102556	.0902347	.2310653	.0053440
#3	4.925014	.0105553	-.000330	.0090971	.0855209	.2325605	.0076997

Sample Name: PB164633BSD Acquired: 11/09/2024 18:22:56 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCSD633 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1053619	.0139904	.1061462
Stddev	.0004740	.0032500	.0003279
%RSD	.4498440	23.22978	.3088755
#1	.1057011	.0119579	.1063290
#2	.1055643	.0122747	.1057677
#3	.1048204	.0177387	.1063419

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1132.337	29082.64	2901.287	1052.877	2181.401
Stddev	1.048	55.92	9.619	1.494	1.095
%RSD	.0925652	.1922769	.3315410	.1419321	.0501779
#1	1132.371	29035.39	2891.139	1053.030	2180.696
#2	1133.367	29068.14	2910.271	1051.312	2180.846
#3	1131.272	29144.38	2902.450	1054.289	2182.662

Sample Name: P4524-01DLX2 Acquired: 11/09/2024 18:27:29 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2874483	-.043310	.3258095	-.053780	.0102866	96.75040	1.419056
Stddev	.0115337	.003621	.0009825	.007511	.0053658	.12933	.000940
%RSD	4.012436	8.360809	.3015660	13.96618	52.16298	.1336780	.0662091

#1	.2896571	-.040539	.3259984	-.060894	.0041519	96.63929	1.419663
#2	.2977178	-.041984	.3247463	-.045926	.0126020	96.71952	1.419531
#3	.2749699	-.047407	.3266839	-.054521	.0141060	96.89237	1.417974

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0045953	.0077766	21.74788	.2310801	.1440275	.8150810	273.0243
Stddev	.0001110	.0003350	.01785	.0013393	.0011100	.0044997	.2443
%RSD	2.414375	4.308473	.0820894	.5795846	.7706707	.5520578	.0894918

#1	.0045057	.0078161	21.73485	.2324982	.1447039	.8129365	272.9466
#2	.0047194	.0080901	21.76823	.2298368	.1446320	.8120546	273.2980
#3	.0045609	.0074235	21.74057	.2309053	.1427465	.8202518	272.8282

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.810495	53.39024	.3064195	-.020429	1.092028	.5452583	.8686135
Stddev	.008239	.21088	.0002197	.000501	.244410	.0036381	.0015462
%RSD	.1417903	.3949769	.0717056	2.453581	22.38128	.6672177	.1780101

#1	5.812104	53.21552	.3063991	-.021007	1.144625	.5425277	.8703893
#2	5.801571	53.33072	.3066487	-.020144	1.305856	.5493883	.8678860
#3	5.817811	53.62449	.3062107	-.020134	.825601	.5438588	.8675652

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.39818	5.758099	.2553921	-.000652	1.018044	5.855076	.0098828
Stddev	.04045	.012694	.0012447	.000799	.008233	.016980	.0019310
%RSD	.2626963	.2204559	.4873556	122.6089	.8087490	.2900102	19.53921

#1	15.36362	5.772748	.2566660	.000001	1.008988	5.861994	.0120878
#2	15.38824	5.751229	.2541789	-.000413	1.025079	5.835728	.0084930
#3	15.44267	5.750321	.2553314	-.001543	1.020064	5.867505	.0090678

Sample Name: P4524-01DLX2 Acquired: 11/09/2024 18:27:29 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W0 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.616811	.0854934	.2520149
Stddev	.001523	.0012898	.0003663
%RSD	.0581989	1.508705	.1453458
#1	2.615507	.0868295	.2515919
#2	2.616441	.0853952	.2522242
#3	2.618485	.0842555	.2522285

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1179.628	30581.59	3110.924	1098.168	2040.646
Stddev	3.692	62.64	2.364	3.060	1.970
%RSD	.3129756	.2048311	.0759954	.2786094	.0965153
#1	1177.286	30646.36	3112.077	1095.937	2042.868
#2	1183.884	30521.32	3112.491	1096.911	2039.115
#3	1177.713	30577.08	3108.205	1101.656	2039.955

Sample Name: P4524-02DLX2 Acquired: 11/09/2024 18:31:55 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3345249	-.049336	.1812355	-.064116	.0128274	151.9831	2.042833
Stddev	.0026528	.006690	.0050394	.009790	.0055225	.3788	.005515
%RSD	.7929932	13.56091	2.780562	15.26942	43.05238	.2492524	.2699547

#1	.3356564	-.056865	.1836035	-.071953	.0094678	152.2570	2.045133
#2	.3314940	-.047071	.1754482	-.053142	.0098134	151.5508	2.036540
#3	.3364243	-.044072	.1846546	-.067254	.0192011	152.1414	2.046825

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0064081	.0027656	50.55447	.2741547	.1672662	.5292923	295.7360
Stddev	.0001613	.0001687	.28661	.0019624	.0009604	.0085736	.8516
%RSD	2.517543	6.098936	.5669409	.7158132	.5741602	1.619823	.2879625

#1	.0062882	.0026146	50.54452	.2741002	.1670578	.5388922	296.4866
#2	.0063445	.0029476	50.27297	.2722200	.1683137	.5265874	294.8105
#3	.0065915	.0027346	50.84594	.2761437	.1664271	.5223975	295.9111

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.193267	69.65027	.4177332	-.021719	1.080189	.6037996	.6811751
Stddev	.022530	.28032	.0008521	.000184	.134150	.0097077	.0037499
%RSD	.3637798	.4024714	.2039883	.8484631	12.41911	1.607771	.5504988

#1	6.199559	69.73133	.4184753	-.021898	1.228154	.6119686	.6810898
#2	6.168260	69.33835	.4168026	-.021530	1.045904	.6063627	.6774686
#3	6.211982	69.88114	.4179217	-.021728	.966508	.5930675	.6849668

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.47200	8.502885	.2809634	-.001783	1.019433	3.897105	.0077917
Stddev	.09907	.033741	.0021144	.001416	.001844	.016136	.0012705
%RSD	.6845669	.3968132	.7525564	79.42838	.1808433	.4140564	16.30605

#1	14.58533	8.531941	.2832996	-.000459	1.020464	3.909900	.0092509
#2	14.40182	8.465879	.2804095	-.003276	1.020531	3.878978	.0069313
#3	14.42886	8.510834	.2791811	-.001613	1.017305	3.902438	.0071928

Sample Name: P4524-02DLX2 Acquired: 11/09/2024 18:31:55 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W1 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.756786	.1225903	.3916695
Stddev	.008211	.0022365	.0013606
%RSD	.2978473	1.824360	.3473893
#1	2.761659	.1225972	.3931467
#2	2.747306	.1203504	.3904675
#3	2.761393	.1248234	.3913945

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1209.848	31078.57	3155.929	1115.804	2009.883
Stddev	1.887	53.99	13.676	3.300	2.902
%RSD	.1560111	.1737334	.4333477	.2957863	.1443808
#1	1208.909	31125.08	3156.503	1117.352	2006.809
#2	1212.021	31091.28	3169.310	1118.046	2012.575
#3	1208.615	31019.36	3141.976	1112.014	2010.265

Sample Name: P4524-03DLX2 Acquired: 11/09/2024 18:36:19 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2763212	-.043405	.1505201	-.070279	.0097883	134.4017	2.033624
Stddev	.0044473	.006446	.0047981	.006586	.0021660	.1935	.002906
%RSD	1.609475	14.85185	3.187698	9.370700	22.12856	.1439748	.1429147
#1	.2779873	-.040520	.1504665	-.062678	.0105626	134.1988	2.030316
#2	.2796949	-.050791	.1553448	-.074266	.0073415	134.5842	2.035768
#3	.2712814	-.038905	.1457490	-.073894	.0114608	134.4222	2.034788
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0055756	.0022061	31.80140	.2676654	.1607650	.4453832	296.4290
Stddev	.0001935	.0003589	.07415	.0005214	.0006528	.0020002	.6008
%RSD	3.469778	16.26873	.2331792	.1947979	.4060830	.4490992	.2026921
#1	.0057195	.0018446	31.74065	.2681075	.1606623	.4439439	295.7884
#2	.0053557	.0022113	31.88404	.2670904	.1601696	.4445384	296.9800
#3	.0056516	.0025624	31.77954	.2677983	.1614631	.4476672	296.5187
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.092900	61.19588	.3574792	-.022534	.8810482	.6207087	.5414059
Stddev	.025836	.23223	.0025701	.000104	.1165658	.0064390	.0030920
%RSD	.2841338	.3794816	.7189480	.4618178	13.23036	1.037367	.5711108
#1	9.063519	60.99759	.3568335	-.022582	.9826131	.6234264	.5390613
#2	9.112070	61.45136	.3552936	-.022605	.7537738	.6133563	.5402464
#3	9.103110	61.13871	.3603106	-.022414	.9067579	.6253433	.5449101
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.74113	5.094215	.2804830	-.001408	.6383961	3.632824	.0099428
Stddev	.16698	.021034	.0008035	.000726	.0140379	.009943	.0036882
%RSD	1.060797	.4129079	.2864634	51.60299	2.198928	.2736958	37.09391
#1	15.55675	5.076545	.2812886	-.001190	.6234140	3.624915	.0138663
#2	15.78447	5.088618	.2796817	-.002218	.6512457	3.629571	.0094154
#3	15.88216	5.117482	.2804786	-.000815	.6405285	3.643986	.0065467

Sample Name: P4524-03DLX2 Acquired: 11/09/2024 18:36:19 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W3 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.620711	.1049660	.3826413
Stddev	.007715	.0032196	.0007952
%RSD	.2943829	3.067321	.2078272
#1	2.613915	.1021480	.3817358
#2	2.629097	.1042748	.3829621
#3	2.619121	.1084751	.3832261

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1199.570	31062.15	3144.085	1115.019	2027.681
Stddev	2.195	26.89	1.831	2.381	6.921
%RSD	.1829907	.0865599	.0582309	.2135412	.3413106
#1	1200.114	31034.29	3145.508	1115.421	2027.050
#2	1201.442	31087.94	3142.020	1117.174	2034.895
#3	1197.154	31064.23	3144.728	1112.463	2021.097

Sample Name: P4524-04DLX2 Acquired: 11/09/2024 18:40:45 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3595665	-.046921	.3803925	-.072207	.0103530	98.62016
Stddev	.0104826	.005318	.0012821	.003581	.0052074	.44287
%RSD	2.915350	11.33465	.3370470	4.959044	50.29820	.4490711
#1	.3521786	-.040796	.3806241	-.074933	.0074207	98.13272
#2	.3549570	-.049600	.3815430	-.073536	.0163653	98.99783
#3	.3715641	-.050367	.3790104	-.068151	.0072729	98.72992

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.474893	.0052764	.0088657	18.98993	.2447373	.1656384
Stddev	.010834	.0002324	.0004804	.13932	.0011205	.0010307
%RSD	.7345804	4.404134	5.418663	.7336474	.4578522	.6222595
#1	1.463963	.0051306	.0083438	18.85747	.2457640	.1644947
#2	1.485629	.0055444	.0092894	19.13522	.2435420	.1659248
#3	1.475088	.0051541	.0089640	18.97712	.2449058	.1664955

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.090564	F 300.0987	7.350498	53.50647	.3208983	-.022386
Stddev	.010680	1.6284	.068436	.43623	.0005211	.000081
%RSD	.9793308	.5426072	.9310368	.8152932	.1623762	.3609635
#1	1.079568	298.2894	7.282247	53.00734	.3203682	-.022362
#2	1.100897	301.4466	7.419118	53.81483	.3209169	-.022320
#3	1.091228	300.5599	7.350128	53.69723	.3214098	-.022476

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.078050	.5957046	.9075772	17.80227	5.589152	.2798096
Stddev	.287950	.0076945	.0037312	.09521	.004482	.0002702
%RSD	26.71026	1.291659	.4111133	.5348339	.0801953	.0965797
#1	.787185	.6033748	.9096256	17.69541	5.585887	.2801045
#2	1.083971	.5957530	.9098354	17.83330	5.587307	.2797506
#3	1.362994	.5879860	.9032705	17.87810	5.594263	.2795738

Sample Name: P4524-04DLX2 Acquired: 11/09/2024 18:40:45 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W3 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000566	.7492444	5.989954	.0096500	3.109568	.0893250
Stddev	.000500	.0139916	.013764	.0024922	.017781	.0018237
%RSD	88.49724	1.867432	.2297832	25.82622	.5718073	2.041603
#1	-.001095	.7340704	5.977748	.0105821	3.089884	.0872312
#2	-.000100	.7616354	6.004872	.0115419	3.124465	.0905666
#3	-.000501	.7520275	5.987241	.0068261	3.114357	.0901771

Elem	Sr4077
Units	ppm
Avg	.2281692
Stddev	.0006683
%RSD	.2929195
#1	.2274903
#2	.2288265
#3	.2281908

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1188.071	30817.69	3115.096	1103.307	2043.741
Stddev	.431	23.56	12.715	5.774	2.190
%RSD	.0362577	.0764561	.4081809	.5233804	.1071501
#1	1187.955	30802.56	3119.984	1100.350	2045.571
#2	1188.548	30805.66	3100.663	1099.610	2044.337
#3	1187.711	30844.84	3124.643	1109.961	2041.315

Sample Name: P4524-05DLX2 Acquired: 11/09/2024 18:45:10 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3103744	-.047807	.3362669	-.065125	.0130459	100.9863	1.492020
Stddev	.0096500	.000863	.0050058	.009794	.0016361	.2458	.003111
%RSD	3.109150	1.804216	1.488649	15.03831	12.54071	.2433963	.2085383
#1	.3021083	-.046926	.3395711	-.071428	.0113364	100.9722	1.495303
#2	.3209786	-.047845	.3305075	-.070104	.0145970	100.7478	1.489114
#3	.3080361	-.048650	.3387222	-.053842	.0132043	101.2388	1.491643
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0050093	.0074970	19.41811	.2514909	.1595081	.7973272	311.1876
Stddev	.0002685	.0000384	.05680	.0005130	.0003950	.0083354	.4343
%RSD	5.360538	.5128128	.2924923	.2039890	.2476261	1.045416	.1395566
#1	.0047641	.0074725	19.46912	.2510662	.1590521	.8064536	311.2661
#2	.0049676	.0074772	19.35691	.2513457	.1597289	.7901163	310.7194
#3	.0052962	.0075413	19.42829	.2520609	.1597434	.7954117	311.5773
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.689759	53.59202	.3395633	-.023683	.9403974	.6094682	.8906272
Stddev	.022554	.11096	.0005988	.000422	.3149322	.0056357	.0016344
%RSD	.3371481	.2070364	.1763285	1.781567	33.48927	.9246942	.1835155
#1	6.715497	53.51286	.3397011	-.023791	.5910148	.6119174	.8908626
#2	6.680335	53.71884	.3389076	-.023218	1.202445	.6134648	.8888879
#3	6.673446	53.54437	.3400810	-.024041	1.027732	.6030222	.8921313
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.87707	5.299356	.2855669	-.000180	.6794029	3.336668	.0089888
Stddev	.03553	.024022	.0012872	.000446	.0210715	.000754	.0006664
%RSD	.2237527	.4532951	.4507508	247.3979	3.101478	.0226009	7.414099
#1	15.91807	5.278901	.2845570	.000170	.6771652	3.336781	.0083880
#2	15.85774	5.293359	.2851275	-.000028	.6595396	3.335864	.0088726
#3	15.85540	5.325808	.2870163	-.000682	.7015041	3.337359	.0097057

Sample Name: P4524-05DLX2 Acquired: 11/09/2024 18:45:10 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W4 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.558467	.0902953	.2384604
Stddev	.017676	.0031938	.0002982
%RSD	.6908783	3.537100	.1250638
#1	2.548404	.0938364	.2386127
#2	2.548120	.0876324	.2381168
#3	2.578876	.0894172	.2386517

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1183.123	30817.07	3114.256	1102.475	2039.518
Stddev	2.106	10.47	7.196	3.192	2.080
%RSD	.1779990	.0339646	.2310775	.2895060	.1020094
#1	1184.340	30827.74	3118.629	1103.265	2038.712
#2	1180.692	30806.82	3118.189	1105.198	2037.962
#3	1184.339	30816.64	3105.950	1098.963	2041.881

Sample Name: CCV046 Acquired: 11/09/2024 18:49:36 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV046 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.176118	4.878357	25.06473	4.863745	4.963058	409.3531	10.25228
Stddev	.008401	.020418	.03774	.013264	.013429	.5165	.02686
%RSD	.1622973	.4185392	.1505600	.2727059	.2705874	.1261673	.2620098
#1	5.167721	4.856078	25.05360	4.863555	4.958320	409.7772	10.26977
#2	5.176108	4.882817	25.03381	4.850577	4.952640	409.5042	10.26572
#3	5.184523	4.896176	25.10678	4.877103	4.978215	408.7780	10.22135
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5061674	2.512016	410.5139	15.62319	2.530257	15.30510	418.5206
Stddev	.0027462	.005225	1.2753	.03684	.008066	.03209	.9235
%RSD	.5425385	.2080192	.3106682	.2358054	.3187875	.2096950	.2206605
#1	.5089390	2.506823	411.8116	15.59076	2.527342	15.28798	419.1424
#2	.5061159	2.511951	410.4678	15.61556	2.524054	15.34213	418.9600
#3	.5034474	2.517274	409.2622	15.66324	2.539376	15.28520	417.4594
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.15696	417.8957	2.511052	1.259408	410.6776	2.541038	14.95285
Stddev	.03442	1.1671	.003267	.003508	.8014	.021961	.02607
%RSD	.2271003	.2792737	.1301235	.2785604	.1951401	.8642503	.1743455
#1	15.19169	418.7176	2.507303	1.257641	411.2189	2.563145	14.92348
#2	15.15633	418.4096	2.513295	1.257135	411.0570	2.540741	14.96184
#3	15.12286	416.5598	2.512558	1.263449	409.7570	2.519227	14.97324
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	156.3431	5.035466	5.198888	4.899215	5.172882	5.106394	5.062245
Stddev	.2104	.008071	.040054	.005849	.005091	.030178	.012243
%RSD	.1345451	.1602805	.7704379	.1193901	.0984143	.5909780	.2418494
#1	156.3917	5.034332	5.242658	4.901265	5.171774	5.139284	5.049006
#2	156.5249	5.028022	5.189945	4.892616	5.168437	5.099918	5.073159
#3	156.1127	5.044044	5.164062	4.903763	5.178436	5.079980	5.064569

Sample Name: CCV046 Acquired: 11/09/2024 18:49:36 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV046 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.047241	5.130750	5.105843
Stddev	.014182	.023222	.005379
%RSD	.2809852	.4526103	.1053541
#1	5.061583	5.151827	5.103849
#2	5.046915	5.134566	5.111935
#3	5.033225	5.105856	5.101746

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	937.6324	26442.94	2784.504	839.1337	1665.582
Stddev	1.5517	57.33	10.824	2.3687	1.230
%RSD	.1654964	.2167918	.3887086	.2822795	.0738480
#1	935.8446	26495.86	2773.136	841.8164	1664.999
#2	938.6302	26450.91	2785.689	838.2544	1666.996
#3	938.4225	26382.04	2794.686	837.3305	1664.752

Sample Name: CCB046 Acquired: 11/09/2024 18:53:49 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB046 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0066244	-.005880	.0026873	-.001275	-.000232	.0421932	.0005094
Stddev	.0055794	.000488	.0007178	.006787	.002362	.0134740	.0009765
%RSD	84.22420	8.293109	26.71143	532.2985	1015.890	31.93396	191.6850

#1	.0113544	-.006236	.0023007	-.000806	.002458	.0548717	.0016058
#2	.0080475	-.005324	.0022457	.005265	-.001965	.0280444	-.000267
#3	.0004713	-.006081	.0035156	-.008284	-.001191	.0436636	.000189

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000371	-.000057	.0214302	.0001590	.0003637	.0037659	-.006505
Stddev	.0001453	.000130	.0095353	.0000642	.0004191	.0038704	.028989
%RSD	391.5663	227.6646	44.49473	40.39389	115.2332	102.7767	445.6274

#1	.0001352	.000038	.0205301	.0001873	-.000072	.0057254	-.007562
#2	.0001059	-.000206	.0313836	.0000855	.000399	-.000692	.022998
#3	-.000130	-.000004	.0123768	.0002042	.000764	.006265	-.034951

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000061	.0641826	.0003838	.0006588	-.275392	.0022718	.0005466
Stddev	.000918	.0846405	.0002961	.0001627	.129036	.0070909	.0001559
%RSD	1511.503	131.8746	77.15411	24.69269	46.85544	312.1312	28.52342

#1	.000215	.0189440	.0002756	.0005349	-.362979	-.005296	.0007238
#2	-.001085	.0117744	.0007189	.0008430	-.127211	.008762	.0004860
#3	.000688	.1618293	.0001570	.0005985	-.335985	.003349	.0004301

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000774	.0076904	.0061797	.0005242	.0023268	.0008178	.0016331
Stddev	.121875	.0029391	.0009021	.0010013	.0038949	.0014120	.0016503
%RSD	15746.08	38.21790	14.59819	190.9904	167.3965	172.6581	101.0520

#1	.077581	.0057820	.0066218	.0000482	.0032342	.0009292	.0033505
#2	-.141188	.0110750	.0051418	.0016747	-.001942	.0021708	.0014892
#3	.061286	.0062143	.0067755	-.000150	.005688	-.000647	.0000594

Sample Name: CCB046 Acquired: 11/09/2024 18:53:49 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB046 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0004042	.0013156	.0001562
Stddev	.0012234	.0008113	.0000683
%RSD	302.6322	61.67054	43.69742

#1	-.000899	.0019932	.0001166
#2	.001527	.0015370	.0001171
#3	.000585	.0004165	.0002351

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1128.715	28719.33	2895.074	1039.356	2180.606
Stddev	.870	32.77	13.995	4.745	4.002
%RSD	.0770652	.1141164	.4834082	.4565264	.1835439

#1	1127.711	28686.71	2908.661	1044.132	2179.823
#2	1129.205	28719.02	2880.704	1039.292	2177.053
#3	1129.229	28752.26	2895.857	1034.643	2184.942

Sample Name: PB164631BL Acquired: 11/09/2024 18:58:23 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS631 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0029386	-.005957	-.002876	-.006495	-.001261	.0028588	.0000182
Stddev	.0085380	.001387	.001994	.001852	.001267	.0126348	.0008212
%RSD	290.5465	23.27633	69.32450	28.51537	100.4450	441.9593	4513.945

#1	.0122670	-.005774	-.002637	-.008215	-.002698	-.010817	-.000707
#2	.0010374	-.004670	-.004980	-.006737	-.000783	.005297	-.000148
#3	-.004489	-.007425	-.001013	-.004534	-.000303	.014097	.000910

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000036	.0000036	-.000288	-.000078	.0000429	.0004331	-.016317
Stddev	.000070	.0002011	.015561	.000655	.0008735	.0078597	.023273
%RSD	197.8711	5602.561	5405.021	836.1332	2035.804	1814.761	142.6326

#1	.000016	.0002352	.014696	.000676	-.000962	.0046480	.009727
#2	-.000116	-.000127	.000808	-.000504	.000618	-.008635	-.035077
#3	-.000006	-.000097	-.016368	-.000407	.000473	.005286	-.023599

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016383	.0888810	-.000110	.0001666	.1336819	-.000114	-.000051
Stddev	.0013067	.0654466	.000504	.0008034	.4756492	.004073	.000474
%RSD	79.76030	73.63394	460.4839	482.1393	355.8066	3580.091	932.8348

#1	.0021825	.0178930	.000036	.0010698	-.172099	-.001962	-.000578
#2	.0025849	.1468200	-.000671	-.000101	-.108542	-.002935	.000083
#3	.0001474	.1019300	.000306	-.000469	.681687	.004556	.000342

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0511345	.0007707	.0014302	-.000201	.0054516	.0000527	.0004393
Stddev	.0516032	.0011437	.0005697	.000287	.0062605	.0001126	.0013167
%RSD	100.9165	148.4121	39.83707	142.5638	114.8368	213.6434	299.7001

#1	-.002546	.0007371	.0020067	-.000167	.0085625	.0000949	-.001079
#2	.100373	-.000356	.0008675	-.000504	-.001755	-.000075	.001274
#3	.055576	.001931	.0014163	.000067	.009547	.000138	.001122

Sample Name: PB164631BL Acquired: 11/09/2024 18:58:23 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS631 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0008200	.0006270	.0000769
Stddev	.0019191	.0009384	.0000109
%RSD	234.0220	149.6716	14.22874
#1	-.000690	.0016415	.0000822
#2	.000171	-.000210	.0000643
#3	.002980	.000450	.0000842

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1135.381	28987.62	2880.243	1051.453	2200.154
Stddev	2.601	104.66	11.067	2.519	4.327
%RSD	.2290482	.3610512	.3842417	.2395831	.1966490
#1	1133.119	28884.07	2876.125	1049.263	2195.614
#2	1134.803	28985.44	2871.825	1050.890	2200.620
#3	1138.223	29093.35	2892.779	1054.206	2204.229

Sample Name: PB164631BS Acquired: 11/09/2024 19:02:56 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS631 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0226670	.0487331	.0161301	.0607412	.1114759	.3856258
Stddev	.0070968	.0028246	.0008768	.0015830	.0009617	.0102661
%RSD	31.30892	5.796092	5.435561	2.606214	.8626675	2.662181

#1	.0299002	.0494225	.0171044	.0606992	.1119588	.3833531
#2	.0223857	.0456276	.0158811	.0591795	.1103684	.3968377
#3	.0157150	.0511492	.0154048	.0623448	.1121003	.3766865

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4096415	.0108174	.0104570	10.63368	.0224749	.0995509
Stddev	.0012315	.0001135	.0002055	.02726	.0007680	.0003107
%RSD	.3006299	1.049455	1.965303	.2563935	3.417345	.3120777

#1	.4105062	.0109395	.0106866	10.63360	.0230951	.0993229
#2	.4082315	.0107151	.0103942	10.60645	.0216158	.0994250
#3	.4101867	.0107976	.0102902	10.66098	.0227137	.0999048

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0529649	.1965573	.0347346	10.42159	.0825939	.0224410
Stddev	.0056811	.0183637	.0018188	.07339	.0010490	.0003723
%RSD	10.72623	9.342690	5.236164	.7042410	1.270052	1.659037

#1	.0594802	.1781202	.0367638	10.50443	.0823820	.0223043
#2	.0503697	.2148468	.0332513	10.39564	.0837327	.0221564
#3	.0490449	.1967049	.0341888	10.36469	.0816671	.0228624

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.715558	.1029343	.1161715	9.668819	.0228446	F .0019239
Stddev	.497401	.0096096	.0002887	.145950	.0017327	.0012318
%RSD	5.119638	9.335630	.2485105	1.509494	7.584780	64.02245

#1	9.155645	.1123824	.1160435	9.830239	.0244712	.0033212
#2	9.884693	.0931710	.1165021	9.630050	.0210223	.0009951
#3	10.10634	.1032493	.1159689	9.546167	.0230404	.0014556

Sample Name: PB164631BS Acquired: 11/09/2024 19:02:56 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS631 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0194954	.1830147	F .4536084	.0131144	.2014489	.0295833
Stddev	.0006511	.0092202	.0014346	.0013000	.0007267	.0021477
%RSD	3.339695	5.037936	.3162703	9.912446	.3607249	7.259709
#1	.0201311	.1725901	.4530617	.0141168	.2010466	.0271035
#2	.0188300	.1863542	.4525275	.0135809	.2022877	.0308460
#3	.0195250	.1900998	.4552360	.0116456	.2010123	.0308004

Elem	Sr4077
Units	ppm
Avg	.2065939
Stddev	.0004456
%RSD	.2156980
#1	.2071022
#2	.2064088
#3	.2062706

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1132.752	28933.89	2879.100	1044.776	2147.670
Stddev	1.070	60.38	5.748	4.117	2.414
%RSD	.0945031	.2086665	.1996524	.3940221	.1124017
#1	1133.922	28892.42	2879.761	1040.084	2147.007
#2	1132.513	29003.16	2884.489	1046.460	2145.657
#3	1131.821	28906.09	2873.050	1047.783	2150.347

Sample Name: PB164631BSD Acquired: 11/09/2024 19:07:26 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCSD631 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0149107	.0234688	.0111152	.0311733	.0586346	.2180001	.2155953
Stddev	.0057042	.0017823	.0038205	.0075244	.0013086	.0103736	.0024350
%RSD	38.25557	7.594524	34.37194	24.13727	2.231714	4.758520	1.129419
#1	.0188631	.0236207	.0080717	.0323588	.0594903	.2298269	.2183940
#2	.0083714	.0216153	.0154026	.0231265	.0571282	.2137323	.2139625
#3	.0174976	.0251703	.0098712	.0380346	.0592852	.2104413	.2144293
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0054212	.0053980	5.563765	.0117140	.0509081	.0269315	.0828715
Stddev	.0002072	.0001768	.066902	.0020089	.0007374	.0044108	.0298273
%RSD	3.821507	3.275900	1.202455	17.14951	1.448390	16.37779	35.99219
#1	.0055277	.0054514	5.640854	.0118003	.0515736	.0219595	.1161308
#2	.0051825	.0052006	5.520891	.0096634	.0501154	.0284615	.0739895
#3	.0055536	.0055419	5.529549	.0136784	.0510353	.0303736	.0584941
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0173267	5.479376	.0426643	.0115433	5.275950	.0605103	.0611920
Stddev	.0007150	.087113	.0004426	.0002888	.447716	.0102159	.0004105
%RSD	4.126341	1.589841	1.037424	2.502232	8.485983	16.88291	.6707699
#1	.0180489	5.541629	.0424534	.0118743	5.635500	.0688541	.0611789
#2	.0166192	5.379823	.0423666	.0113425	5.417876	.0491169	.0616089
#3	.0173119	5.516676	.0431730	.0114131	4.774472	.0635601	.0607883
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.072254	.0128186	.0005293	.0100948	.0913122	.2369744	.0078628
Stddev	.178306	.0035085	.0003489	.0004920	.0094702	.0015729	.0016463
%RSD	3.515318	27.37001	65.91716	4.873326	10.37129	.6637538	20.93779
#1	5.270660	.0167249	.0008604	.0106371	.0993989	.2387752	.0097155
#2	4.925414	.0117955	.0001650	.0099701	.0808939	.2358694	.0073048
#3	5.020690	.0099354	.0005626	.0096773	.0936437	.2362785	.0065680

Sample Name: PB164631BSD Acquired: 11/09/2024 19:07:26 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCSD631 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.1089023	.0156755	.1085021
Stddev	.0044745	.0015306	.0019946
%RSD	4.108735	9.764290	1.838324
#1	.1139274	.0172586	.1108052
#2	.1053494	.0155644	.1073550
#3	.1074301	.0142034	.1073460

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1127.004	28905.59	2861.380	1040.870	2171.206
Stddev	3.108	83.14	35.785	3.527	6.341
%RSD	.2757728	.2876103	1.250607	.3388543	.2920412
#1	1124.151	28837.98	2822.171	1037.133	2164.495
#2	1130.315	28998.42	2892.279	1044.141	2177.096
#3	1126.545	28880.39	2869.689	1041.334	2172.027

Sample Name: P4524-06DLX2 Acquired: 11/09/2024 19:21:03 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3355435	-.043861	.4273273	-.058757	.0085154	99.04882	1.404389
Stddev	.0091134	.008913	.0017507	.006610	.0025834	.28149	.005108
%RSD	2.716015	20.32000	.4096908	11.24945	30.33764	.2841978	.3636979
#1	.3454373	-.034604	.4254594	-.051258	.0062697	98.83243	1.399968
#2	.3337012	-.044597	.4275917	-.063736	.0113387	99.36707	1.409980
#3	.3274920	-.052384	.4289308	-.061278	.0079379	98.94697	1.403219
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0045045	.0090702	28.39464	.2265792	.1548408	1.227404	271.2221
Stddev	.0002076	.0002733	.11616	.0014627	.0004548	.009750	1.5472
%RSD	4.608264	3.012868	.4090982	.6455705	.2937118	.7943532	.5704403
#1	.0047189	.0093780	28.27425	.2262363	.1551943	1.221051	270.2254
#2	.0043044	.0089766	28.50605	.2253185	.1550004	1.238630	273.0044
#3	.0044903	.0088561	28.40361	.2281830	.1543277	1.222532	270.4364
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.038497	55.87998	.3164935	-.018852	1.110339	.5428248	.8893655
Stddev	.029644	.33640	.0007320	.000185	.250904	.0067575	.0019464
%RSD	.4909108	.6019991	.2312736	.9836037	22.59704	1.244872	.2188515
#1	6.008771	55.60378	.3173242	-.018684	1.397412	.5496345	.8876184
#2	6.068058	56.25462	.3159432	-.019051	1.000637	.5427194	.8890145
#3	6.038663	55.78155	.3162131	-.018821	.932969	.5361207	.8914635
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13.19391	6.254930	.2526282	-.000453	1.082561	4.748665	.0070930
Stddev	.03003	.022760	.0039441	.000480	.001534	.032218	.0033843
%RSD	.2275998	.3638694	1.561227	105.9797	.1416930	.6784550	47.71270
#1	13.16796	6.229306	.2487639	-.000514	1.083140	4.739702	.0109151
#2	13.22680	6.262685	.2566475	-.000901	1.083721	4.784416	.0058865
#3	13.18696	6.272799	.2524731	.000054	1.080822	4.721879	.0044773

Sample Name: P4524-06DLX2 Acquired: 11/09/2024 19:21:03 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W5 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.647331	.0886775	.2686451
Stddev	.006245	.0001814	.0006121
%RSD	.2358996	.2045738	.2278486
#1	2.644255	.0886086	.2685361
#2	2.654518	.0888833	.2693044
#3	2.643221	.0885406	.2680948

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1175.082	30506.19	3104.168	1090.329	2030.369
Stddev	1.455	45.93	18.080	2.912	.854
%RSD	.1238169	.1505635	.5824453	.2670879	.0420844
#1	1174.029	30468.14	3106.091	1088.511	2030.876
#2	1174.474	30557.21	3085.203	1093.688	2029.383
#3	1176.742	30493.21	3121.209	1088.787	2030.849

Sample Name: P4524-07DLX2 Acquired: 11/09/2024 19:25:28 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W5D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3618240	-.041475	.4504248	-.063356	.0126655	104.1695	1.477214
Stddev	.0148251	.003419	.0004693	.008020	.0018863	3.9014	.050602
%RSD	4.097332	8.243163	.1041830	12.65870	14.89327	3.745267	3.425535
#1	.3780041	-.043132	.4508628	-.069886	.0136166	104.8541	1.488061
#2	.3585754	-.037544	.4504821	-.054404	.0104929	99.9711	1.422068
#3	.3488927	-.043750	.4499296	-.065779	.0138869	107.6833	1.521513
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0045144	.0094334	29.90120	.2402378	.1630334	1.286943	283.8973
Stddev	.0001026	.0004904	1.04248	.0007509	.0007568	.049522	9.9410
%RSD	2.273062	5.198658	3.486406	.3125798	.4642251	3.848039	3.501603
#1	.0043959	.0094302	30.04862	.2397320	.1621911	1.297441	285.7985
#2	.0045748	.0099254	28.79285	.2411007	.1636561	1.233014	273.1430
#3	.0045724	.0089446	30.86211	.2398808	.1632531	1.330374	292.7503
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.348331	58.81023	.3366825	-.018988	.8747327	.5653747	.9378146
Stddev	.216545	1.98577	.0022341	.000923	.2461700	.0155850	.0027711
%RSD	3.411052	3.376569	.6635638	4.862256	28.14231	2.756579	.2954791
#1	6.383614	59.02219	.3385870	-.019451	.9334264	.5628962	.9397596
#2	6.116312	56.72698	.3372371	-.017925	.6045208	.5511774	.9346417
#3	6.545068	60.68151	.3342233	-.019589	1.086251	.5820504	.9390424
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13.80412	6.603855	.2648864	-.001431	1.129185	4.860945	.0110495
Stddev	.40731	.011049	.0084359	.001006	.006323	.151675	.0020986
%RSD	2.950616	.1673059	3.184730	70.31614	.5599644	3.120271	18.99239
#1	13.99319	6.591662	.2685224	-.002450	1.129135	4.855911	.0097148
#2	13.33664	6.613203	.2552422	-.001405	1.122887	4.711850	.0099653
#3	14.08252	6.606700	.2708945	-.000438	1.135532	5.015074	.0134684

Sample Name: P4524-07DLX2 Acquired: 11/09/2024 19:25:28 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W5D Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.759043	.0928602	.2805458
Stddev	.094154	.0025659	.0093123
%RSD	3.412574	2.763164	3.319347
#1	2.782292	.0932361	.2824614
#2	2.655442	.0901272	.2704247
#3	2.839395	.0952175	.2887513

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1183.592	30635.80	3134.044	1098.541	2035.732
Stddev	.286	10.22	92.603	1.829	3.891
%RSD	.0241319	.0333528	2.954743	.1664651	.1911114
#1	1183.922	30644.29	3129.020	1099.053	2033.629
#2	1183.425	30638.66	3229.057	1100.060	2033.346
#3	1183.429	30624.46	3044.056	1096.511	2040.221

Sample Name: P4524-06LDLX10 Acquired: 11/09/2024 19:29:53 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W5L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0730714	-.008516	.0819836	-.012457	.0011596	20.03738	.2833336
Stddev	.0099433	.002235	.0003811	.005020	.0008075	.09700	.0006924
%RSD	13.60768	26.24465	.4648888	40.29830	69.64227	.4841072	.2443583

#1	.0824875	-.009870	.0819591	-.007938	.0015814	19.95875	.2826359
#2	.0740530	-.005937	.0816153	-.017860	.0016688	20.14578	.2840205
#3	.0626737	-.009743	.0823764	-.011572	.0002285	20.00762	.2833446

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0010918	.0014816	5.779316	.0467194	.0298577	.2468382	55.71617
Stddev	.0001213	.0001375	.031198	.0007111	.0005792	.0078845	.24343
%RSD	11.11013	9.276768	.5398219	1.522075	1.939758	3.194179	.4369050

#1	.0009927	.0014447	5.747901	.0463782	.0304238	.2387423	55.49154
#2	.0012271	.0016338	5.810292	.0462432	.0292663	.2544927	55.68216
#3	.0010556	.0013664	5.779756	.0475368	.0298829	.2472798	55.97482

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.242910	11.41686	.0608483	-.003939	.1454126	.1071340	.1839685
Stddev	.003647	.07710	.0001830	.000569	.1436860	.0140204	.0010581
%RSD	.2933891	.6753033	.3006629	14.44903	98.81264	13.08677	.5751311

#1	1.238901	11.42695	.0606372	-.003536	.0247470	.1227669	.1851545
#2	1.246030	11.48841	.0609483	-.004590	.1071272	.0956733	.1831214
#3	1.243798	11.33521	.0609594	-.003692	.3043635	.1029618	.1836295

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.499887	1.207465	.0510394	-.000968	.2042528	.9966499	.0012722
Stddev	.038421	.002233	.0005102	.000444	.0065789	.0030397	.0009107
%RSD	1.536911	.1849215	.9996312	45.84280	3.220961	.3049869	71.58179

#1	2.504976	1.209091	.0513216	-.001469	.2096464	.9986789	.0017995
#2	2.535510	1.208384	.0513461	-.000810	.1969231	.9931551	.0002207
#3	2.459175	1.204919	.0504504	-.000625	.2061888	.9981157	.0017965

Sample Name: P4524-06LDLX10 Acquired: 11/09/2024 19:29:53 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W5L Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.5388686	.0161418	.0541405
Stddev	.0012606	.0014539	.0000606
%RSD	.2339339	9.007122	.1119604
#1	.5393750	.0167660	.0540784
#2	.5397973	.0144800	.0541995
#3	.5374336	.0171793	.0541435

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1154.428	29641.82	2940.256	1070.253	2149.521
Stddev	2.473	118.56	9.048	5.605	2.175
%RSD	.2142075	.3999835	.3077236	.5237537	.1011676
#1	1153.718	29506.11	2930.382	1063.796	2151.646
#2	1152.388	29725.33	2948.150	1073.095	2147.300
#3	1157.178	29694.00	2942.236	1073.868	2149.617

Sample Name: P4524-08DLX2 Acquired: 11/09/2024 19:34:24 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W5S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4002585	.0519387	.4491614	.0946700	.1727691	99.51923	5.084385
Stddev	.0060705	.0015746	.0058521	.0032795	.0040525	2.25935	.119109
%RSD	1.516639	3.031550	1.302893	3.464138	2.345597	2.270260	2.342638
#1	.3994161	.0512674	.4511812	.0979552	.1769696	99.82597	5.104428
#2	.3946532	.0508110	.4537361	.0913963	.1724547	97.12219	4.956527
#3	.4067061	.0537376	.4425670	.0946584	.1688830	101.6095	5.192201
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0967037	.1029013	27.13489	.6181901	1.091542	1.640998	263.5078
Stddev	.0027507	.0012008	.64336	.0022312	.011830	.044191	6.1900
%RSD	2.844482	1.166971	2.370975	.3609262	1.083824	2.692958	2.349082
#1	.0964131	.1038545	27.13189	.6194575	1.101530	1.644581	264.2761
#2	.0941098	.1032967	26.49303	.6156138	1.094620	1.595124	256.9695
#3	.0995881	.1015526	27.77975	.6194989	1.078477	1.683289	269.2778
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.789795	54.17236	1.249440	.0708968	1.086931	1.470942	1.695155
Stddev	.160630	1.33920	.012364	.0010044	.117093	.038049	.001990
%RSD	2.365755	2.472110	.9895458	1.416678	10.77282	2.586731	.1174206
#1	6.795014	54.39043	1.259923	.0713394	1.214179	1.475799	1.694455
#2	6.626619	52.73750	1.252591	.0716038	.983725	1.430698	1.693608
#3	6.947751	55.38914	1.235805	.0697471	1.062888	1.506330	1.697400
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	12.65583	6.041146	.2457090	-.001376	1.021655	4.466149	.0057471
Stddev	.35152	.074990	.0070313	.000578	.009857	.090284	.0006464
%RSD	2.777546	1.241320	2.861620	42.01566	.9647686	2.021517	11.24688
#1	12.59262	6.094859	.2449107	-.001180	1.031294	4.468317	.0057234
#2	12.34019	6.073108	.2391110	-.002027	1.011594	4.374801	.0051129
#3	13.03466	5.955470	.2531054	-.000922	1.022077	4.555330	.0064050

Sample Name: P4524-08DLX2 Acquired: 11/09/2024 19:34:24 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W5S Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.543961	.0859500	.2587098
Stddev	.057663	.0023819	.0056598
%RSD	2.266678	2.771207	2.187698
#1	2.558357	.0835501	.2594930
#2	2.480463	.0859865	.2526991
#3	2.593062	.0883134	.2639371

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1182.647	30589.92	3110.779	1090.903	2054.975
Stddev	7.307	15.04	64.122	2.991	18.439
%RSD	.6178594	.0491677	2.061300	.2741787	.8972995
#1	1178.315	30587.83	3102.222	1093.332	2039.085
#2	1178.541	30576.03	3178.750	1087.562	2050.647
#3	1191.083	30605.89	3051.364	1091.815	2075.193

Sample Name: P4524-09DLX2 Acquired: 11/09/2024 19:38:43 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W6 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3551542	-.044642	.3146903	-.068576	.0120956	97.76136	1.424838
Stddev	.0167322	.006482	.0014573	.002719	.0050556	2.79416	.040374
%RSD	4.711246	14.51957	.4630904	3.965519	41.79679	2.858145	2.833608

#1	.3481417	-.037539	.3160535	-.071507	.0159157	99.06258	1.442914
#2	.3430693	-.046152	.3148632	-.068086	.0140085	99.66759	1.453016
#3	.3742516	-.050236	.3131543	-.066134	.0063627	94.55390	1.378584

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0049136	.0072489	19.27967	.2447243	.1671145	.7140125	301.4377
Stddev	.0002211	.0004752	.48775	.0060316	.0003528	.0222413	8.4789
%RSD	4.499004	6.556145	2.529889	2.464637	.2111004	3.114971	2.812833

#1	.0049044	.0071871	19.50118	.2493591	.1667150	.7204864	305.1985
#2	.0051391	.0068075	19.61735	.2469090	.1672452	.7322986	307.3858
#3	.0046972	.0077519	18.72046	.2379048	.1673832	.6892525	291.7289

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.149061	54.33410	.3198268	-.023436	1.260826	.6380873	.8427519
Stddev	.164709	1.29275	.0005971	.001101	.249939	.0131177	.0258787
%RSD	2.678602	2.379259	.1866888	4.699909	19.82343	2.055789	3.070732

#1	6.227953	54.86677	.3203604	-.022293	1.315216	.6443887	.8601768
#2	6.259486	55.27541	.3199382	-.023525	.988171	.6468654	.8550629
#3	5.959745	52.86013	.3191819	-.024491	1.479091	.6230079	.8130160

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.53378	5.547540	.2781106	-.001006	.8650573	4.983345	.0092750
Stddev	.47735	.014861	.0079876	.000349	.0099161	.125404	.0030807
%RSD	3.072968	.2678920	2.872091	34.68467	1.146297	2.516453	33.21480

#1	15.66447	5.534225	.2825596	-.000786	.8615735	5.036878	.0119765
#2	15.93218	5.563573	.2828829	-.001408	.8573531	5.073097	.0059200
#3	15.00470	5.544822	.2688892	-.000824	.8762452	4.840059	.0099285

Sample Name: P4524-09DLX2 Acquired: 11/09/2024 19:38:43 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W6 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.657913	.0841061	.2322815
Stddev	.080149	.0017982	.0065385
%RSD	3.015472	2.138017	2.814893
#1	2.692795	.0841762	.2351040
#2	2.714710	.0858682	.2369347
#3	2.566235	.0822739	.2248059

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1179.841	31041.99	3151.860	1109.920	2039.431
Stddev	1.723	748.36	68.580	30.362	4.240
%RSD	.1460034	2.410788	2.175842	2.735498	.2078890
#1	1179.078	30486.71	3122.662	1089.781	2035.222
#2	1178.631	30746.23	3102.712	1095.137	2043.701
#3	1181.813	31893.03	3230.207	1144.842	2039.371

Sample Name: P4524-10DLX2 Acquired: 11/09/2024 19:43:09 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2446516	-.045193	.3285987	-.059723	.0153744	92.18213	1.175179
Stddev	.0064786	.001259	.0015882	.010351	.0060127	.20125	.000657
%RSD	2.648095	2.785720	.4833386	17.33188	39.10863	.2183216	.0558784
#1	.2435663	-.046428	.3273762	-.055484	.0193803	92.39783	1.174807
#2	.2387842	-.045240	.3280261	-.052165	.0182824	91.99940	1.174793
#3	.2516043	-.043912	.3303939	-.071521	.0084605	92.14915	1.175937
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0044409	.0070783	19.43122	.2454751	.1364998	.7874677	285.5661
Stddev	.0001854	.0001826	.06373	.0013496	.0014220	.0051421	.7840
%RSD	4.174390	2.579347	.3279909	.5497940	1.041733	.6529978	.2745338
#1	.0043626	.0068751	19.44026	.2469018	.1357176	.7926199	285.2830
#2	.0046526	.0071314	19.36346	.2453050	.1356406	.7874474	284.9629
#3	.0043076	.0072285	19.48996	.2442187	.1381411	.7823357	286.4523
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.282793	52.23142	.2810645	-.021342	.9652958	.5718077	.8547585
Stddev	.007350	.06433	.0008039	.000514	.1117084	.0029112	.0039909
%RSD	.1391366	.1231607	.2860209	2.409402	11.57245	.5091152	.4669024
#1	5.274325	52.30558	.2808916	-.021220	1.044384	.5730003	.8528248
#2	5.286540	52.19798	.2819408	-.020899	.837505	.5739331	.8593479
#3	5.287515	52.19070	.2803612	-.021906	1.013999	.5684896	.8521029
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13.90605	5.296834	.2654097	-.000818	.9977226	5.398105	.0094078
Stddev	.06581	.027304	.0010513	.000934	.0035228	.017599	.0023442
%RSD	.4732254	.5154775	.3961065	114.1664	.3530846	.3260207	24.91753
#1	13.95516	5.274164	.2666076	-.001879	.9971567	5.406585	.0089796
#2	13.83128	5.289193	.2646404	-.000449	.9945170	5.377872	.0119365
#3	13.93172	5.327144	.2649810	-.000125	1.001494	5.409859	.0073071

Sample Name: P4524-10DLX2 Acquired: 11/09/2024 19:43:09 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4W7 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.642614	.0789179	.2136462
Stddev	.004630	.0013551	.0006835
%RSD	.1751890	1.717116	.3199099
#1	2.637321	.0775476	.2144307
#2	2.644614	.0802573	.2131799
#3	2.645908	.0789489	.2133278

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1175.420	30548.28	3105.906	1093.144	2049.696
Stddev	2.751	60.40	2.980	5.938	1.042
%RSD	.2340813	.1977194	.0959340	.5432166	.0508172
#1	1174.061	30582.82	3102.619	1091.733	2049.940
#2	1173.613	30478.54	3108.430	1088.039	2050.593
#3	1178.587	30583.49	3106.669	1099.661	2048.554

Sample Name: P4524-11DLX2 Acquired: 11/09/2024 19:47:35 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y0 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3134402	-.038984	.2753473	-.065071	.0111120	88.24931	1.653105
Stddev	.0120807	.008329	.0084484	.004650	.0035127	.04458	.004512
%RSD	3.854213	21.36388	3.068285	7.146644	31.61205	.0505198	.2729243
#1	.3267328	-.035887	.2779643	-.067510	.0108674	88.28568	1.656883
#2	.3104574	-.048418	.2821776	-.059708	.0147406	88.19957	1.648110
#3	.3031303	-.032648	.2659001	-.067994	.0077279	88.26268	1.654323
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0045095	.0062217	17.93623	.2294295	.1518148	.7937496	281.5670
Stddev	.0001925	.0003601	.05328	.0007081	.0014369	.0052445	.7461
%RSD	4.269568	5.787970	.2970568	.3086582	.9464881	.6607231	.2649830
#1	.0044596	.0065753	17.97248	.2286637	.1502702	.7939683	280.9838
#2	.0043469	.0062343	17.87505	.2295643	.1531118	.7988813	281.3095
#3	.0047221	.0058554	17.96114	.2300606	.1520624	.7883992	282.4078
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.801121	45.66687	.2705774	-.021681	.9734614	.6090585	.7185744
Stddev	.039961	.05363	.0015722	.000330	.1197586	.0075947	.0026509
%RSD	.4540429	.1174392	.5810393	1.522691	12.30234	1.246966	.3689169
#1	8.799018	45.67077	.2692121	-.021677	1.094750	.6167304	.7215996
#2	8.762253	45.71844	.2722962	-.022013	.970341	.6015433	.7166573
#3	8.842092	45.61139	.2702239	-.021353	.855293	.6089018	.7174663
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.74899	4.255319	.2616005	-.001239	.7795594	5.278691	.0073406
Stddev	.10732	.020047	.0035880	.001099	.0050753	.022152	.0023418
%RSD	.6814129	.4710980	1.371547	88.69416	.6510427	.4196578	31.90249
#1	15.83925	4.245018	.2604992	-.002220	.7834591	5.254404	.0099682
#2	15.77738	4.278422	.2586923	-.001447	.7738211	5.297787	.0065800
#3	15.63033	4.242517	.2656101	-.000051	.7813979	5.283882	.0054736

Sample Name: P4524-11DLX2 Acquired: 11/09/2024 19:47:35 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y0 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.656043	.0799049	.2382871
Stddev	.007436	.0012526	.0002459
%RSD	.2799468	1.567593	.1032176
#1	2.653156	.0795003	.2380101
#2	2.650484	.0789046	.2383714
#3	2.664489	.0813098	.2384798

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1178.270	30535.38	3109.644	1095.870	2056.796
Stddev	3.273	94.44	6.745	6.724	3.945
%RSD	.2777960	.3092957	.2169040	.6135681	.1917925
#1	1175.210	30430.15	3114.428	1088.107	2054.023
#2	1177.878	30612.79	3101.930	1099.601	2055.053
#3	1181.722	30563.20	3112.574	1099.900	2061.312

Sample Name: P4524-12DLX2 Acquired: 11/09/2024 19:52:01 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y1 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3720151	-.051392	.4244990	-.083829	.0145318	96.39146	1.281249
Stddev	.0066917	.001654	.0073924	.008042	.0012833	.28878	.002681
%RSD	1.798761	3.217451	1.741449	9.593835	8.831374	.2995942	.2092512

#1	.3725542	-.050929	.4275980	-.074682	.0136706	96.66023	1.282572
#2	.3784209	-.050020	.4160615	-.089795	.0160067	96.08614	1.278164
#3	.3650702	-.053228	.4298376	-.087009	.0139180	96.42802	1.283012

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0057502	.0106680	15.66024	.2689034	.1739594	1.198981	347.3598
Stddev	.0000523	.0001408	.09059	.0008500	.0006551	.006248	1.0722
%RSD	.9092780	1.319518	.5784902	.3160912	.3765871	.5210884	.3086763

#1	.0057722	.0108202	15.72594	.2686695	.1735818	1.196325	348.0586
#2	.0057879	.0106413	15.69789	.2698459	.1735806	1.194500	346.1253
#3	.0056905	.0105425	15.55690	.2681949	.1747159	1.206118	347.8956

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.734712	48.37716	.3025350	-.025307	1.059646	.7252352	.9906197
Stddev	.037373	.23746	.0017832	.000147	.391249	.0118796	.0033435
%RSD	.4278657	.4908411	.5894255	.5816569	36.92266	1.638037	.3375180

#1	8.766443	48.57492	.3017546	-.025384	.859605	.7348095	.9941008
#2	8.693517	48.11381	.3045754	-.025400	.808862	.7289555	.9903250
#3	8.744175	48.44276	.3012750	-.025137	1.510471	.7119407	.9874333

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	20.31232	5.068471	.3171691	-.000875	.6656146	5.511848	.0105747
Stddev	.08515	.006758	.0011961	.000662	.0057122	.028050	.0033786
%RSD	.4192056	.1333248	.3771061	75.67277	.8581910	.5089006	31.95007

#1	20.21403	5.075767	.3158019	-.001431	.6600701	5.541250	.0140375
#2	20.35921	5.067220	.3180219	-.001052	.6652927	5.485381	.0103997
#3	20.36372	5.062427	.3176835	-.000142	.6714810	5.508914	.0072870

Sample Name: P4524-12DLX2 Acquired: 11/09/2024 19:52:01 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y1 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	3.392042	.0799781	.1622975
Stddev	.011993	.0035841	.0006585
%RSD	.3535652	4.481376	.4057185
#1	3.401191	.0769624	.1628416
#2	3.378465	.0790313	.1615655
#3	3.396472	.0839406	.1624854

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1181.588	30634.48	3135.544	1093.794	2028.101
Stddev	2.058	63.86	17.539	1.666	2.804
%RSD	.1741448	.2084417	.5593455	.1523296	.1382731
#1	1183.963	30561.11	3117.163	1091.983	2029.859
#2	1180.462	30677.45	3152.097	1094.137	2029.576
#3	1180.338	30664.89	3137.371	1095.262	2024.867

Sample Name: P4524-13DLX2 Acquired: 11/09/2024 19:56:28 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y2 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2581746	-.049135	.2825018	-.065583	.0074940	92.28001	1.246881
Stddev	.0005535	.007405	.0052743	.014879	.0023845	.32311	.006512
%RSD	.2143903	15.07008	1.867002	22.68756	31.81847	.3501355	.5222980
#1	.2587779	-.057063	.2885554	-.078720	.0092348	92.62377	1.253762
#2	.2580555	-.042398	.2800522	-.068604	.0047762	91.98255	1.240813
#3	.2576903	-.047944	.2788977	-.049425	.0084711	92.23372	1.246069
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0055951	.0062069	15.88654	.2566950	.1715497	.8165431	309.3255
Stddev	.0002083	.0001466	.15132	.0010101	.0001618	.0083895	1.1947
%RSD	3.722419	2.361815	.9524961	.3934988	.0943315	1.027442	.3862403
#1	.0053821	.0061861	16.06123	.2559875	.1716928	.8139888	310.5684
#2	.0057983	.0063628	15.79597	.2562456	.1715823	.8259129	308.1855
#3	.0056051	.0060719	15.80242	.2578518	.1713741	.8097277	309.2225
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.172749	44.48237	.2922279	-.023923	1.119249	.6004534	.7191950
Stddev	.034642	.24687	.0012619	.000598	.228884	.0060654	.0035771
%RSD	.4238686	.5549889	.4318157	2.501591	20.44976	1.010130	.4973803
#1	8.209466	44.67269	.2932096	-.023517	.926809	.5937304	.7223036
#2	8.168134	44.20342	.2926695	-.023642	1.058584	.6055148	.7199963
#3	8.140645	44.57101	.2908046	-.024610	1.372354	.6021148	.7152852
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	20.49542	4.750372	.2843092	-.001162	.5802950	5.833954	.0079785
Stddev	.16292	.025587	.0034961	.000358	.0084728	.012924	.0011010
%RSD	.7949200	.5386231	1.229678	30.83520	1.460087	.2215366	13.80008
#1	20.41629	4.776657	.2875641	-.001575	.5775878	5.848750	.0083634
#2	20.38718	4.748911	.2806137	-.000930	.5897906	5.828243	.0088354
#3	20.68279	4.725547	.2847499	-.000982	.5735066	5.824869	.0067367

Sample Name: P4524-13DLX2 Acquired: 11/09/2024 19:56:28 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y2 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	3.022300	.0841536	.1559808
Stddev	.012828	.0004667	.0004068
%RSD	.4244305	.5545528	.2608233
#1	3.035081	.0841651	.1564006
#2	3.009426	.0846144	.1555883
#3	3.022395	.0836812	.1559536

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1190.841	30769.12	3124.177	1100.687	2055.282
Stddev	1.498	76.04	9.329	6.746	4.331
%RSD	.1258088	.2471279	.2986168	.6128600	.2107485
#1	1190.661	30698.44	3113.598	1094.268	2054.363
#2	1192.422	30759.35	3127.706	1100.075	2059.999
#3	1189.441	30849.57	3131.228	1107.717	2051.483

Sample Name: P4524-14DLX2 Acquired: 11/09/2024 20:00:54 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y3 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3296750	-.054521	.3110220	-.077290	.0107407	111.5925	1.376276
Stddev	.0093791	.001949	.0062540	.007790	.0017034	.5347	.005331
%RSD	2.844947	3.575264	2.010793	10.07842	15.85893	.4791503	.3873254
#1	.3387248	-.054411	.3038558	-.071380	.0091746	110.9760	1.371547
#2	.3199981	-.052628	.3138330	-.086117	.0125543	111.8723	1.382052
#3	.3303020	-.056522	.3153773	-.074374	.0104933	111.9293	1.375229
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0065125	.0057219	24.70541	.2870837	.1866727	.7514565	340.5037
Stddev	.0000908	.0002011	.07067	.0013346	.0014312	.0048426	2.1580
%RSD	1.393765	3.514890	.2860369	.4648886	.7667121	.6444237	.6337810
#1	.0066173	.0059338	24.62551	.2858291	.1858306	.7471805	338.0175
#2	.0064631	.0056982	24.75972	.2869360	.1883252	.7567150	341.8935
#3	.0064572	.0055337	24.73099	.2884860	.1858622	.7504739	341.6000
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.581209	53.88379	.3366576	-.026369	1.558967	.7067820	1.162139
Stddev	.038537	.05639	.0009559	.000587	.144592	.0111363	.001755
%RSD	.5083174	.1046493	.2839294	2.226579	9.274879	1.575641	.1510162
#1	7.543237	53.82945	.3365720	-.025782	1.706690	.6939832	1.162507
#2	7.620287	53.94203	.3357474	-.026956	1.552486	.7121032	1.163681
#3	7.580103	53.87988	.3376534	-.026369	1.417724	.7142595	1.160229
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.56847	5.936683	.3285800	-.001134	1.213289	5.285404	.0082464
Stddev	.20226	.026321	.0005759	.000795	.003975	.050790	.0004997
%RSD	.8232692	.4433657	.1752595	70.14374	.3276475	.9609391	6.059651
#1	24.34885	5.908364	.3283680	-.000609	1.211400	5.235712	.0085650
#2	24.60945	5.960399	.3292318	-.002049	1.217856	5.283277	.0076705
#3	24.74711	5.941287	.3281402	-.000743	1.210610	5.337224	.0085038

Sample Name: P4524-14DLX2 Acquired: 11/09/2024 20:00:54 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y3 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.811433	.0982864	.2394944
Stddev	.012428	.0016102	.0011179
%RSD	.4420690	1.638235	.4667589
#1	2.797110	.0975867	.2384478
#2	2.819363	.0971445	.2393635
#3	2.817828	.1001281	.2406720

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1193.207	30949.18	3139.546	1104.794	2029.104
Stddev	4.013	107.01	22.133	4.494	.770
%RSD	.3363007	.3457591	.7049815	.4067747	.0379553
#1	1194.205	30851.05	3165.086	1101.124	2029.989
#2	1196.626	30933.22	3127.584	1103.452	2028.590
#3	1188.789	31063.28	3125.968	1109.806	2028.733

Sample Name: P4524-15DLX2 Acquired: 11/09/2024 20:05:19 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8687274	-.056483	.5644222	-.080316	.0120569	145.4625	.7872526
Stddev	.0045640	.001198	.0104134	.005694	.0036349	.5734	.0046115
%RSD	.5253611	2.121655	1.844960	7.089827	30.14797	.3941965	.5857727
#1	.8674015	-.057791	.5658426	-.084515	.0161024	146.1205	.7925770
#2	.8649732	-.056219	.5533716	-.082598	.0090657	145.0694	.7846538
#3	.8738075	-.055438	.5740525	-.073835	.0110025	145.1977	.7845270
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0040325	.0073776	108.4343	.2349778	.2603048	.5527228	340.8196
Stddev	.0003733	.0003282	.5238	.0009300	.0013417	.0090179	1.1579
%RSD	9.258511	4.448015	.4830202	.3957741	.5154393	1.631547	.3397362
#1	.0041073	.0071928	109.0347	.2342302	.2591442	.5628323	342.1565
#2	.0043628	.0071836	108.1970	.2360192	.2599964	.5498292	340.1640
#3	.0036274	.0077565	108.0711	.2346842	.2617739	.5455067	340.1381
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.235322	78.59256	.2471979	-.022059	1.595412	.6313706	2.120339
Stddev	.043459	.30570	.0009871	.000182	.051786	.0086801	.005867
%RSD	.5277126	.3889740	.3993240	.8246514	3.245942	1.374810	.2767122
#1	8.281068	78.94554	.2469839	-.022121	1.556882	.6413400	2.115447
#2	8.230313	78.41810	.2463353	-.021854	1.575074	.6272825	2.126844
#3	8.194584	78.41402	.2482744	-.022202	1.654279	.6254894	2.118727
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.869809	5.105474	.3086716	-.003376	14.52623	4.788025	.0024165
Stddev	.087508	.032154	.0028243	.000504	.02848	.009906	.0021921
%RSD	.8866193	.6297951	.9149783	14.92115	.1960625	.2068868	90.71664
#1	9.969595	5.069309	.3118533	-.002797	14.50037	4.777753	.0019577
#2	9.833686	5.116280	.3064607	-.003717	14.55675	4.788805	.0048017
#3	9.806146	5.130834	.3077010	-.003614	14.52157	4.797518	.0004900

Sample Name: P4524-15DLX2 Acquired: 11/09/2024 20:05:19 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y4 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	3.405443	.0843773	.1866636
Stddev	.020880	.0018122	.0006919
%RSD	.6131370	2.147759	.3706942
#1	3.429446	.0827895	.1874607
#2	3.391472	.0839909	.1863130
#3	3.395412	.0863516	.1862172

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1165.298	30458.65	3105.314	1080.778	1959.403
Stddev	2.554	59.12	.938	3.090	1.483
%RSD	.2192107	.1940989	.0302192	.2859338	.0756749
#1	1162.885	30455.30	3105.556	1083.292	1957.706
#2	1167.974	30401.28	3106.108	1077.328	1960.445
#3	1165.033	30519.38	3104.278	1081.714	1960.059

Sample Name: P4524-16DLX2 Acquired: 11/09/2024 20:09:44 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y5 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1553279	-.048348	.1650175	-.064169	.0086290	128.6741	1.161311
Stddev	.0096604	.002787	.0021774	.013884	.0041932	.2741	.001632
%RSD	6.219381	5.763776	1.319506	21.63638	48.59506	.2129897	.1405670
#1	.1450447	-.048063	.1627833	-.070096	.0097455	128.8561	1.162773
#2	.1642133	-.045714	.1671333	-.048306	.0121509	128.8074	1.161609
#3	.1567258	-.051266	.1651359	-.074106	.0039905	128.3589	1.159550
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0045856	.0032532	43.77783	.3367256	.1598320	.5592047	288.4472
Stddev	.0000935	.0006831	.17522	.0012274	.0001073	.0023031	.8304
%RSD	2.039295	20.99750	.4002596	.3645207	.0671321	.4118537	.2878774
#1	.0046917	.0026440	43.88912	.3380858	.1597115	.5615802	289.2399
#2	.0045498	.0031240	43.86852	.3357006	.1599170	.5569816	288.5179
#3	.0045152	.0039917	43.57585	.3363905	.1598677	.5590523	287.5837
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.659000	71.21835	.3046668	-.021318	1.031205	.6280276	.5874130
Stddev	.034415	.51312	.0016914	.000297	.355452	.0040082	.0028092
%RSD	.5168145	.7204845	.5551729	1.391501	34.46954	.6382159	.4782382
#1	6.688205	71.36143	.3066053	-.021583	1.409412	.6261417	.5889086
#2	6.667735	71.64474	.3034914	-.021372	.980181	.6326309	.5841724
#3	6.621059	70.64888	.3039036	-.020997	.704023	.6253103	.5891580
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	19.38936	3.888937	.2706485	-.000614	.8641454	5.290634	.0053656
Stddev	.07240	.016900	.0023161	.000274	.0034082	.018317	.0029083
%RSD	.3733960	.4345585	.8557792	44.61648	.3944050	.3462203	54.20288
#1	19.40947	3.874738	.2711567	-.000322	.8630543	5.288316	.0087019
#2	19.44958	3.884442	.2681205	-.000653	.8679656	5.310000	.0033657
#3	19.30903	3.907629	.2726684	-.000866	.8614164	5.273586	.0040291

Sample Name: P4524-16DLX2 Acquired: 11/09/2024 20:09:44 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y5 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.738592	.0942863	.2069905
Stddev	.002839	.0010497	.0008975
%RSD	.1036605	1.113344	.4335890
#1	2.739586	.0952062	.2077465
#2	2.740801	.0945099	.2072263
#3	2.735390	.0931427	.2059987

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1169.456	30456.72	3097.537	1084.667	2009.662
Stddev	.833	60.89	14.095	1.964	1.337
%RSD	.0712691	.1999216	.4550293	.1811062	.0665284
#1	1169.859	30499.56	3099.355	1083.008	2010.225
#2	1170.010	30387.02	3082.621	1086.836	2010.625
#3	1168.497	30483.58	3110.634	1084.155	2008.136

Sample Name: P4524-17DLX2 Acquired: 11/09/2024 20:14:10 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y6 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3970752	-.049935	.3757441	-.077557	.0161188	92.49045	1.212351
Stddev	.0126872	.000647	.0058092	.011461	.0027122	.36433	.005128
%RSD	3.195159	1.295715	1.546047	14.77798	16.82596	.3939155	.4230053
#1	.3866297	-.050603	.3702292	-.083514	.0182849	92.15377	1.209736
#2	.3934023	-.049312	.3818085	-.064344	.0130770	92.87725	1.218260
#3	.4111936	-.049889	.3751945	-.084814	.0169946	92.44033	1.209058
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0059363	.0081301	16.38422	.2723800	.1939650	.9453239	342.6702
Stddev	.0002419	.0003531	.05876	.0011537	.0005744	.0053739	.8389
%RSD	4.075361	4.342872	.3586220	.4235781	.2961295	.5684766	.2448124
#1	.0061885	.0077243	16.41609	.2716370	.1940501	.9419258	341.7128
#2	.0057062	.0082996	16.42015	.2737092	.1944922	.9425263	343.2766
#3	.0059142	.0083665	16.31641	.2717940	.1933529	.9515195	343.0212
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.090861	46.28247	.3011605	-.025426	1.337009	.7181220	.8373681
Stddev	.023980	.03344	.0004977	.000643	.350893	.0211629	.0022524
%RSD	.3381817	.0722609	.1652701	2.530313	26.24464	2.946974	.2689897
#1	7.063220	46.25825	.3014455	-.024907	1.004149	.7046544	.8399671
#2	7.106114	46.26854	.3014503	-.025226	1.303365	.7425147	.8361539
#3	7.103247	46.32063	.3005858	-.026146	1.703512	.7071970	.8359833
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	19.21658	4.949154	.3140428	.0000474	1.132205	4.486543	.0076086
Stddev	.18123	.003774	.0018300	.0008305	.002875	.034997	.0020432
%RSD	.9431041	.0762542	.5827148	1751.567	.2539634	.7800433	26.85362
#1	19.13512	4.952983	.3151983	-.000119	1.135300	4.448486	.0093468
#2	19.42425	4.949043	.3149972	-.000687	1.131698	4.493803	.0081210
#3	19.09038	4.945438	.3119329	.000948	1.129617	4.517342	.0053580

Sample Name: P4524-17DLX2 Acquired: 11/09/2024 20:14:10 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y6 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.994775	.0817929	.1612633
Stddev	.011142	.0029120	.0004134
%RSD	.3720521	3.560188	.2563548
#1	2.985035	.0791813	.1609124
#2	3.006925	.0812644	.1617190
#3	2.992366	.0849329	.1611584

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1178.619	30655.40	3115.202	1097.630	2051.533
Stddev	3.890	91.45	17.903	3.762	2.907
%RSD	.3300526	.2983251	.5747091	.3427509	.1417032
#1	1174.287	30585.29	3135.873	1093.769	2048.324
#2	1181.814	30622.07	3104.628	1097.836	2053.990
#3	1179.757	30758.85	3105.104	1101.285	2052.286

Sample Name: P4538-01DLX2 Acquired: 11/09/2024 20:18:36 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y7 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2519342	-.040128	.3396763	-.060252	.0137575	128.0444	1.441045
Stddev	.0229637	.006995	.0030780	.007273	.0039035	.3528	.005853
%RSD	9.114950	17.43052	.9061615	12.07117	28.37391	.2754996	.4061892

#1	.2768775	-.032416	.3427953	-.068584	.0181427	128.4351	1.447127
#2	.2316714	-.046062	.3366410	-.056996	.0124675	127.7493	1.435450
#3	.2472536	-.041906	.3395927	-.055176	.0106622	127.9486	1.440558

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0058110	.0081190	32.48373	.2448171	.1472830	1.103878	275.7864
Stddev	.0002737	.0002543	.08702	.0004825	.0005968	.012830	.7945
%RSD	4.710038	3.132568	.2678797	.1970880	.4052091	1.162281	.2880915

#1	.0061264	.0079138	32.58374	.2451436	.1475464	1.112822	276.7001
#2	.0056709	.0080396	32.42536	.2442629	.1465998	1.109635	275.4006
#3	.0056357	.0084035	32.44209	.2450448	.1477027	1.089178	275.2584

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.121252	50.70982	.2789163	-.019116	1.008130	.4996702	.9114216
Stddev	.013381	.34457	.0016221	.000477	.277866	.0113993	.0025109
%RSD	.2185994	.6794853	.5815765	2.494389	27.56252	2.281363	.2754904

#1	6.130039	51.05245	.2782412	-.019110	1.159355	.5039314	.9107295
#2	6.105852	50.36335	.2807670	-.019596	1.177584	.4867542	.9142059
#3	6.127866	50.71365	.2777409	-.018642	.687450	.5083251	.9093293

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.32023	6.924848	.2665775	-.000624	1.230872	5.694046	.0083685
Stddev	.12501	.011287	.0009606	.000576	.004461	.025810	.0045537
%RSD	.5140238	.1629931	.3603350	92.23131	.3624170	.4532755	54.41519

#1	24.24328	6.918989	.2654869	-.000043	1.231531	5.718543	.0054885
#2	24.25294	6.917695	.2672981	-.000635	1.234966	5.696497	.0059986
#3	24.46447	6.937860	.2669474	-.001194	1.226118	5.667099	.0136184

Sample Name: P4538-01DLX2 Acquired: 11/09/2024 20:18:36 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y7 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.565794	.1024096	.2488397
Stddev	.004018	.0017333	.0006921
%RSD	.1565809	1.692490	.2781510
#1	2.568013	.1043426	.2492278
#2	2.561156	.1018927	.2480406
#3	2.568213	.1009936	.2492508

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1180.346	30565.93	3135.240	1092.938	2025.972
Stddev	.934	31.97	10.980	3.214	.154
%RSD	.0791618	.1046019	.3501980	.2941083	.0075787
#1	1180.768	30586.49	3125.602	1094.555	2026.000
#2	1180.995	30582.20	3132.925	1089.236	2026.110
#3	1179.275	30529.09	3147.192	1095.022	2025.807

Sample Name: P4538-02DLX2 Acquired: 11/09/2024 20:23:01 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y8 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2711370	-.047985	.3553281	-.053922	.0111450	92.24346	1.269171
Stddev	.0042071	.003811	.0034014	.006846	.0031799	2.87755	.036816
%RSD	1.551634	7.941103	.9572444	12.69563	28.53195	3.119512	2.900758
#1	.2681260	-.052361	.3552233	-.050944	.0145145	94.04733	1.293169
#2	.2693411	-.046193	.3519804	-.049069	.0107237	93.75809	1.287562
#3	.2759440	-.045401	.3587807	-.061752	.0081968	88.92496	1.226784
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0046050	.0094809	19.64581	.2180493	.1310101	1.139255	263.3205
Stddev	.0000476	.0006392	.53103	.0013425	.0004606	.038554	7.2611
%RSD	1.034240	6.741974	2.703012	.6156815	.3515885	3.384102	2.757516
#1	.0045758	.0089488	20.03625	.2193102	.1305406	1.163446	268.4340
#2	.0045794	.0093041	19.86006	.2166379	.1310283	1.159523	266.5180
#3	.0046600	.0101899	19.04113	.2181999	.1314613	1.094794	255.0094
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.703067	43.71769	.2430554	-.019555	1.218441	.4821222	.8677906
Stddev	.166266	1.19310	.0017982	.000899	.255590	.0119196	.0014007
%RSD	2.915377	2.729110	.7398469	4.599440	20.97680	2.472312	.1614103
#1	5.814274	44.42359	.2416806	-.019500	1.512193	.4837671	.8690986
#2	5.782996	44.38933	.2423953	-.020480	1.046893	.4931338	.8663127
#3	5.511930	42.34016	.2450904	-.018684	1.096238	.4694656	.8679604
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	18.40130	4.613645	.2427913	-.001300	.5942200	5.114987	.0043454
Stddev	.60127	.025208	.0068407	.001034	.0101399	.134913	.0012394
%RSD	3.267538	.5463732	2.817500	79.58128	1.706425	2.637606	28.52265
#1	18.87347	4.596758	.2482417	-.000222	.5833429	5.201610	.0053319
#2	18.60603	4.601556	.2450173	-.001392	.5959055	5.183809	.0029542
#3	17.72440	4.642620	.2351149	-.002285	.6034115	4.959542	.0047499

Sample Name: P4538-02DLX2 Acquired: 11/09/2024 20:23:01 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MYE4Y8 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.987368	.0758840	.2246875
Stddev	.090683	.0006073	.0069782
%RSD	3.035561	.8002989	3.105726
#1	3.042563	.0753115	.2289146
#2	3.036833	.0765209	.2285149
#3	2.882708	.0758195	.2166331

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1181.803	30649.12	3173.415	1098.424	2047.777
Stddev	.571	144.19	77.809	3.407	1.571
%RSD	.0483315	.4704525	2.451915	.3101916	.0767008
#1	1181.882	30483.20	3121.044	1094.531	2047.620
#2	1181.197	30744.12	3136.377	1099.885	2049.420
#3	1182.331	30720.03	3262.824	1100.858	2046.291

Sample Name: CCV047 Acquired: 11/09/2024 20:27:27 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV047 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.152745	4.850774	24.89346	4.840162	4.942942	409.3244	10.21637
Stddev	.031711	.008643	.07030	.022334	.005587	.6116	.02617
%RSD	.6154181	.1781872	.2823873	.4614247	.1130273	.1494095	.2561157
#1	5.154075	4.860511	24.96903	4.830983	4.948829	409.9738	10.24558
#2	5.120390	4.844010	24.83002	4.865622	4.942284	409.2398	10.20842
#3	5.183770	4.847800	24.88134	4.823880	4.937714	408.7595	10.19509
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5054495	2.496636	407.8480	15.61138	2.514744	15.31845	415.6264
Stddev	.0025964	.007048	1.1683	.05989	.006955	.02884	1.0962
%RSD	.5136823	.2822811	.2864563	.3836547	.2765823	.1883013	.2637521
#1	.5044142	2.504713	409.1846	15.58077	2.522323	15.35158	416.6675
#2	.5084038	2.491741	407.3381	15.68039	2.508653	15.30482	414.4823
#3	.5035305	2.493454	407.0213	15.57298	2.513257	15.29894	415.7293
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.98967	414.1621	2.492488	1.250856	409.6728	2.505477	15.01583
Stddev	.07712	1.3931	.003833	.002091	1.2792	.015755	.06704
%RSD	.5144630	.3363753	.1537917	.1671858	.3122602	.6288078	.4464811
#1	15.07859	415.4585	2.496874	1.252256	411.1449	2.518707	14.98731
#2	14.94942	412.6891	2.489776	1.251860	408.8312	2.509676	15.09242
#3	14.94101	414.3388	2.490815	1.248452	409.0423	2.488049	14.96776
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	157.0191	4.919141	5.166263	4.890825	5.120499	5.068146	5.044813
Stddev	.1111	.020911	.023444	.005209	.014670	.013862	.014721
%RSD	.0707638	.4251042	.4537876	.1065101	.2864930	.2735130	.2918052
#1	157.0749	4.939170	5.187517	4.892848	5.137269	5.079797	5.061570
#2	156.8912	4.920808	5.170157	4.894718	5.110043	5.071824	5.033963
#3	157.0913	4.897446	5.141117	4.884907	5.114186	5.052815	5.038905

Sample Name: CCV047 Acquired: 11/09/2024 20:27:27 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV047 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.020298	5.094848	5.124967
Stddev	.009289	.012497	.009128
%RSD	.1850341	.2452876	.1781051

#1	5.020874	5.107004	5.135504
#2	5.010734	5.082036	5.119474
#3	5.029286	5.095505	5.119923

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	939.0783	26479.85	2788.536	835.3066	1672.510
Stddev	.7545	94.16	8.456	4.3063	4.985
%RSD	.0803445	.3555929	.3032411	.5155333	.2980284

#1	938.2369	26499.59	2783.433	837.5325	1668.587
#2	939.6946	26377.39	2783.878	830.3429	1678.119
#3	939.3033	26562.58	2798.297	838.0444	1670.824

Sample Name: CCB047 Acquired: 11/09/2024 20:31:39 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB047 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0043659	-.004313	-.003245	-.005839	.0010241	.0306299	-.000321
Stddev	.0025767	.001015	.004340	.007087	.0022727	.0112234	.000487
%RSD	59.02000	23.53404	133.7392	121.3701	221.9154	36.64191	151.4843
#1	.0040662	-.005347	-.004499	-.007600	.0036121	.0176794	-.000259
#2	.0019521	-.004273	-.006821	.001962	-.000646	.0366846	-.000837
#3	.0070793	-.003318	.001584	-.011880	.000107	.0375258	.000131
Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000041	.0001263	.0407970	.0010378	.0005307	.0017198	-.007469
Stddev	.000047	.0000837	.0153611	.0003281	.0001092	.0057398	.011047
%RSD	114.9685	66.22394	37.65251	31.61467	20.57665	333.7536	147.9144
#1	-.000036	.0000637	.0307345	.0014091	.0004736	-.004851	.005040
#2	.000003	.0002213	.0331782	.0009176	.0006566	.005757	-.011557
#3	-.000090	.0000939	.0584782	.0007868	.0004619	.004253	-.015890
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0011745	.0102065	.0001963	.0008470	-.167003	.0007578	.0009953
Stddev	.0010468	.1201068	.0002594	.0010030	.171314	.0080277	.0002197
%RSD	89.12718	1176.763	132.1376	118.4155	102.5810	1059.332	22.07577
#1	.0006592	.0003442	.0003230	.0020048	-.363611	-.002051	.0011019
#2	.0004852	.1349404	-.000102	.0002896	-.087602	-.005488	.0011413
#3	.0023790	-.104665	.000368	.0002465	-.049796	.009812	.0007426
Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1021730	.0023731	.0052635	.0005381	-.001497	.0005682	.0013969
Stddev	.0871181	.0007724	.0016433	.0007236	.002902	.0006671	.0000657
%RSD	85.26530	32.54623	31.22106	134.4760	193.8623	117.4146	4.702994
#1	.1851834	.0024167	.0057959	-.000133	-.004634	.0013162	.0014383
#2	.0114588	.0031228	.0065747	.000443	-.000949	.0000346	.0014311
#3	.1098769	.0015799	.0034200	.001304	.001092	.0003537	.0013211

Sample Name: CCB047 Acquired: 11/09/2024 20:31:39 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v714) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB047 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0008965	.0005993	.0002330
Stddev	.0012869	.0021323	.0000952
%RSD	143.5365	355.7985	40.85581
#1	.0016417	.0022023	.0001381
#2	.0016374	-.001821	.0003285
#3	-.000589	.001416	.0002326

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1132.990	28844.88	2883.876	1038.691	2198.012
Stddev	11.190	496.42	97.152	18.607	22.683
%RSD	.9876644	1.720982	3.368810	1.791372	1.031970
#1	1120.216	28275.76	2867.175	1018.192	2172.050
#2	1137.697	29070.23	2988.296	1043.366	2207.996
#3	1141.059	29188.64	2796.157	1054.514	2213.992

Prep Standard - Chemical Standard Summary

Order ID : P4524

Test : Metals CLP Full

Prepbatch ID : PB164598,

Sequence ID/Qc Batch ID: LB133379,

Standard ID :

MP81119,MP82127,MP83134,MP83136,MP83137,MP83138,MP83139,MP83140,MP83141,MP83142,MP83143,MP83144,MP83145,MP83146,MP83147,MP83148,MP83149,

Chemical ID :

M5130,M5218,M5223,M5289,M5295,M5296,M5390,M5395,M5429,M5476,M5498,M5513,M5515,M5519,M5634,M5658,M5698,M5751,M5768,M5798,M5799,M5800,M5801,M5802,M5806,M5815,M5816,M5817,M5818,M5819,M5820,M5875,M5935,M5960,M5962,M5970,M5976,M5978,M5982,M5984,M5985,M5990,M5999,M6021,M6023,M6025,M6028,M6030,M6033,M6040,M6111,M6112,M6117,W2606,W3112,



<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	MP81119	06/21/2024	04/24/2025	Al-Terek Isaac	METALS_SCALE_2 (M SC-2)	METALS_PIPETTE_1 (ICP)	Sarabjit Jaswal 06/21/2024
FROM 1250.00000ml of M5935 + 1250.00000ml of W2606 = Final Quantity: 2500.000 ml A)								

<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	MP82127	09/03/2024	02/08/2025	Janvi Patel	None	None	Sarabjit Jaswal
09/03/2024								

<u>FROM</u>	1250.00000ml of M6040 + 1250.00000ml of W3112 = Final Quantity: 2500.000 ml
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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)	MP83134	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera
								11/08/2024

FROM 125.00000ml of M6111 + 2350.00000ml of W3112 + 25.00000ml of M6117 = 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>
2480	ICP AES STD 6 ISM01.3	MP83136	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera
								11/08/2024

FROM 4.00000ml of M5289 + 4.00000ml of M5498 + 4.00000ml of M5515 + 4.00000ml of M5768 + 4.00000ml of M5806 + 30.00000ml of MP83134 = 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>
1004	ICPAES ISM01.2 (S5)	MP83137	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024
<u>FROM</u> 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 M5698 + 12.50000ml of M5806 + 12.50000ml of M5819 + 13.75000ml of M5751 + 14.50000ml of M5515 + 14.50000ml of M5658 + 14.50000ml of M6033 + 2.00000ml of M5513 + 22.50000ml of M5498 + 22.50000ml of M5768 + 5.00000ml of M5296 + 5.00000ml of M5395 + 5.00000ml of M5802 + 5.00000ml of M5818 + 5.00000ml of M5875 + 303.50000ml of MP83134 = 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)	MP83138	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024
<u>FROM</u> 250.00000ml of MP83134 + 250.00000ml of MP83137 = 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)	MP83139	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera
								11/08/2024

FROM 25.00000ml of MP83137 + 75.00000ml of MP83134 = 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)	MP83140	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera
								11/08/2024

FROM 12.50000ml of MP83137 + 87.50000ml of MP83134 = 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.)	MP83141	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 0.02000ml of M5815 + 0.03000ml of M5429 + 0.10000ml of M5798 + 0.10000ml of M6028 + 0.14000ml of M5799 + 0.20000ml of M5476 + 0.20000ml of M5515 + 0.20000ml of M5658 + 0.20000ml of M5801 + 0.20000ml of M5817 + 0.20000ml of M5976 + 0.20000ml of M6025 + 0.20000ml of M6030 + 0.30000ml of M5698 + 0.40000ml of M6033 + 0.50000ml of M5751 + 0.50000ml of M6023 + 0.70000ml of M5962 + 0.80000ml of M5960 + 1.00000ml of M5800 + 1.00000ml of M6021 + 1.20000ml of M5802 + 1.20000ml of M5819 + 10.00000ml of M5498 + 10.00000ml of M5519 + 10.00000ml of M5768 + 10.00000ml of M5806 + 10.00000ml of M5818 + 2.00000ml of M5978 + 4.00000ml of M5390 + 34.24000ml of MP83134 = 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	MP83142	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 0.50000ml of MP83141 + 99.50000ml of MP83134 = 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>
2054	ICV-ICPAES	MP83143	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024
<u>FROM</u>	0.50000ml of M5218 + 0.50000ml of M5816 + 0.50000ml of M5820 + 0.50000ml of M5970 + 0.50000ml of M5982 + 10.00000ml of M5295 + 87.50000ml of MP83134 = 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>
904	ICP AES ICSA SOLN	MP83144	10/30/2024	11/19/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024
<u>FROM</u> 25.00000ml of M5130 + 225.00000ml of MP83134 = Final Quantity: 250.000 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>
905	ICP AES ICSAB SOLN	MP83145	10/30/2024	11/19/2024	Kareem Khairalla	None	None	Mohan Bera
								11/08/2024

FROM 25.00000ml of M5130 + 25.00000ml of M5223 + 200.00000ml of MP83134 = 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>
1119	ICPAES ISM01.2(CCV)	MP83146	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera
								11/08/2024

FROM 0.75000ml of M5498 + 0.75000ml of M5768 + 1.22500ml of M6033 + 1.25000ml of M5515 + 1.25000ml of M5806 + 19.77500ml of MP83134 + 25.00000ml of MP83137 = 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>
921	ICPAES SPIKE SOL#6	MP83147	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera
								11/08/2024

FROM 2.50000ml of M5962 + 50.00000ml of M5990 + 50.00000ml of M5999 + 147.50000ml of MP83134 = 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>
919	ICP AES INTERNAL STD	MP83148	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera
								11/08/2024

FROM 1.00000ml of M5984 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M6117 = Final Quantity: 2000.000 ml



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
903	ICP AES RINSE SOLN	MP83149	10/30/2024	11/30/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024
<u>FROM</u> 200.00000ml of M6117 + 9800.00000ml of W3112 = Final Quantity: 10000.000 ml								

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	11/19/2024	05/20/2024 / jaswal	04/20/2021 / bin	M5130

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 #
EPA	PART B / ICSAB (ICP) STOCK SOLN	ICSB-0710	11/19/2024	05/20/2024 / jaswal	04/20/2021 / bin	M5223

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 #
EPA	ICV-1 / ICV (ICP/ICPMS) STOCK SOLN	ICV-1014	02/05/2025	08/07/2024 / jaswal	02/20/2020 / bin	M5295

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 #
Absolute Standards, Inc.	57056 / Ba, 1000 PPM, 125 ml	072122	07/21/2025	08/07/2024 / jaswal	09/18/2022 / bin	M5390

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	01/30/2024 / bin	09/19/2022 / bin	M5395

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.	57138 / Sr, 10000 PPM, 125 ml	082922	08/09/2025	07/29/2024 / jaswal	03/16/2023 / jaswal	M5476

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

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	092122	09/21/2025	08/01/2024 / Jaswal	03/17/2023 / bin	M5515

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 #
PCI Scientific Supply, Inc.	1403 / Hydrogen Peroxide, 30% 1 gal	820803	02/03/2025	04/18/2024 / jaswal	08/03/2022 / Al-Terek	M5634

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.	58025 / Mn, 1000 PPM, 500 ml	102623	10/26/2026	04/18/2024 / jaswal	10/27/2023 / jaswal	M5698

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	071723	07/17/2026	10/01/2024 / Jaswal	08/25/2023 / jaswal	M5751

CHEMICAL RECEIPT LOG BOOK

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 #
Absolute Standards, Inc.	57004 / Be, 1000 PPM, 125 ml	102523	10/25/2026	02/09/2024 / bin	02/09/2024 / bin	M5798

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

CHEMICAL RECEIPT LOG BOOK

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.	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.	57016 / S, 1000 PPM, 125 ml	122923	12/29/2026	05/20/2024 / Jaswal	02/09/2024 / jaswal	M5816

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 #
Absolute Standards, Inc.	57014 / Si, 1000 PPM, 125 ml	122023	12/20/2026	03/06/2024 / jaswal	02/09/2024 / jaswal	M5818

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	111623	11/16/2026	03/20/2024 / jaswal	02/09/2024 / jaswal	M5819

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57015 / P, 1000 PPM, 125 ml	091123	09/11/2026	05/01/2024 / jaswal	02/09/2024 / jaswal	M5820

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 #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	12/08/2024	06/21/2024 / Al-Terek	06/07/2024 / Al-Terek	M5935

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	07/03/2024 / kareem	06/11/2024 / kareem	M5960

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

CHEMICAL RECEIPT LOG BOOK

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	08/07/2024 / jaswal	02/22/2024 / Jaswal	M5976

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGTI1-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	06/17/2027	08/07/2024 / jaswal	02/22/2024 / Jaswal	M5978

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	031524	03/15/2027	07/01/2024 / Jaswal	06/11/2024 / Jaswal	M5982

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	08/05/2024 / kareem	06/14/2024 / Jaswal	M5984

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 #
Inorganic Ventures	CLPP-SPK-1 / SOIL/WATER SPIKE SOLN 1, 125mL	T2-MEB721963	07/27/2027	09/04/2024 / Jaswal	02/22/2024 / kareem	M5999

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	06/12/2027	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	01/25/2019 / 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

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	08/07/2024 / Jaswal	01/03/2024 / Jaswal	M6033

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	24D1562005	02/08/2025	08/09/2024 / jaswal	08/01/2024 / Janvi	M6040

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)	22F0762009	05/09/2027	11/04/2024 / Eman	09/29/2024 / Janvi	M6111

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)	24B1362001	05/03/2025	11/03/2024 / Eman	09/29/2024 / Eman	M6112

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)	24B1362001	05/06/2025	11/06/2024 / Janvi	09/29/2024 / Eman	M6117

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	10/24/2024	10/24/2019 / apatel	10/24/2019 / apatel	W2606

CHEMICAL RECEIPT LOG BOOK

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

Certificate of Analysis

R: 02/22/24 M5986, M5987, M5988, M5989, M5990

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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-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:
Lot Number:
Description:

57048
070124
Cadmium (Cd)

Solvent: 24002546 Nitric Acid

R: 815/24

Lot #

2% 40.0 Nitric Acid (mL)

Expiration Date: 070127

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6UTB

SE-05 Balance Uncertainty

Weight shown below was diluted to (mL): 2000.07 0.100 Flask Uncertainty

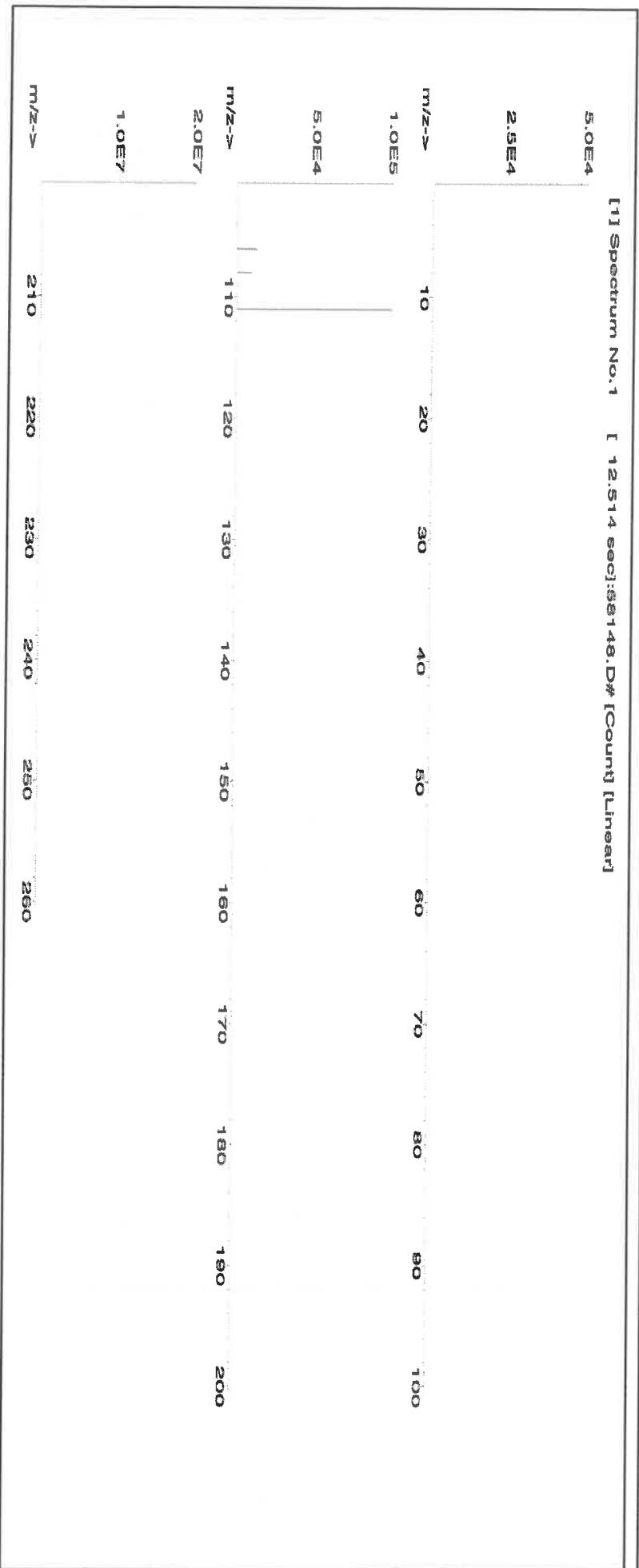
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	070124
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
	070124

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
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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 or-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).



Refine your results. Redefine your industry.

Certificate of Analysis

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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-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

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





Refine your results. Redefine your industry.

Certificate of Analysis

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Christiansburg, VA 24073 USA
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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:	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"

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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.

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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

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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

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u_{ts} = transport stability standard uncertainty

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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

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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 Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: 57182 Lot #
Lot Number: 110923 Solvent: 24002546 Nitric Acid
Description: Lead (Pb)

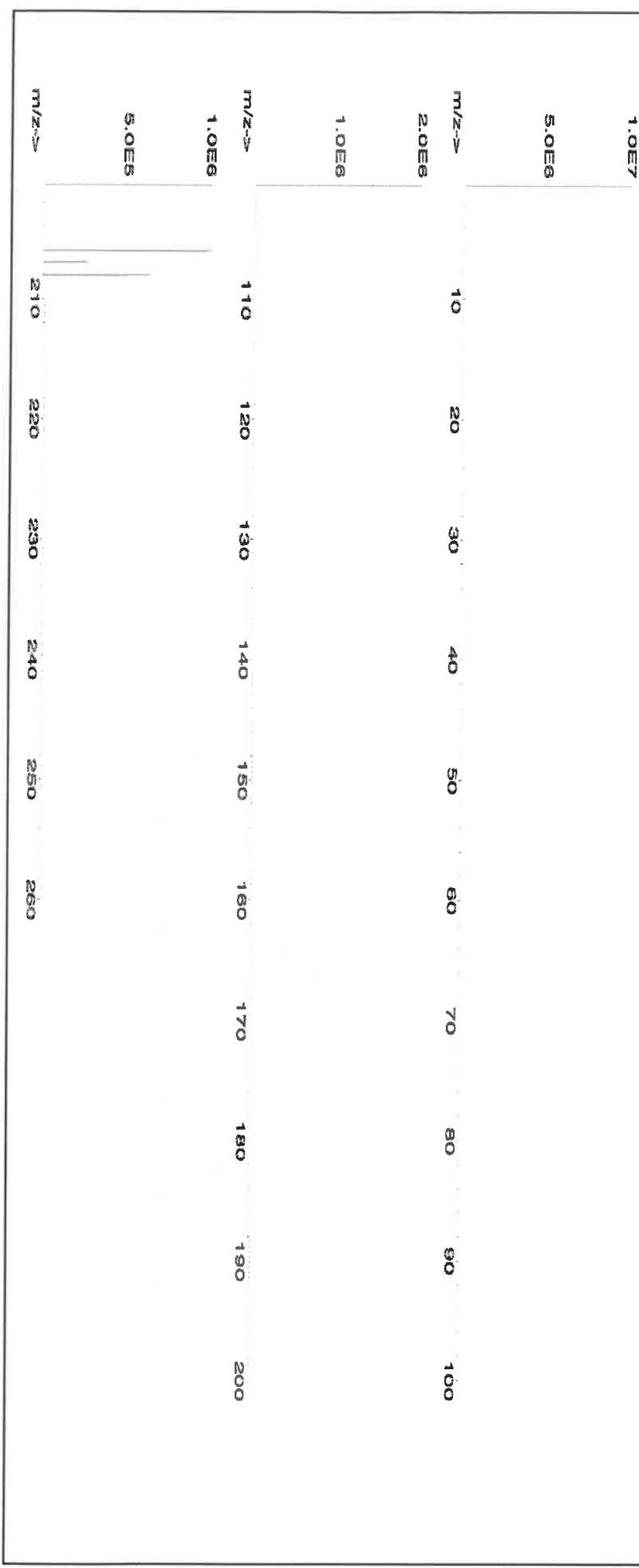
Expiration Date: 110926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02 5E-05 Balance Uncertainty 0.058 Flask Uncertainty

Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas
110923	

Compound	SDS Information									
	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)

1. Lead(II) nitrate (Pb) IN029 PED122016A1 10000 99.999 0.10 62.5 32.0006 32.0040 10001.1 20.0 10099-74-8 0.05 mg/m3 Inverse 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

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).



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.

Contains Heavy Metals
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(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,





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.

ICSA
M5126
M5127
M5128
M5129
M5130

ICSB
M5219
M5220
M5221
M5222
M5223

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 (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

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





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.

Contains Heavy Metals
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(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,





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.

ICSA
M5126
M5127
M5128
M5129
M5130

ICSB
M5219
M5220
M5221
M5222
M5223



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)

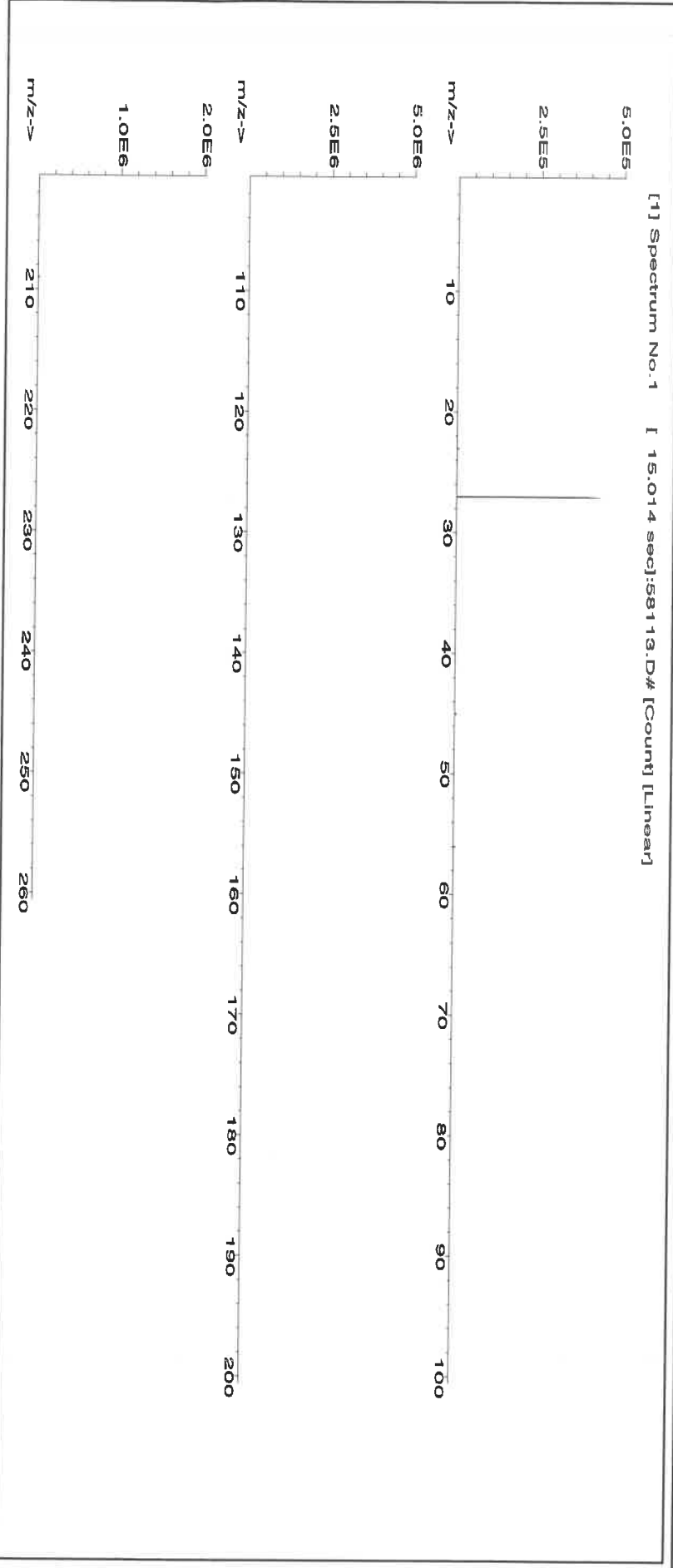
Lot #
Solvent: 20370011 Nitric Acid

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. Renteria
070622	

SDS Information														
Compound	Expanded													
	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	SRM

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).



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)

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

M5291
M15292
M15293
M15294
M15295

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

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

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

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

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



R-09/18/22 (RH)
Certified Reference Material CRM

MS387 - MS389, MS390, MS391, MS392



CERTIFIED WEIGHT REPORT:

Part Number: **57056**
Lot Number: **072122**
Description: **Barium (Ba)**

Solvent: **20510011 Nitric Acid**

Lot #

Expiration Date: **072125**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
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
Reviewed By:	<i>Pedro L. Rentes</i>
	072122

SDS Information									
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)
1. Barium nitrate (Ba)	IN023 BA022019A1	1000	99.899	0.10	52.3	3.82417	3.82426	1000.0	2.0
									1002-31-8
									0.5 mg/m3
									or 1st 355 mg/kg
									31044

[1] Spectrum No. 1 [12.514 sec]:58156.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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.02	Er	<0.2	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	T	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	<0.02	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	<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:

Ben. L. R.

- * 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)

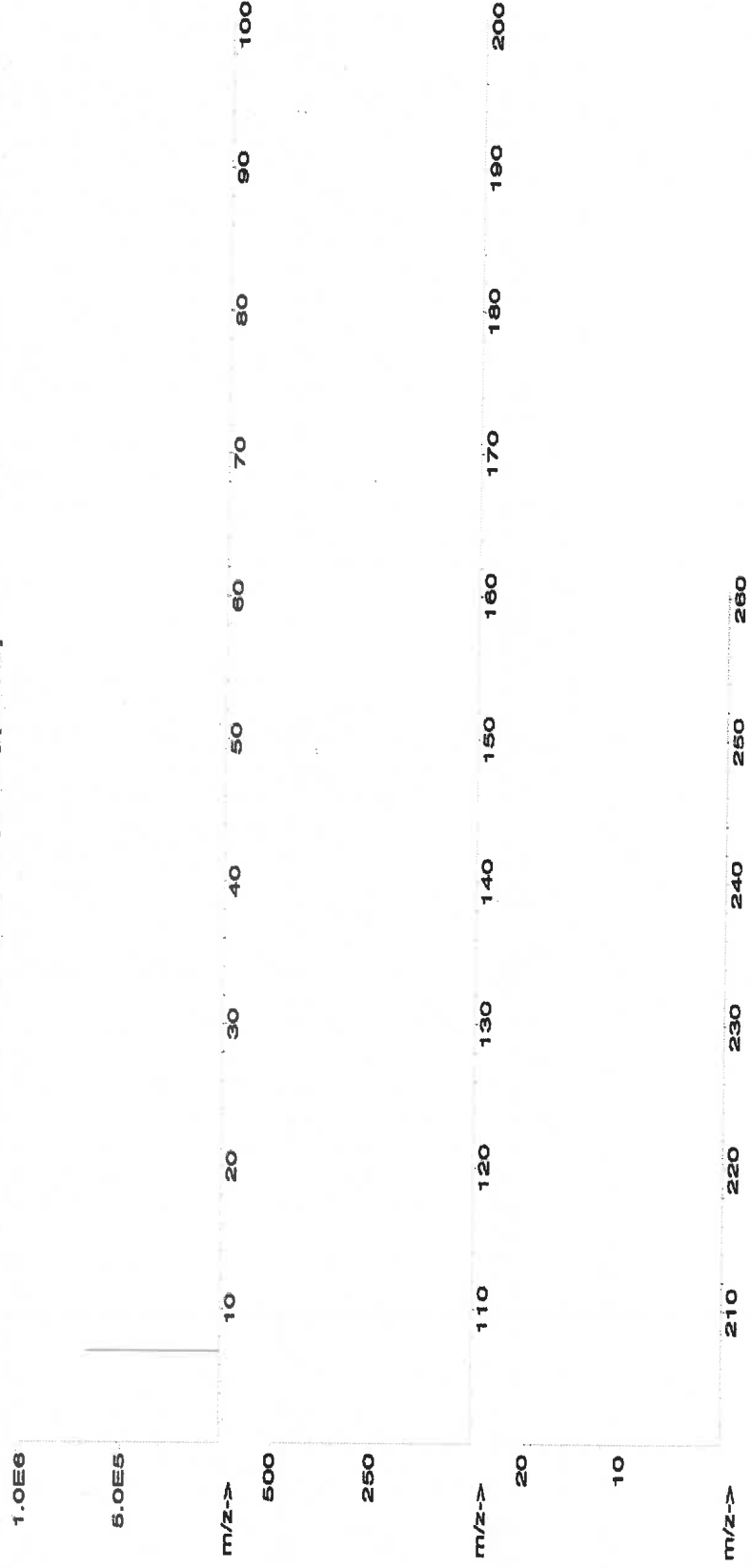
Weight shown below was diluted to (mL): 1000.12
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Lawrence Barry	070622
Reviewed By:	Pedro L. Rentas	070622

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	(Solvent Safety Info. On Attached pg.)	CAS#	LD50	NIST SRM
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1. Lithium nitrate (Li)	IN019	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
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[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	<0.2	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	<0.2	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	<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).



15497-15498 R203/17/23(2)

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58120
031523
Calcium (Ca)

Solvent: 21110221 Nitric Acid

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

031526
Ambient (20 °C)
10000
6UTB

2%
60.0
(mL)
Nitric Acid

Weight shown below was diluted to (mL): 3000.41
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito 031523
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas 031523

SDS Information

(Solvent Safety Info. On Attached pg.)
NIST
SRM

Expanded
Uncertainty

Actual
Conc. (µg/mL)

Actual
Weight (g)

Target
Weight (g)

Assay
(%)

Purity
(%)

Nominal
Conc. (µg/mL)

Lot
Number

RM#

Compound

1. Calcium carbonate (Ca)

IN014 CAD072022A1

10000

99.999

0.10

39.9

75.1990

75.2093

10001.4

20.0

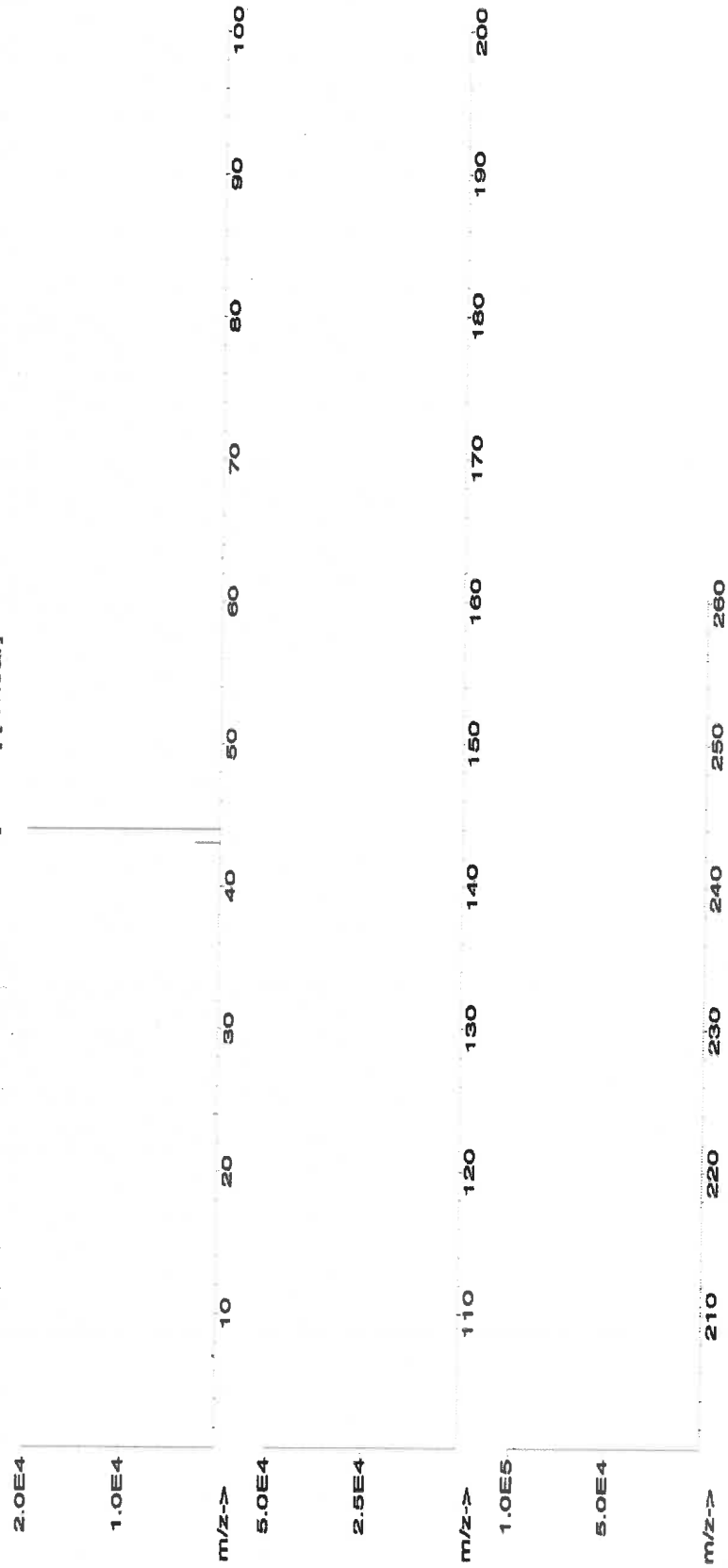
471-34-1

5 mg/m3

or:rat >2000mg/kg

3109a

[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
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
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.01	Rh	<0.02	Ag	<0.02	Ti	<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
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
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
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
																W	<0.02
																U	<0.02
																V	<0.02
																Yb	<0.02
																Y	<0.02
																Zn	<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:

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

Lot #

Solvent: 20510011 Nitric Acid

2% 40.0 (mL)

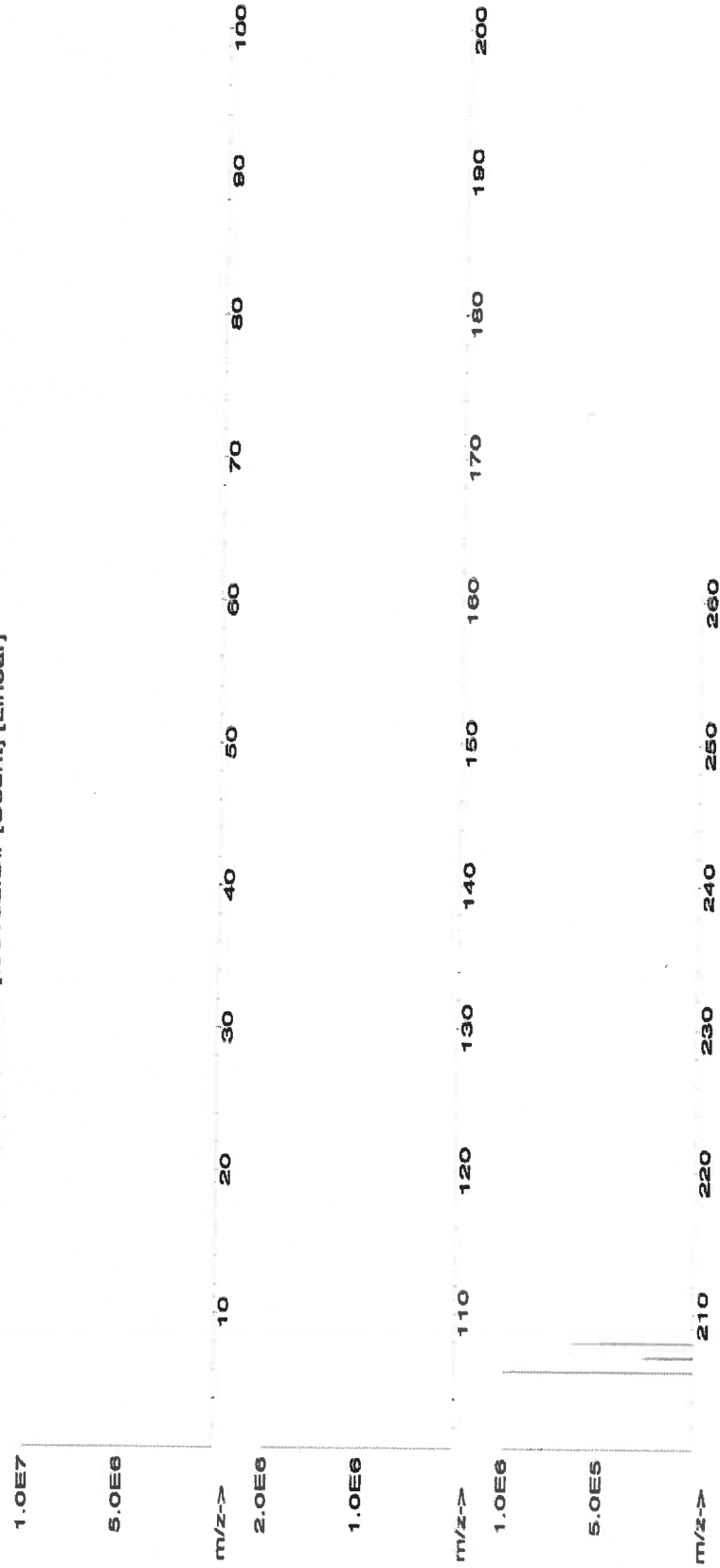
Nitric Acid

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito 061522
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas 061522

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)	SDS Information		
											(Solvent Safety Info. On Attached pg.)	OSHA PEL (TWA)	NIST SRM

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	inhalation 88 mg/kg 3128
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[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:

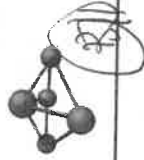
Homogeneity: No heterogeneity was observed in the preparation of this standard.

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



MS54-MS55 R:03/17/22

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58126
092122
Iron (Fe)

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

092125
Ambient (20 °C)
10000
6UTB

Weight shown below was diluted to (mL):

5000.1

Solvent: 20510011 Nitric Acid

7.0% 350.0 Nitric Acid
(mL)

5E-05 Balance Uncertainty
0.12 Flask Uncertainty

Formulated By:	Giovanni Esposito	092122
Reviewed By:	Pedro L. Rentas	092122

Expanded
Uncertainty

SDS Information

(Solvent Safety Info. On Attached pg.)
LD50 OSHA PEL (TWA)

NIST
SRM

Actual
Weight (g)

Target
Weight (g)

Assay
Purity (%)

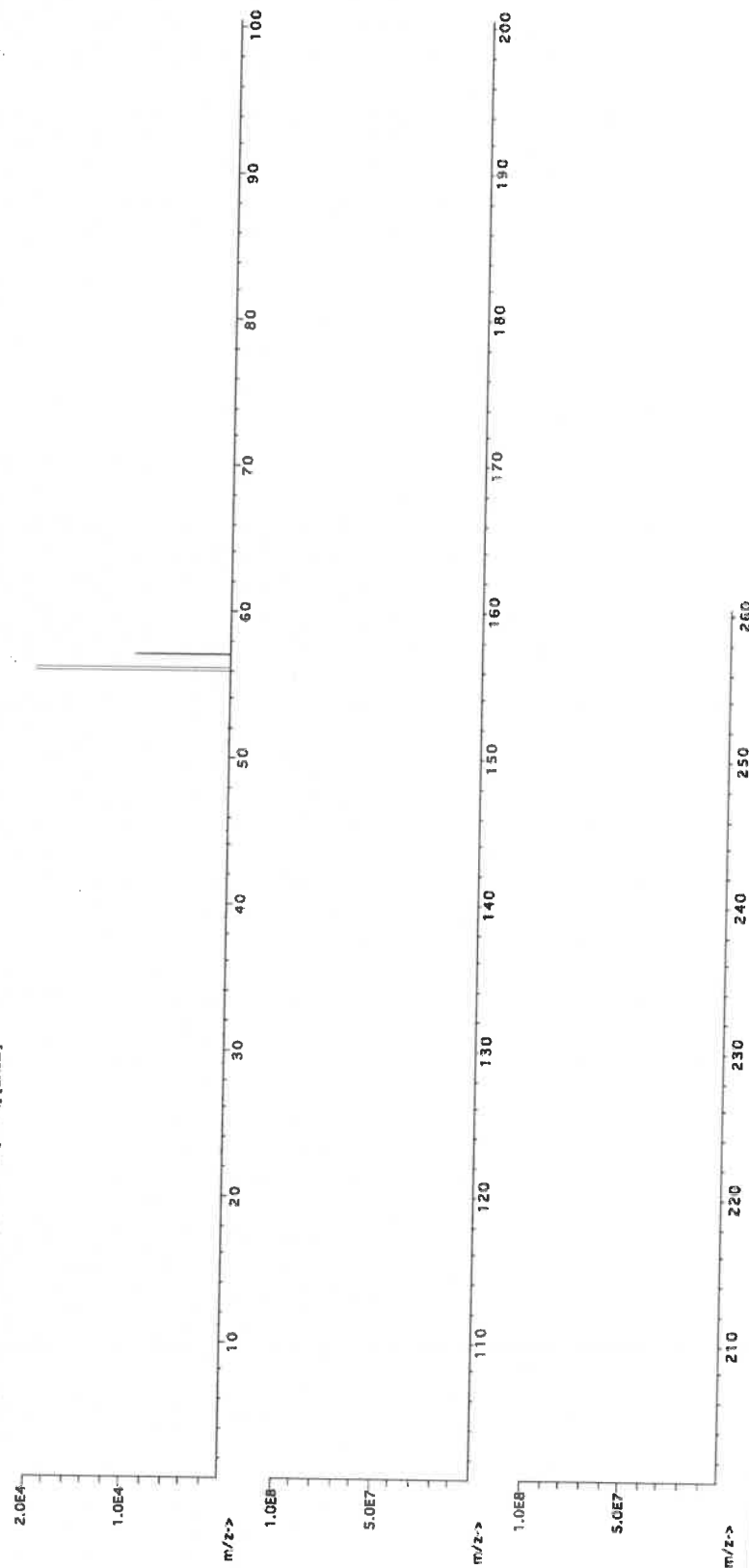
Nominal
Conc. (µg/mL)

Lot
Number

Compound

IN346	2224912-500	10000	99.985	0.10	100.0	50.0034	50.0111	10001.5	20.0	7439-88-6	5 mg/m3	orl-rat 7500mg/kg 3126a
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[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	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	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	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	<0.05	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	Sn	<0.02	Zn	<0.05
B	<0.02	Cu	<0.10	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:

Ben P. Galt

- * 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

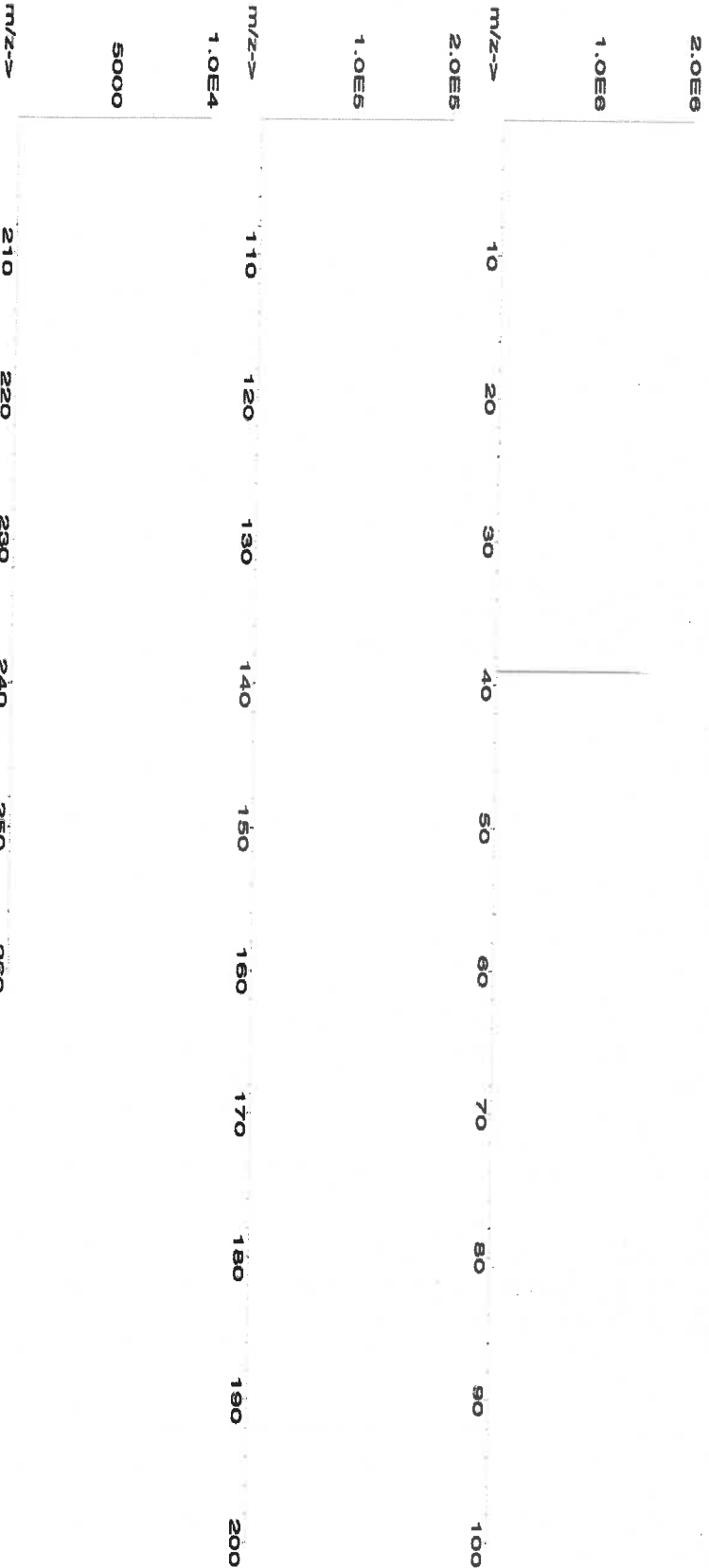
<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	<i>Pedro L. Rantas</i>
	120822

Compound

Lot	Nominal	Purity	Uncertainty	Assay	Target	Actual	Actual	Expanded	SDS Information	NIST
Number	Conc. (µg/mL)	(%)	Purity (%)	(%)	Weight (g)	Weight (g)	Conc. (µg/mL)	Uncertainty +/- (µg/mL)	(Solvent Safety Info. On Attached pg.)	SRM

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).

CORCO CHEMICAL CORPORATION

Manufacturers of ACS Reagents and Semiconductor Grade Chemicals

CERTIFICATE OF ANALYSIS

Date: 8/3/2022

MS631 MS632 MS633 MS634

Lot No 820803

Hydrogen Peroxide, ACS
Reagent Grade

<u>TEST</u>	<u>MAXIMUM LIMITS</u>	<u>RESULT</u>
Appearance	Colorless and free from suspended matter or sediment	Pass
Assay	29-32%	31.4%
Color (APHA)	10	5
Residue after Evaporation	0.002%	.0001%
Titratable Acid	0.0006 meq/g	< .0006 meq/g
Chloride (Cl)	2 ppm	< 1 ppm
Nitrate (NO ₃)	2 ppm	< 1 ppm
Phosphate	2 ppm	< 1 ppm
Sulfate (SO ₄)	5 ppm	< .5 ppm
Ammonium (NH ₄)	5 ppm	< 1 ppm
Heavy Metals (as Pb)	1 ppm	< .1 ppm
Iron (Fe)	0.5 ppm	< .1 ppm
Sodium Stannate	200 – 300 ppb	Pass

***Our Hydrogen Peroxide is considered un-stabilized because it is very slightly stabilized with Sodium Stannate, 500 ppb maximum, just for safety purposes.

Date of MFG: 8/2022

Retest date: 8/2024

Gina M. Rambo
Office Manager



CERTIFIED WEIGHT REPORT:

Part Number: 58024
Lot Number: 060523
Description: Chromium (Cr)

Lot #
21110221
Solvent: Nitric Acid

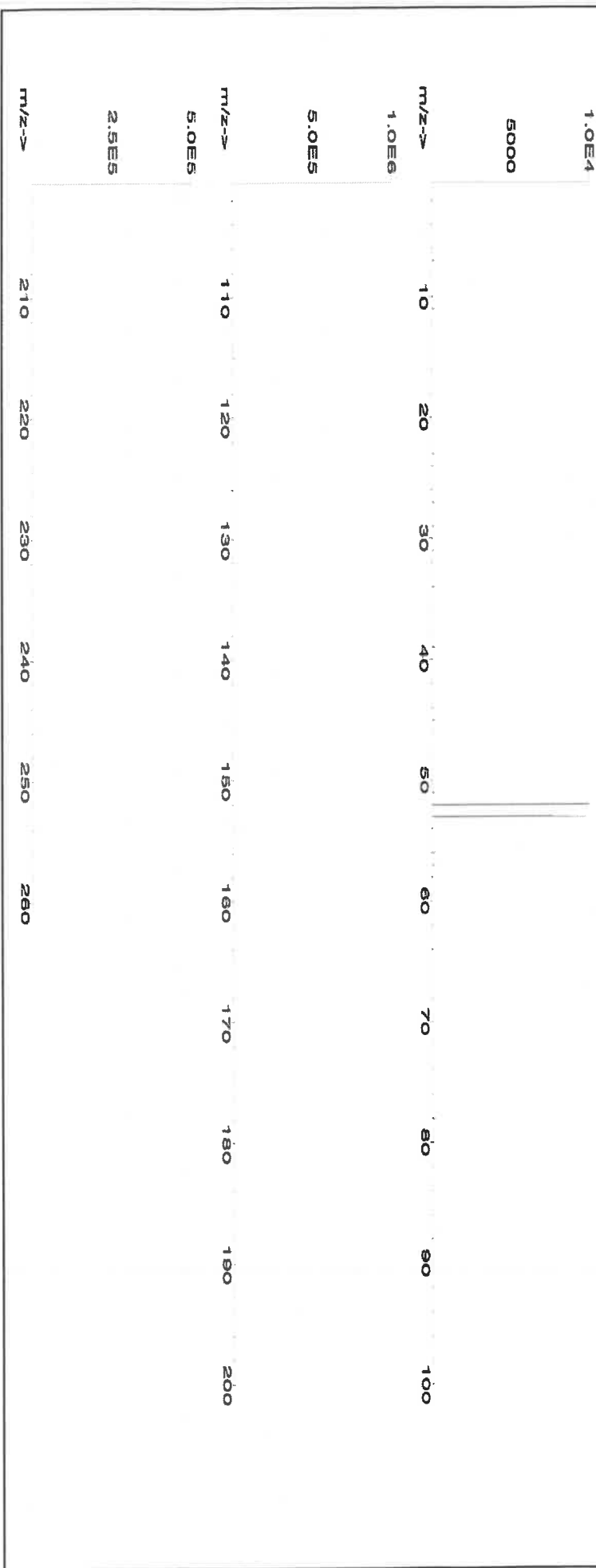
Formulated By:	Lawrence Barry
	060523
Reviewed By:	Pedro L. Ruelas
	060523

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
----------	-------------	------------	-----------------	-------------------	------------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

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

[1] Spectrum No.1 [31.393 sec]:57024.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	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.
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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).



M5648 R:10/23/23



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58025
102623
Manganese (Mn)

Lot #
Solvent:

24002546
Nitric Acid

Expiration Date:

102626

Recommended Storage:
Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

3000.41

5E-05

Balance Uncertainty
Flask Uncertainty

2.0%
60.0
(mL)
Nitric Acid

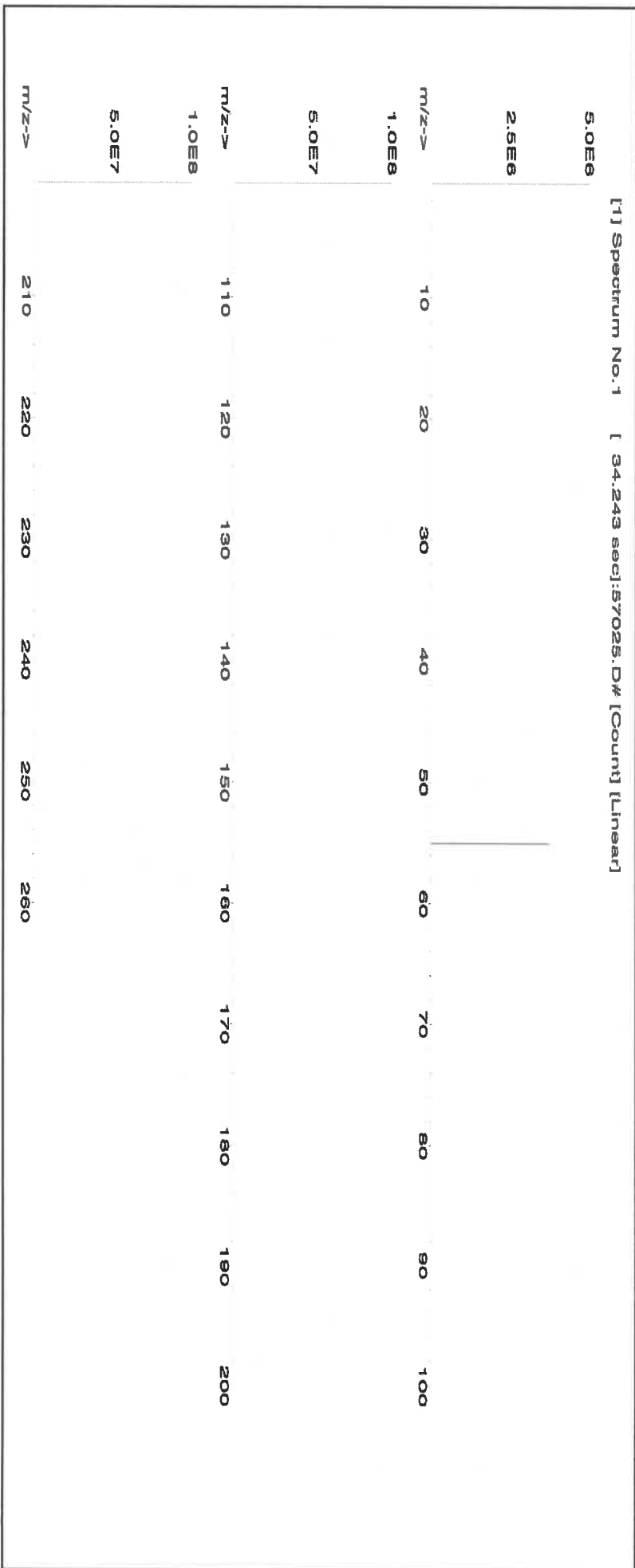
Formulated By:	Benson Chan	102623
Reviewed By:	Pedro L. Ruelas	102623

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)	SDS Information (Solvent Safety Info. On Attached pg.)	NIST SRM
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1. Manganese(II) nitrate tetrahydrate (Mn) 58125 071123 0.1000 300.0 0.084 1000 10000.1 1000.0 2.1 20694-39-7 5 mg/m3 or-rel>300mg/kg 3132

[1] Spectrum No.1 [34.243 sec]:57025.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	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 balances that are calibrated with weights traceable to NIST (see above).
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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: **58029**
Lot Number: **071723**
Description: **Copper (Cu)**

Lot #: **2110221**
Solvent: **Nitric Acid**

2.0%

40.0 (mL) Nitric Acid

Formulated By:	Benson Chan	071723
Reviewed By:	Pedro L. Ruelas	071723

Expiration Date: 071726
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**

SDS Information

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
----------	-------------	------------	-----------------	-------------------	------------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

1. Copper(II) nitrate trihydrate (Cu) 58129 022723 0.1000 200.0 0.084 1000 10000.5 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]

1.0E6	m/z-->	10	20	30	40	50	60	70	80	90	100
5.0E5	m/z-->	110	120	130	140	150	160	170	180	190	200
2.5E7	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	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	Ru	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	La	<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	Pb	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	Ta	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	T	Au	<0.02			Nd	<0.02	K	<0.2	Sc	<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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- * 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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58112
091823
Magnesium (Mg)

Solvent: 24002546 Nitric Acid

Lot #

Expiration Date:

091826

2% 40.0 (mL) Nitric Acid

Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

Ambient (20 °C)
10000
6UTB

M5768 M5769

BP R: 1/13/24

Weight shown below was diluted to (mL): 2000.02 0.058 Flask Uncertainty

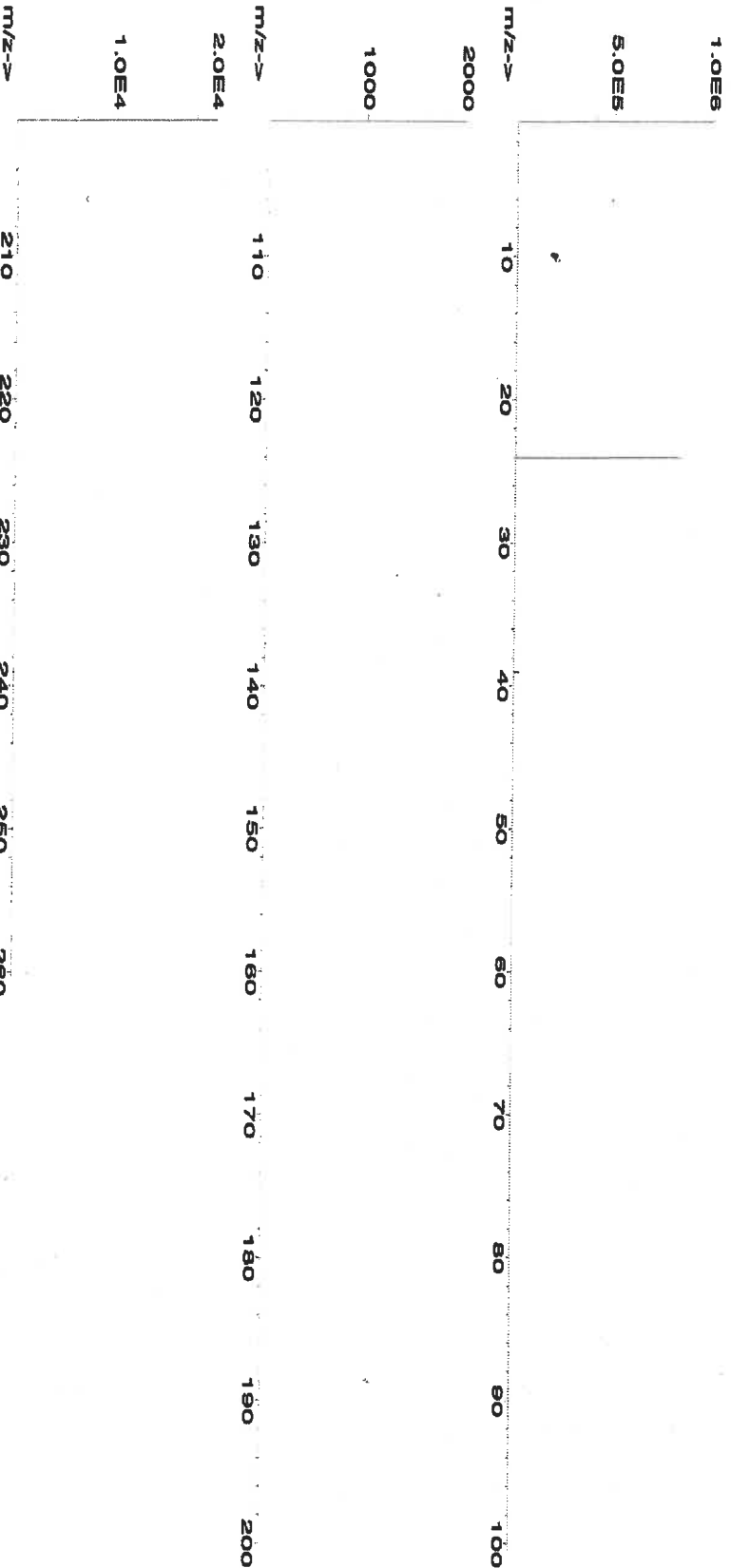
Formulated By: <i>Lawrence Barry</i>		091823
Reviewed By: <i>Pedro L. Rentas</i>		091823

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
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:

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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: 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

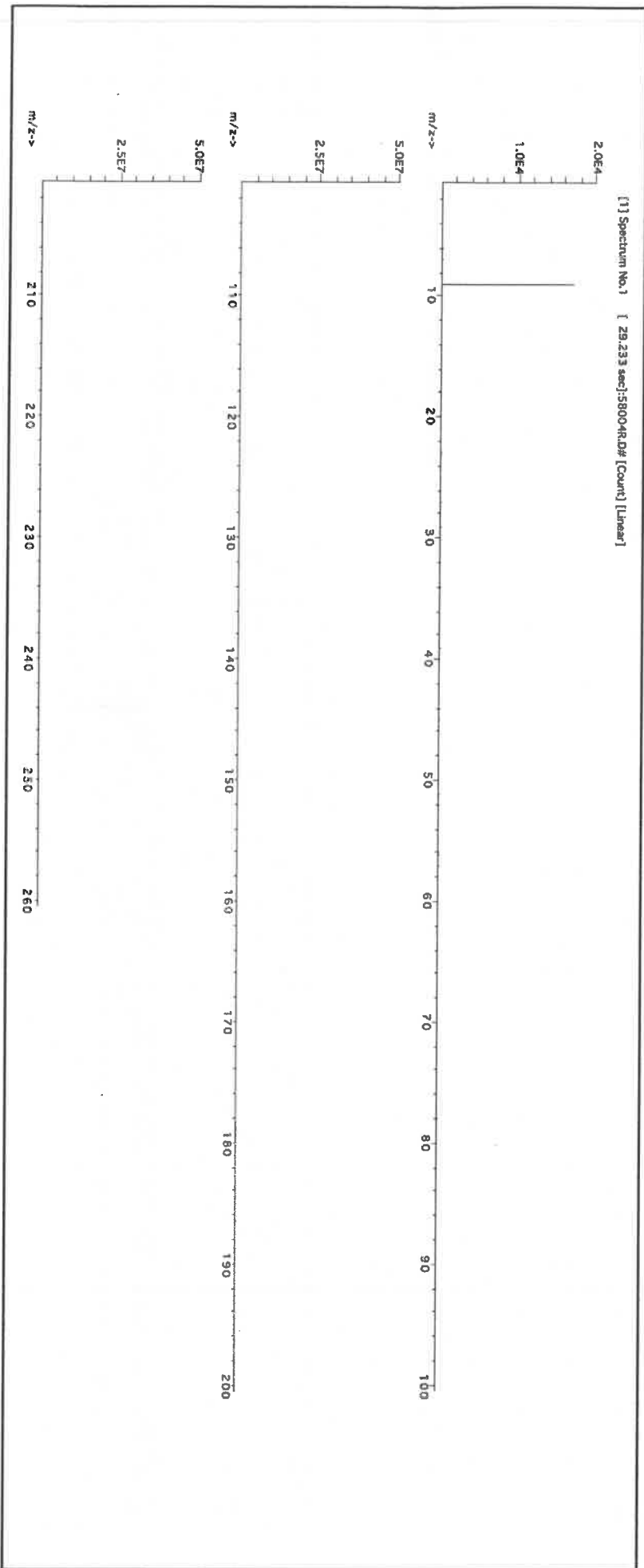
0.058 Flask Uncertainty

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
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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:

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- * All standard containers are meticulously cleaned prior to use.
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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 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

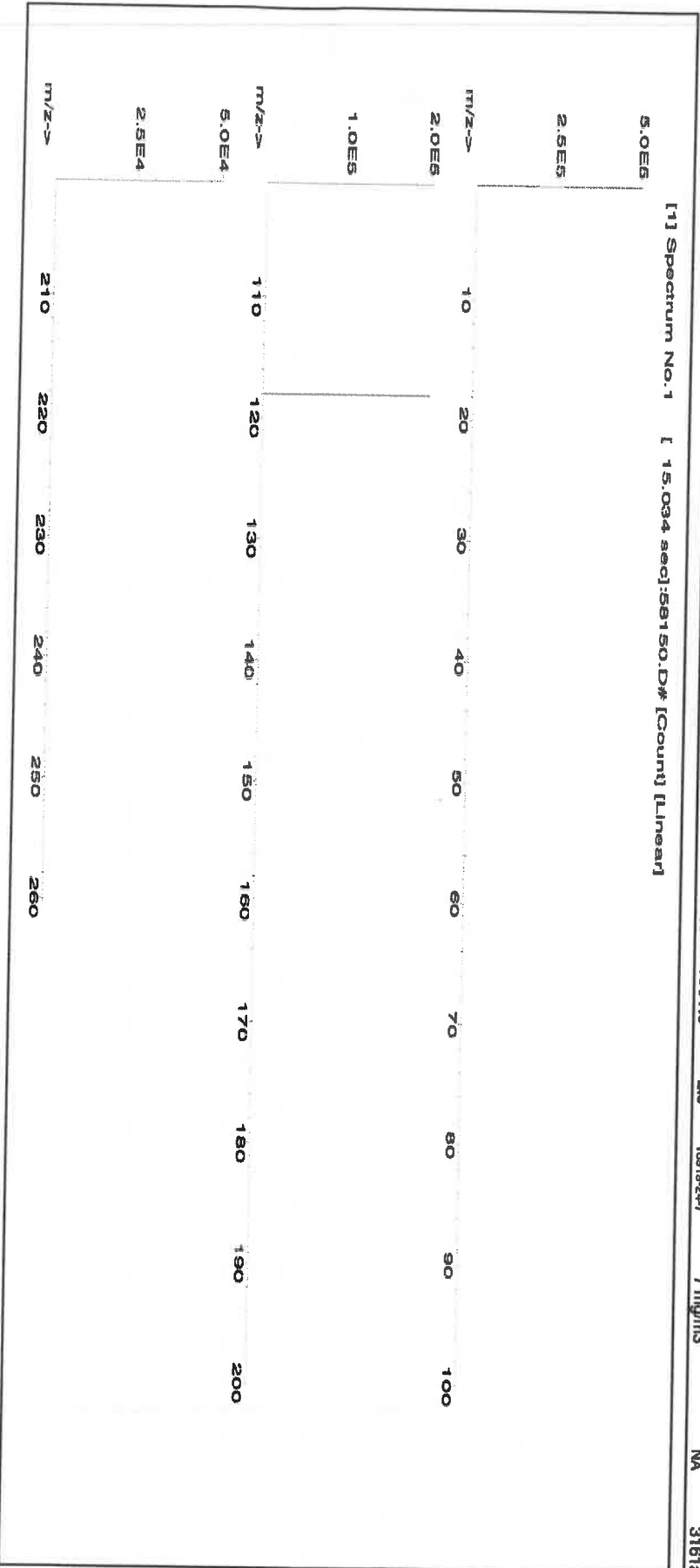
Weight shown below was diluted to (mL): 499.93
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Benson Chan
	071123
Reviewed By:	Pedro L. Rentas
	071123

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty		CAS#	OSHA PEL (TWA)	LD50	NIST SRM
									+/- (µg/mL)	(µg/mL)				

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)

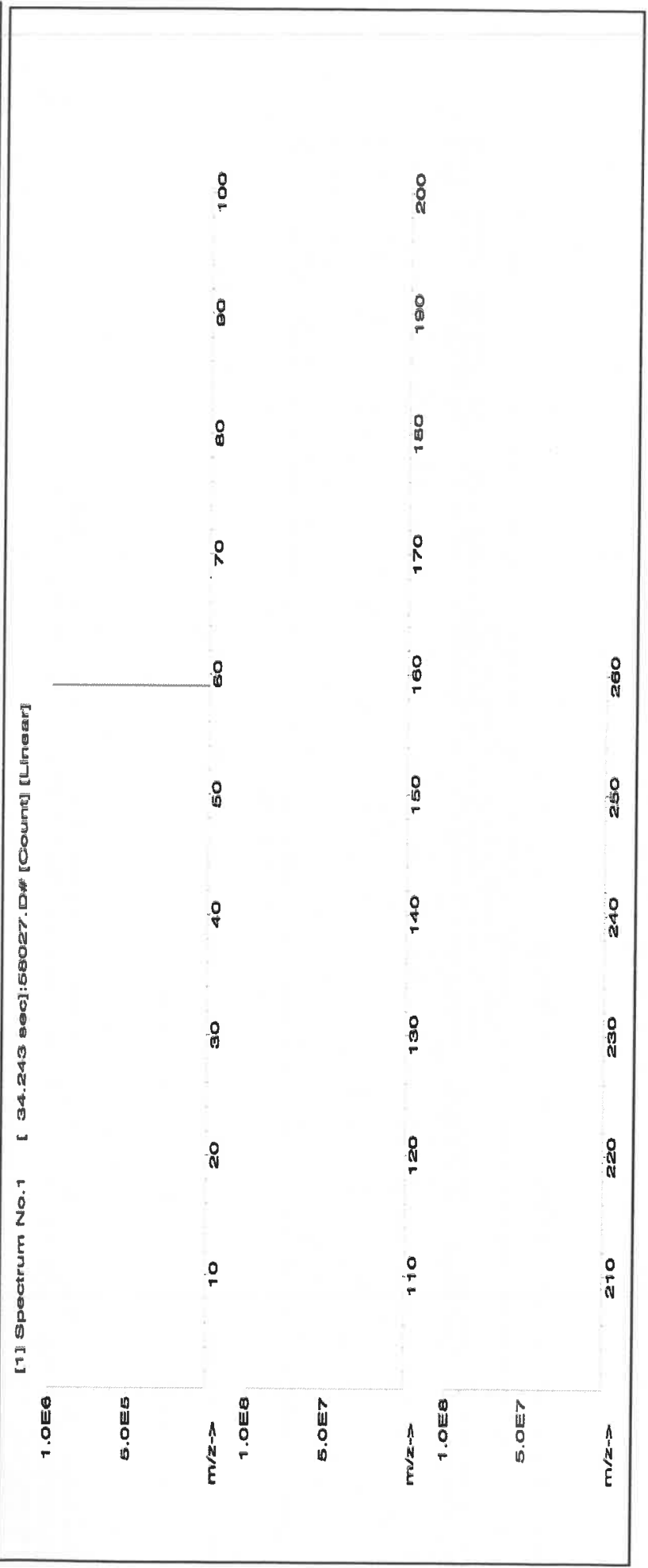
Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas

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	<0.02	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:

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

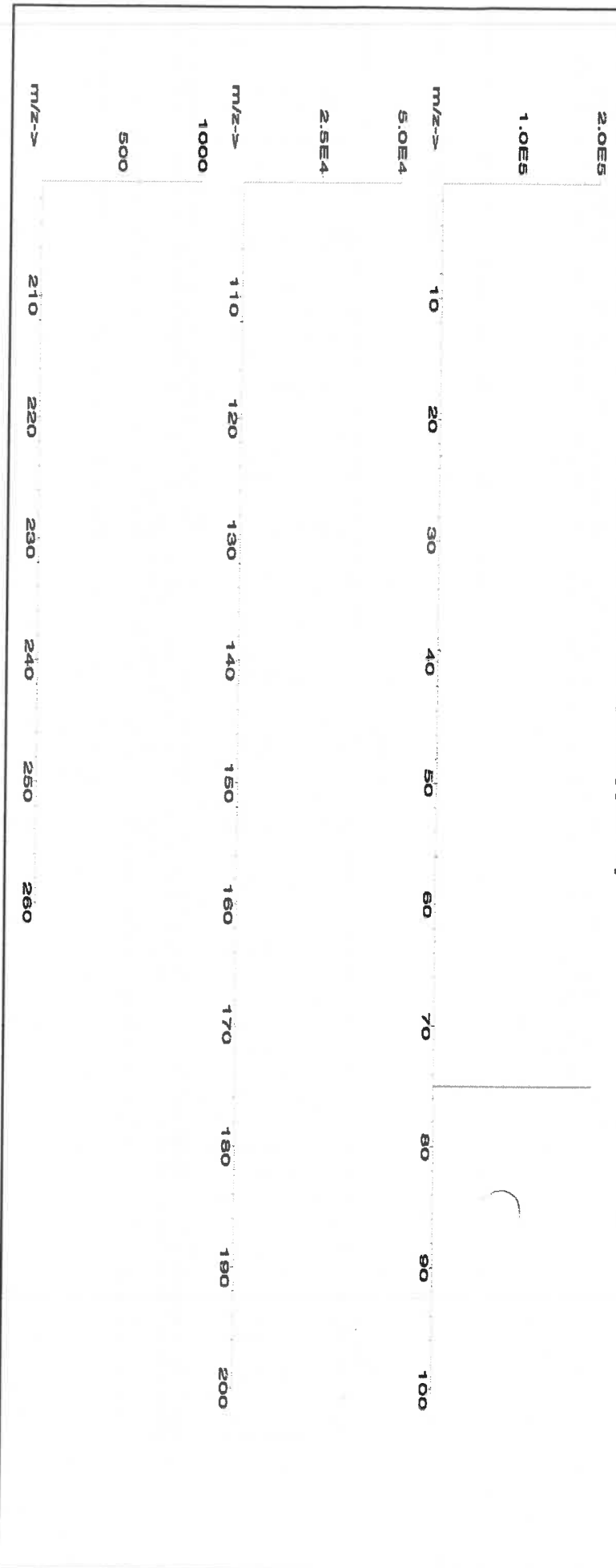
Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rendas	111323

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
-------------	------------	-----------------	-------------------	--------------------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

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-rat 500 mg/kg	3103a
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[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 (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	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
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: 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

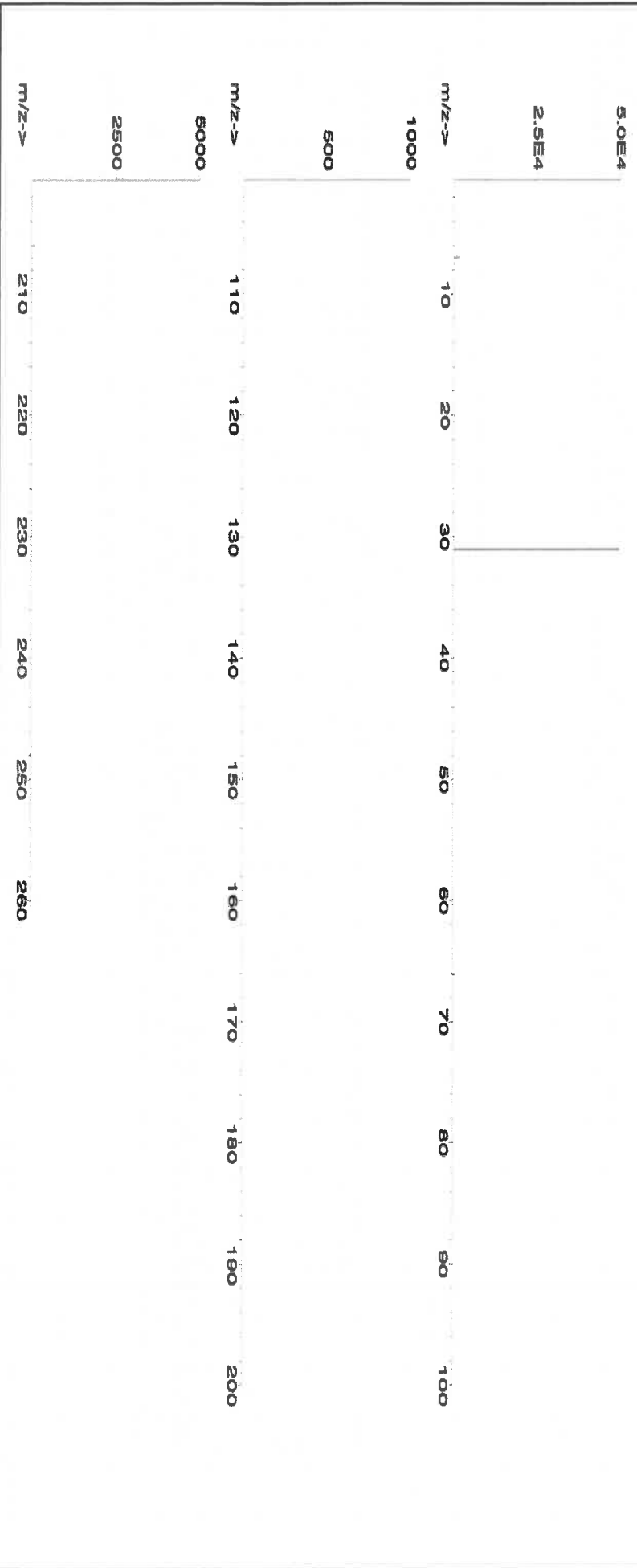
Weight shown below was diluted to (mL): 2000.02 0.058 Balance Uncertainty Flask Uncertainty

Formulated By: Lawrence Barry	041723
Reviewed By: Pedro L. Rentas	041723

Compound										SDS Information		NIST SRM
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)	(Solvent Safety Info. On Attached pg.)	CAS#	LD50

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:

57016
122923
Sulfur (S)

Lot #

ASTM Type 1 Water

Formulated By:	Benson Chan
Reviewed By:	Pedro L. Rentas
122923	

Expiration Date: 122926

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6L7B

Weight shown below was diluted to (mL): 4000.0

SE-05 Balance Uncertainty
0.06 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 +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Ammonium sulfate (S) IN117 SLBR225V 1000 99.9 0.10 24.3 16.4979 16.4980 1000.0 2.0 7783-20-2 NA 0.01-0.02 4250mg/kg 3181

[1] Spectrum No. 1 [33.603 sec]: 57016.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	La	<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	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	S	<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	Ta	<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	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:
Lot Number:
Description:

57116
071123
Sulfur (S)

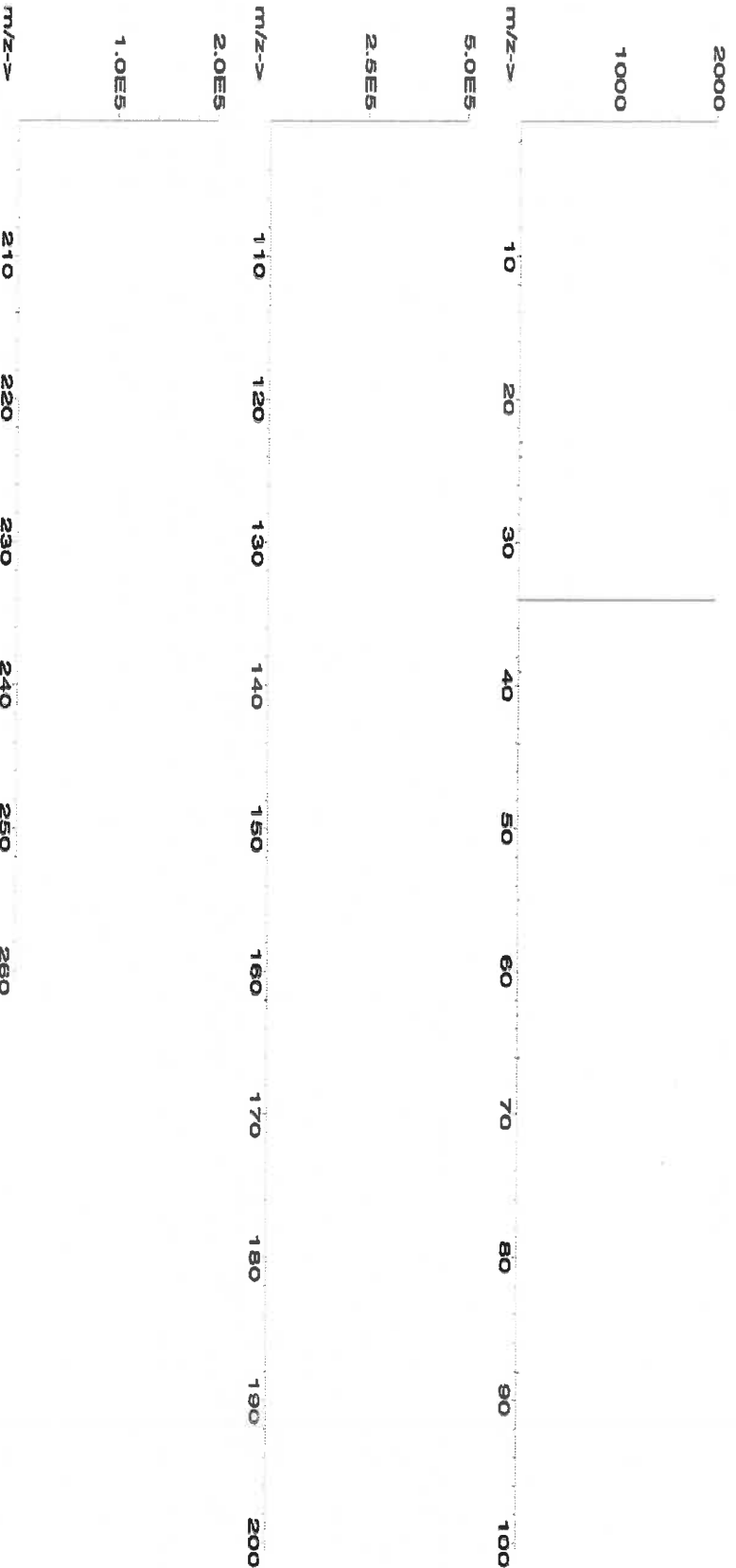
Lot #
Solvent: 071123
ASTM Type 1 Water

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

SDS Information									
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)
Ammonium sulfate (S)	IN117 SLBR7225V	10000	99.9	0.10	24.3	82.4675	82.4692	10000.1	20.0
						7763-20-2	NA		
							oral 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	Ti	<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).



CERTIFIED WEIGHT REPORT:

Part Number: **57014**
Lot Number: **122023**
Description: **Silicon (Si)**

Solvent: **24002546 Nitric Acid**

Lot #

R: 02/09/24 M5818

Expiration Date: **122026**

2% 40.0 (mL) Nitric Acid

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): **1999.48 0.058 Flask Uncertainty**

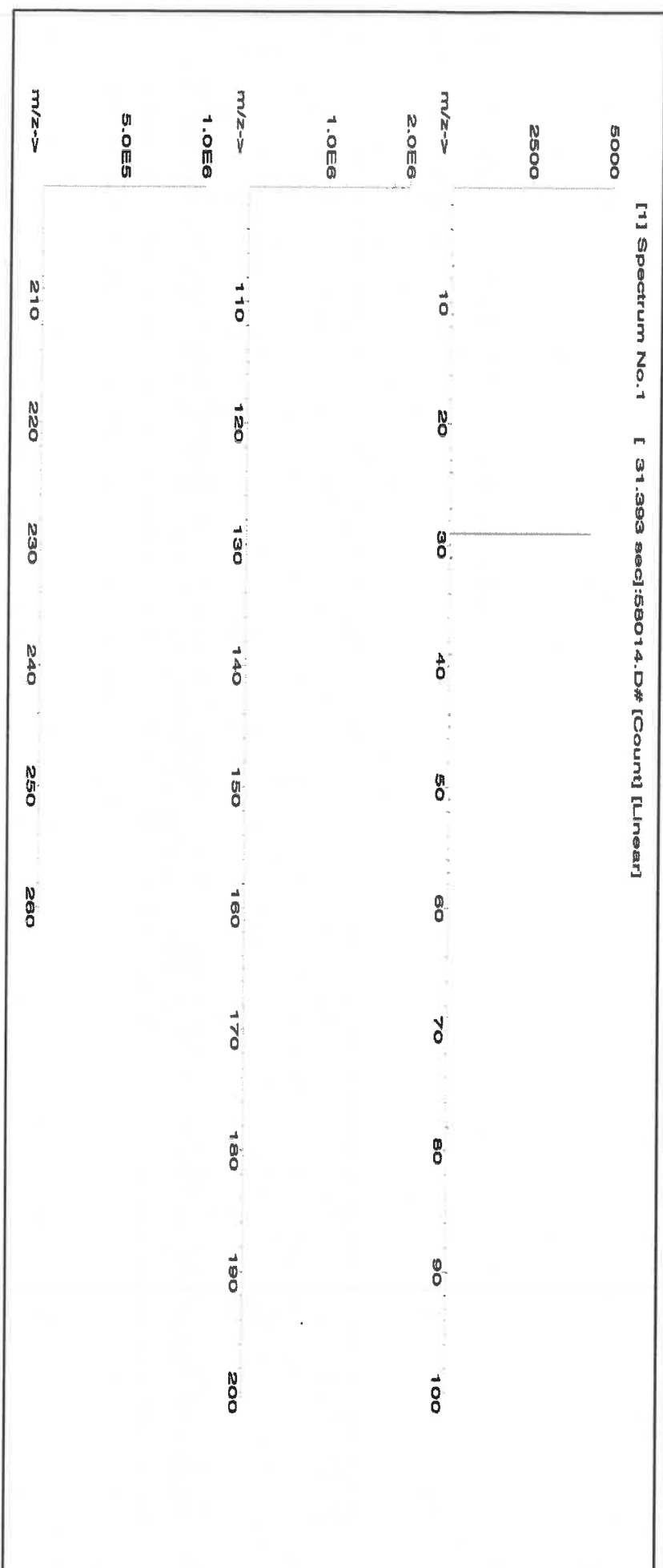
<i>Aleah O Brady</i>	
Formulated By:	Aleah O Brady
Reviewed By:	<i>Pedro L. Rentas</i>
	Pedro L. Rentas
	122023

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
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1. Ammonium hexafluorosilicate (Si) IN009 S1D08022A1 1000 99.999 0.10 14.4 13.8854 13.8855 1000.0 2.0 18919-19-0 2.5 mg/m3 off-mus 70 mg/kg NA

[1] Spectrum No. 1 [31.393 sec; 158014.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	T	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Ru	<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	<0.02	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	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 WEIGHT REPORT:

Part Number: 58030
Lot Number: 111623
Description: Zinc (Zn)

Solvent: 24002546 Nitric Acid

Lot # R: 02109124 MS819

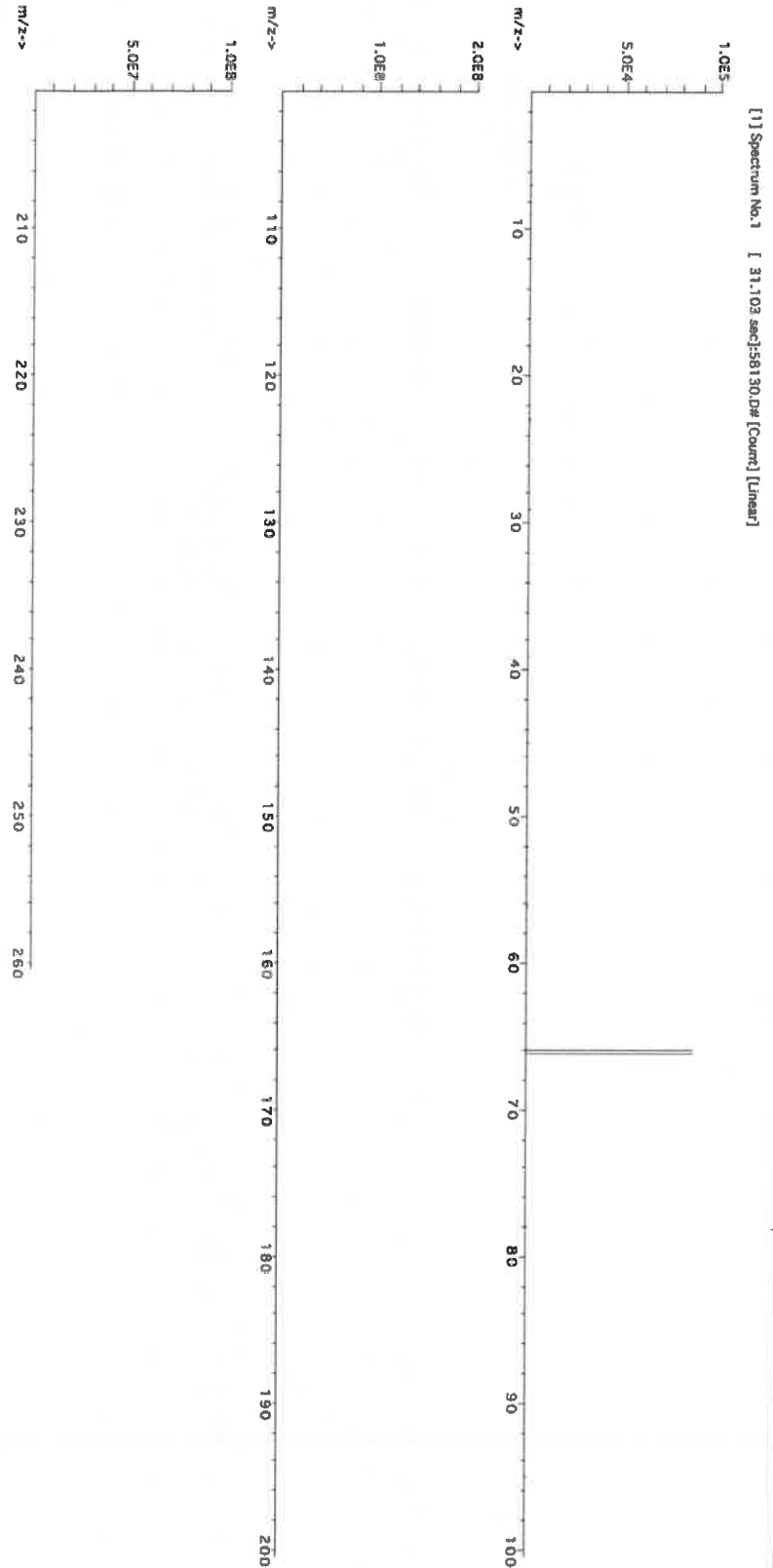
Expiration Date: 111626
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

2% 60.0 (mL) Nitric Acid

Weight shown below was diluted to (mL): 3000.4
5E-05 Balance Uncertainty
0.06 Flask Uncertainty

Formulated By:	Benson Chan
111623	
Reviewed By:	Pedro L. Reintas
111623	

SDS Information									
Expanded					(Solvent Safety Info. On Attached pg.)				
Compound	RW#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)
1. Zinc nitrate hexahydrate (Zn)	IN016	ZNE03021A1	1000	99.999	0.10	24.3	12.3475	12.3502	1000.2
									2.0
									10196-16-6
									1 mg/mL
									on-rat 1190mg/kg
									3168
									NIST SRM





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	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).



CERTIFIED WEIGHT REPORT:

Part Number: 57015
Lot Number: 091123
Description: Phosphorous (P)

Solvent: 24002546 Nitric Acid

Lot #

R: 02109124 M5820

Formulated By: Lawrence Barry 091123

Reviewed By: Pedro L. Rentas 091123

2% 40.0 (mL) Nitric Acid

Expiration Date: 091126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6LJB

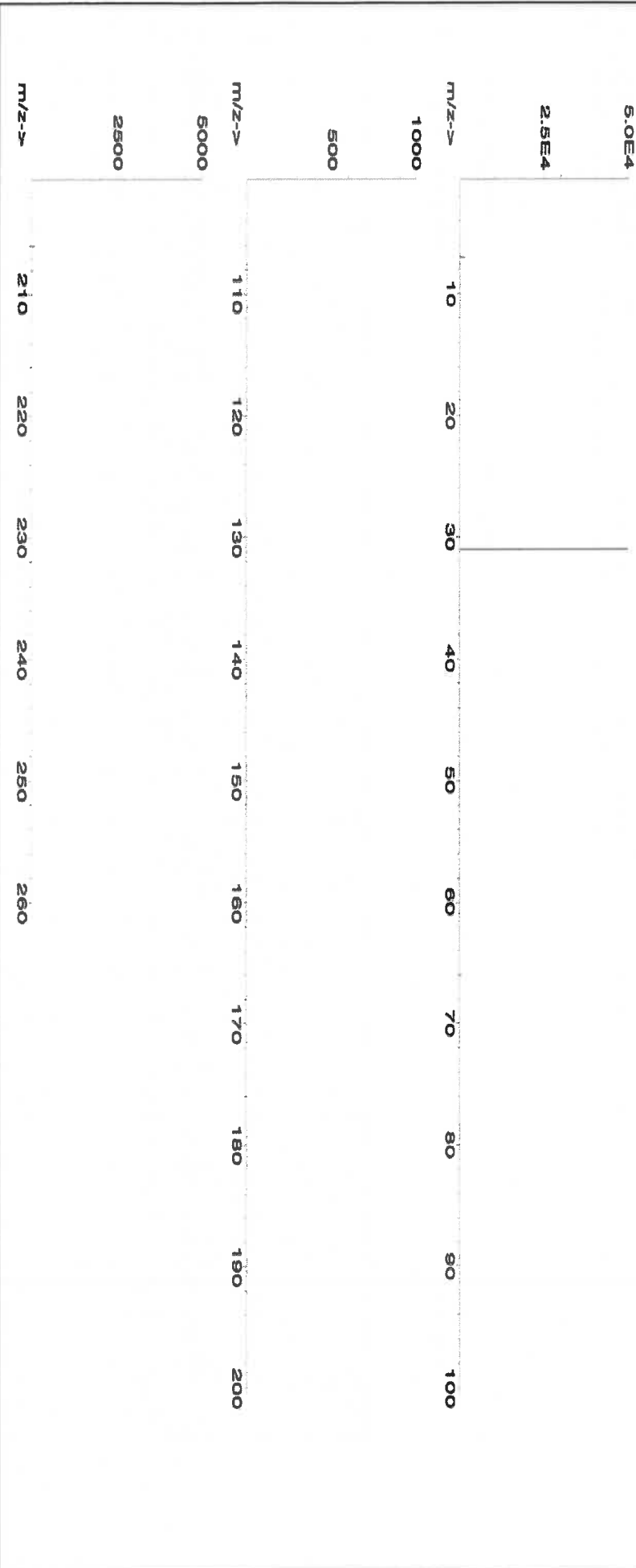
Weight shown below was diluted to (mL): 2000.02 0.058 Balance Uncertainty Flask Uncertainty

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. Ammonium dihydrogen phosphate (P) IN008 PVO82019A1 1000 99.999 0.10 27.5 7.2729 7.2730 1000.0 2.0 7722-76-1 5 mg/m3 xH-rat >2000mg/kg 3186

[1] Spectrum No.1 [12.074 sec]:58115.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	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	<0.01	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	Sa	<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
M5962 **R10614124**



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 57034
Lot Number: 060624
Description: Selenium (Se)

Lot # 24002546
Solvent: Nitric Acid

2.0% 40.0 (mL) Nitric Acid

Expiration Date: 060627

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6UTB

Volume shown below was diluted to (mL): 2000.07

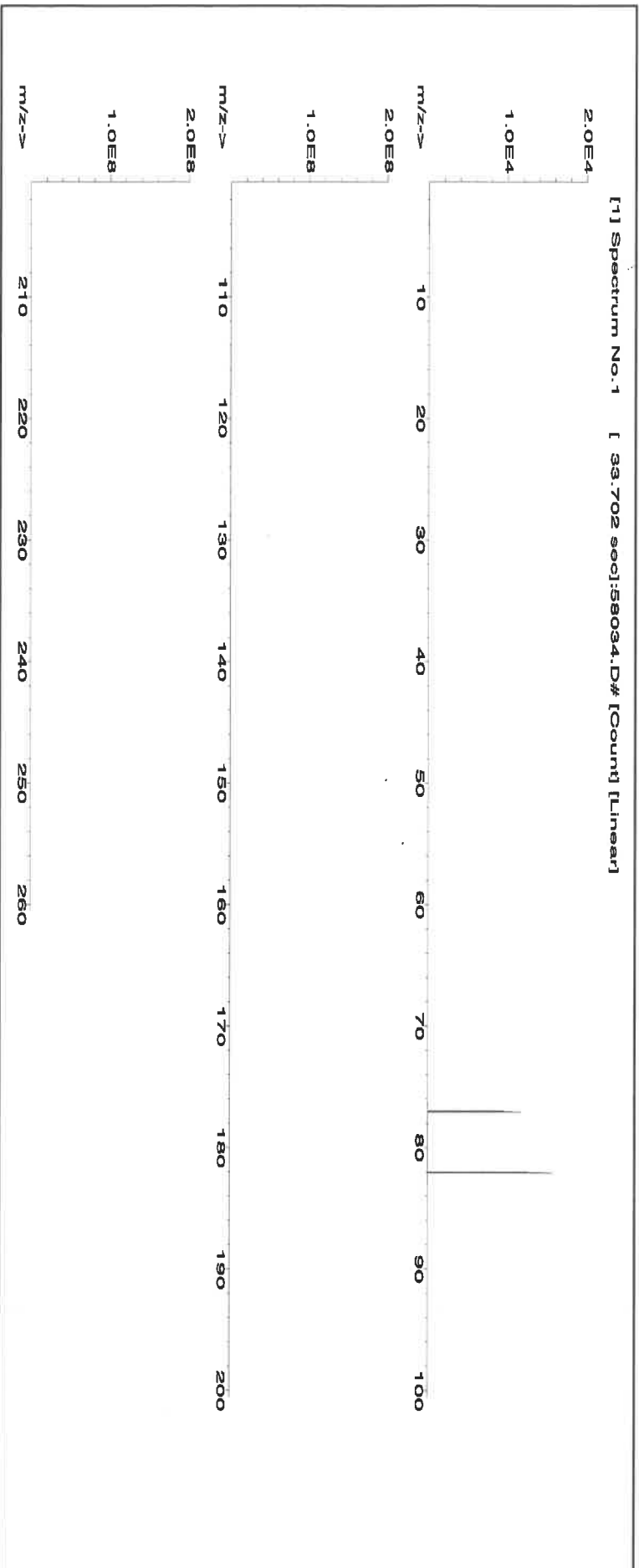
SE-05 Balance Uncertainty
0.100 Flask Uncertainty

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.)	CAS#	OSHA PEL (TWA)	LDSO	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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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	Ba	<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	Ta	<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).

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www.absolute-standards.com



Certified Reference Material CRM

M5970 M5971

R. J. 10/12/24



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

CERTIFIED WEIGHT REPORT:

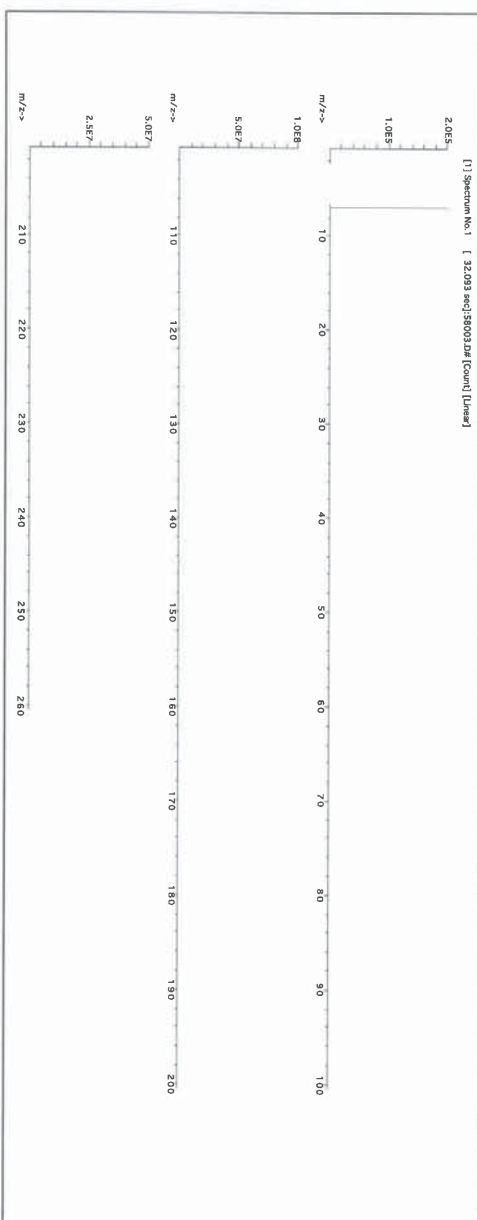
Part Number: 57003
Lot Number: 062124
Description: Lithium (Li)
Expiration Date: 06/127
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 250.11
SE-05 Balance Uncertainty
0.016 Flask Uncertainty

Lot # 24002546
Solvent: Nitric Acid

2.0% 5.0 (mL) Nitric Acid

Formulated By:	Giovanni Esposito	062124
Reviewed By:	Pedro L. Parias	062124

Compound		Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty	Initial Conc. (µg/mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty	SDS Information	NIST
1. Lithium nitrate (Li)		58103	070622	0.1000	25.0	0.004	1000	1000.0	10000.4	1000.0	2.0	7790-68-4 5 mg/mL 5 mL/1428 mg/kg	NA



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



Refine your results. Redefine your industry.

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Christiansburg, VA 24073 USA
inorganicventures.com

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

R: 2/22/24

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: CGT1

Lot Number: T2-T1719972

Matrix: 2% (v/v) HNO₃

Value / Analyte(s): tr. HF

Starting Material: 1 000 µg/mL ea.

Starting Material: Titanium

Starting Material Lot#: T1 Metal

Starting Material Purity: 2094

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL

Density: 1.012 g/mL (measured at 20 ± 4 °C)

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:

$X_{CRM/RM} = (X_p) / (U_{p,ave})$

X_p = mean of Assay Method A with

$U_{p,ave}$ = the standard uncertainty of characterization Method A

$U_p = (U_{CRM/RM})^2 / (U_{CRM/RM})^2$

$U_{CRM/RM} = \sqrt{(U_{CRM/RM})^2 + (U_{CRM/RM})^2}$

$U_{CRM/RM} = \sqrt{(U_{CRM/RM})^2 + (U_{CRM/RM})^2}$

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$U_{CRM/RM} = \sqrt{(U_{CRM/RM})^2 + (U_{CRM/RM})^2}$

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 UHPA-filtered Clean Room. An UHPA-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
M 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	<	0.000986			
O B	<	0.008929	M Ge	<	0.002146	M Os	<	0.000269	O Sr	<	0.000986			
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 Th	<	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	<	0.000268			
M Co	<	0.000268	M K	<	0.001172	M Rb	<	0.000268	M Tl	<	0.000268			
M Cr	<	0.000752	O Li	<	0.000268	M Re	<	0.000268	M Tm	<	0.000268			
M Cs	<	0.000268	M Lu	<	0.000268	M Rh	<	0.000268	M U	<	0.000268			
O Cu	<	0.010890	O Mg	<	0.005445	I S	<	0.006976	M Y	<	0.002146			
M Dy	<	0.000268	O Mn	<	0.003267	M Sb	<	0.004900	M Yb	<	0.000536			
M Er	<	0.000268	M Mo	<	0.000774	O Sc	<	0.004900	M Yb	<	0.000536			

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 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); K₂SiO₇ - no KF if silica not present); Organic Matrices (Dry ash at 450EC in P10 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 crystaline form).

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

Technique/Line	Estimated D.L.	14 ppt
ICP-MS 48 amu		

HAZARDOUS INFORMATION

HF Note: This standard should not be prepared or stored in glass.

ICP-OES 323.452 nm	ICP-OES 334.941 nm	ICP-OES 336.121 nm
0.0054 / 0.00092 µg/mL	0.0038 / 0.00028 µg/mL	0.0053 / 0.00034 µg/mL

1 W, Mo, Co
1 Nb, Ta, Cr, U
1 Ce, Ar, Ni
Ru
(where X = Zr, Mo,
14N17N2, 36Ar12C,
48Ca, 196X=2
14N16O18O,
32S16O, 32S14N,
N/A

8.0 HOMOGENEITY

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 QUALITY STANDARD DOCUMENTATION

- 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.

10.1 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: 800.868.6786; 540.565.3030; Fax: 540.565.3030; Email: info@inorganicventures.com; <http://www.inorganicventures.com>

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 Kozlikowski
Manager, Quality Control

TD9784

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Paul R. Gaines



Certified Reference Material CRM



45982 R: 6/11/24

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57038
031524
Strontium (Sr)

Solvent: 24002546 Nitric Acid

Expiration Date:
Recommended Storage:
Nominal Concentration (µg/mL):
NIST Test Number:

031527
Ambient (20 °C)
1000
6UTB
5E-05 Balance Uncertainty
0.100 Flask Uncertainty

Weight shown below was diluted to (mL): 2000.07

Lot #

2% 40.0 Nitric Acid
(mL)

Formulated By:	Benson Chan	031524
Reviewed By:	Pedro L. Rentas	031524

SDS Information

Expanded

Uncertainty

(Solvent Safety Info. On Attached pg.)

+/- (µg/mL)

LD50

CAS# OSHA PEL (TWA)

Actual

Conc. (µg/mL)

Weight (g)

Target

Assay

Purity (%)

Purity (%)

Nominal

Conc. (µg/mL)

Lot

Number

RM#

Actual

Conc. (µg/mL)

Weight (g)

Target

Assay

Purity (%)

Purity (%)

Nominal

Conc. (µg/mL)

Lot

Number

RM#

1000

89.997

0.10

41.2

4.85470

4.85502

1000.1

2.0

10042-76-9

NA

orl-rat >2000mg/kg

3153a

[1] Spectrum No.1 [14.495 sec]:58136.D# [Count] [Linear]

5.0E6

2.5E6

m/z-->

1.0E6

5.0E5

m/z-->

5.0E6

2.5E6

m/z-->



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
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
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.01	Rh	<0.02	Ag	<0.02	Ti	<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
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	T	Tm	<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
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
																W	<0.02
																U	<0.02
																V	<0.02
																Yb	<0.02
																Y	<0.02
																Zn	<0.02
																Zr	<0.02

(T) = Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

[Signature]

- * 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).

2024 JUN 7 3:58 PM

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

M5984
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: 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:

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

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

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	<	0.004600	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

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 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





Refine your results. Redefine your industry.

Certificate of Analysis

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Christiansburg, VA 24073 USA
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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:

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

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

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)

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



Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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M5999

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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-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, $X_{\text{CRM/RM}}$, 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:

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

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

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_{tts} = 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

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

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{tts} = 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

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 Reference Material CRM
R: 01/03/24 M6033



ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://AbsoluteStandards.com

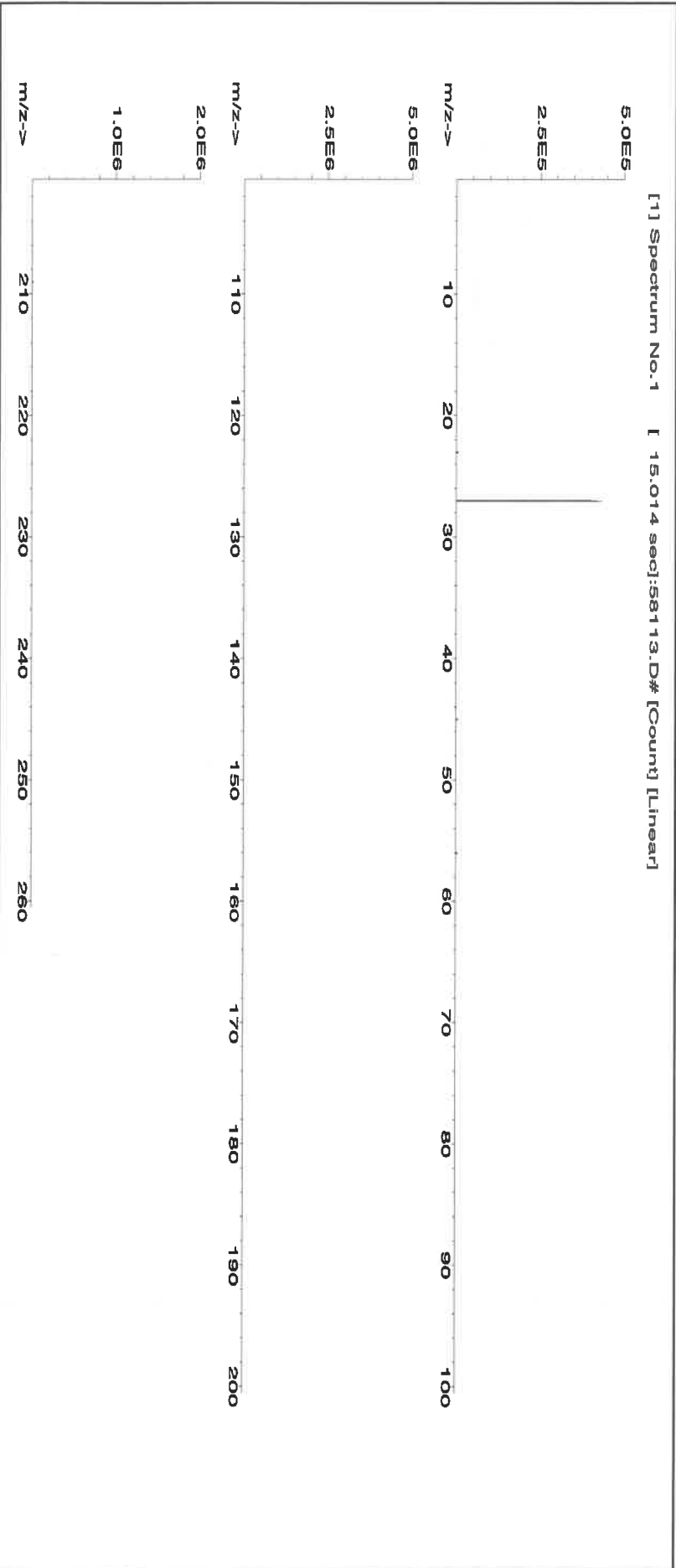
CERTIFIED WEIGHT REPORT:

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: 6LUTB
Weight shown below was diluted to (mL): 2000.02
Solvent: 20510011 Nitric Acid
Lot #
2% 40.0 (mL) Nitric Acid
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

<i>Giovanni Esposito</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	<i>Pedro L. Rentas</i>
	Pedro L. Rentas
	011623

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. Aluminum nitrate nonahydrate (Al) IN022 ALUM12021A1 10000 99.999 0.10 7.30 273.9779 274.0078 10001.1 20.0 7784-27-2 2 mg/m3 or rat 3671 mg/kg 3101a



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

 **avantor™**



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

Received! — 08/01/2024
pater
m6039
m6040

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid–base titrn)	36.5 – 38.0 %	37.6 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.192
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl ₂)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO ₄)	≤ 0.05 ppm	0.03 ppm
Sulfate (SO ₄)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO ₃)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH ₄)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	2.2 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	31.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	< 0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	3 ppb

>>> Continued on page 2 >>>

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

 **avantorsm**



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

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

>>> Continued on page 3 >>>

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

 **avantor™**



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

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

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



Jamie Croak
Director Quality Operations, Bioscience Production

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

Receive date
9/29/24
Met diag.

 avantor™



Material No.: 9530-33
Batch No.: 22F0762009
Manufactured Date: 2022-05-10
Retest Date: 2027-05-09
Revision No.: 0

M6109
M6110
M6111

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid–base titrn)	36.5 – 38.0 %	37.6 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.190
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl ₂)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO ₄)	≤ 0.05 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO ₃)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH ₄)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	0.8 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	14.9 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	6 ppb

>>> Continued on page 2 >>>

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



Material No.: 9530-33
Batch No.: 22F0762009

Test	Specification	Result
Trace Impurities – Lead (Pb)	≤ 1.0 ppb	< 0.5 ppb
Trace Impurities – Lithium (Li)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	0.8 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	0.1 ppb
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 3.0 ppb
Trace Impurities – Nickel (Ni)	≤ 4.0 ppb	< 0.3 ppb
Trace Impurities – Niobium (Nb)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Potassium (K)	≤ 9.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	1.0 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Sodium (Na)	≤ 100.0 ppb	0.7 ppb
Trace Impurities – Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Tantalum (Ta)	≤ 1.0 ppb	< 0.9 ppb
Trace Impurities – Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.8 ppb
Trace Impurities – Titanium (Ti)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	0.8 ppb
Trace Impurities – Zirconium (Zr)	≤ 1.0 ppb	< 0.1 ppb

>>> Continued on page 3 >>>

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

 **avantor™**

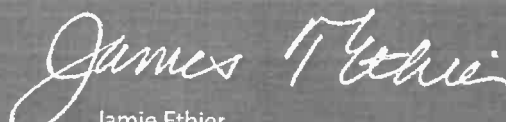


Material No.: 9530-33
Batch No.: 22F0762009

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

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


Jamie Ethier
Vice President Global Quality

Nitric Acid 69%
CMOS

 **avantor™**



Receive:
9/29/24
met dig

Material No.: 9606-03
Batch No.: 24B1362001
Manufactured Date: 2024-01-25
Retest Date: 2029-01-23
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.6 %
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	< 0.2 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	< 50 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™**



Material No.: 9606-03
Batch No.: 24B1362001

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 5.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	3 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	1 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

 **avantorsTM**

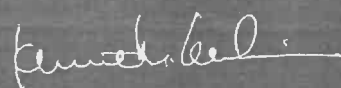


Material No.: 9606-03
Batch No.: 24B1362001

Test	Specification	Result
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For Microelectronic Use

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



Ken Koehnlein
Sr. Manager, Quality Assurance

Nitric Acid 69%
CMOS

avantor™



Receive:
9/29/24
met dig

Material No.: 9606-03
Batch No.: 24B1362001
Manufactured Date: 2024-01-25
Retest Date: 2029-01-23
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.6 %
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	< 0.2 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	< 50 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.: 24B1362001

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 5.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	3 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	1 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

 **avantorsTM**

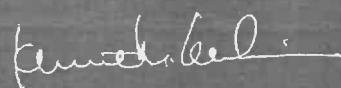


Material No.: 9606-03
Batch No.: 24B1362001

Test	Specification	Result
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For Microelectronic Use

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



Ken Koehnlein
Sr. Manager, Quality Assurance



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

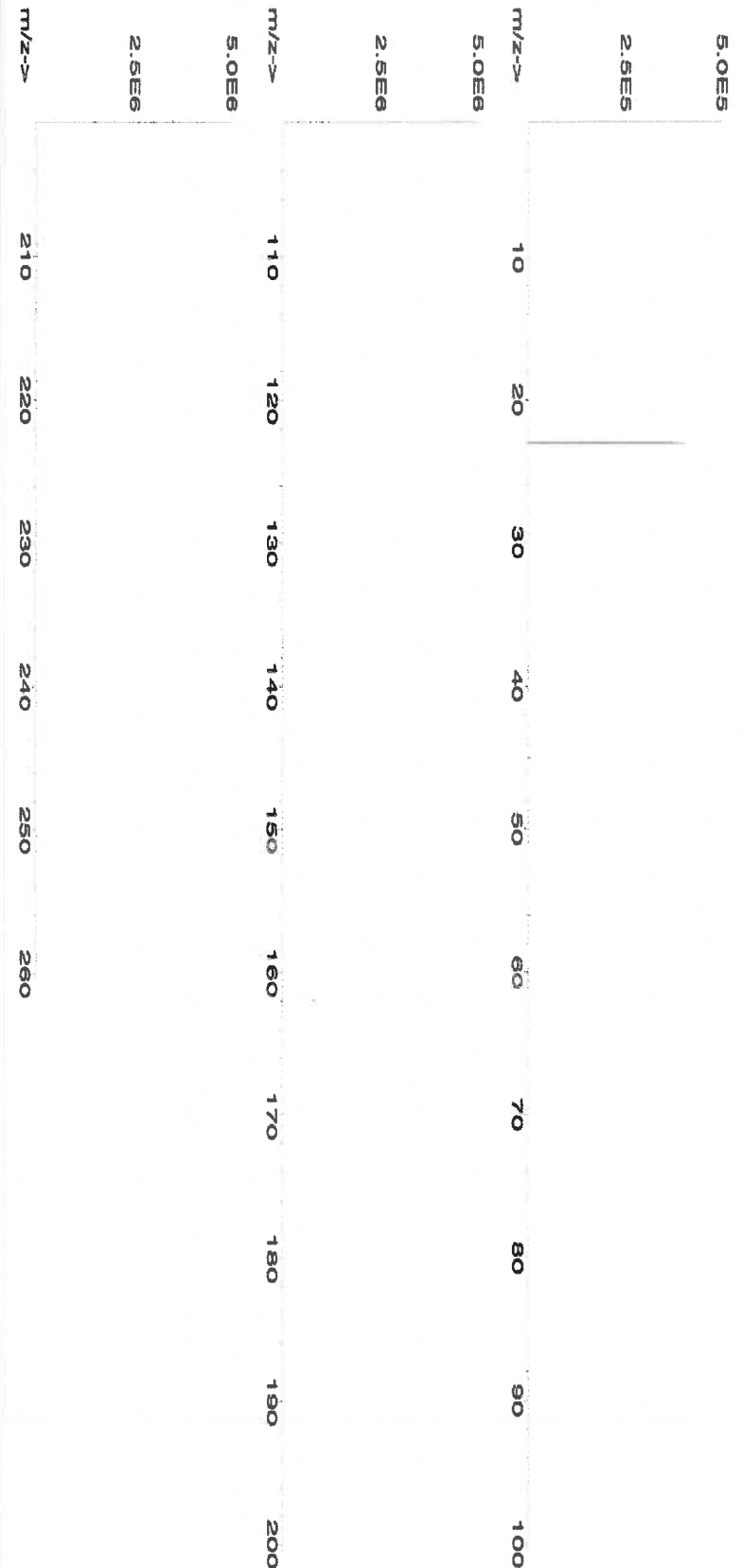
<i>Aleah O Brady</i>	
Formulated By:	Aleah O Brady
Reviewed By:	Pedro L. Rentas
	122223

Compound	Lot	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 26.9 111.5406 111.5479 10000.7 20.0 7631-99-4 5 mg/m3 or-tat 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	Tc	<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	Tm	<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	Sn	<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	Zn	<0.02	Zr	<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		

(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

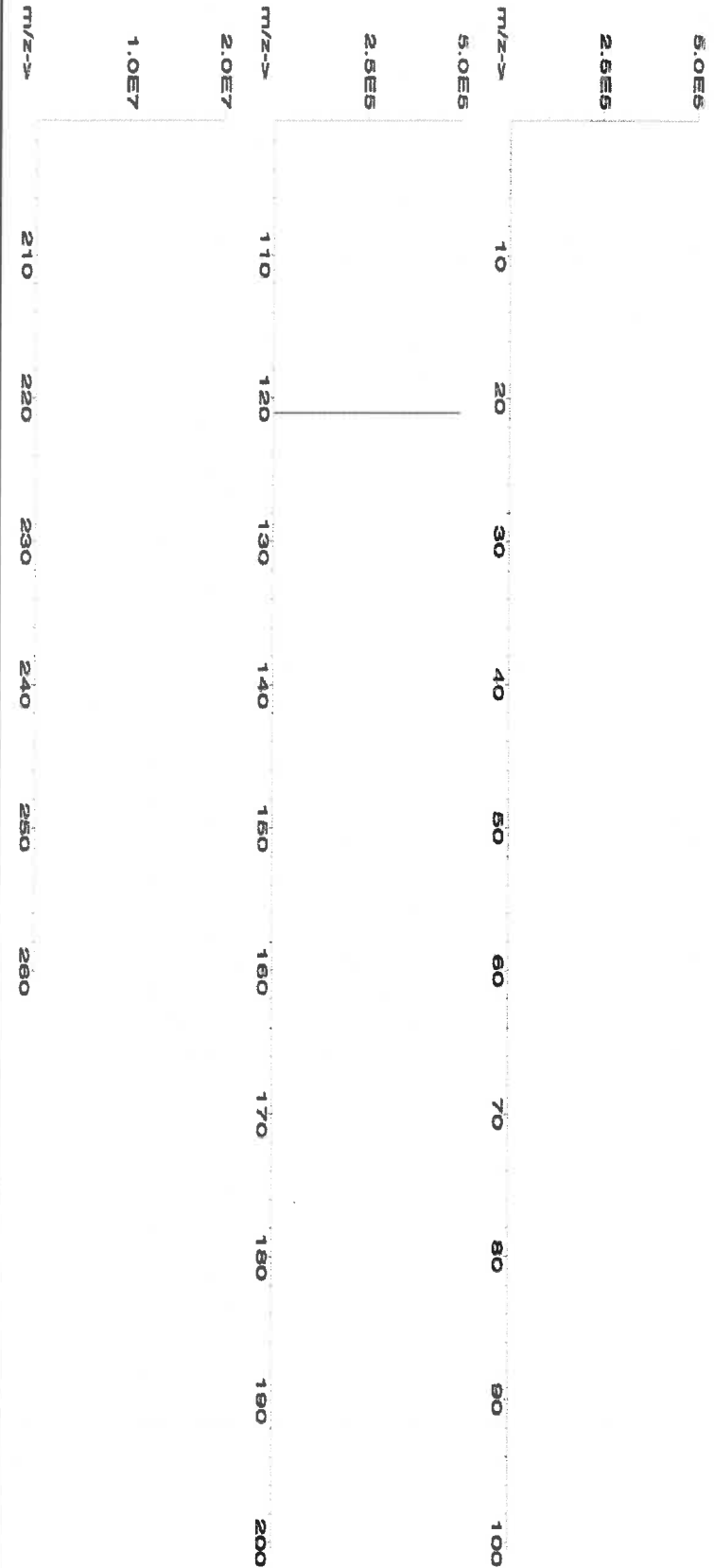
7440-36-0

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.
- * 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

M6030



CERTIFIED WEIGHT REPORT:

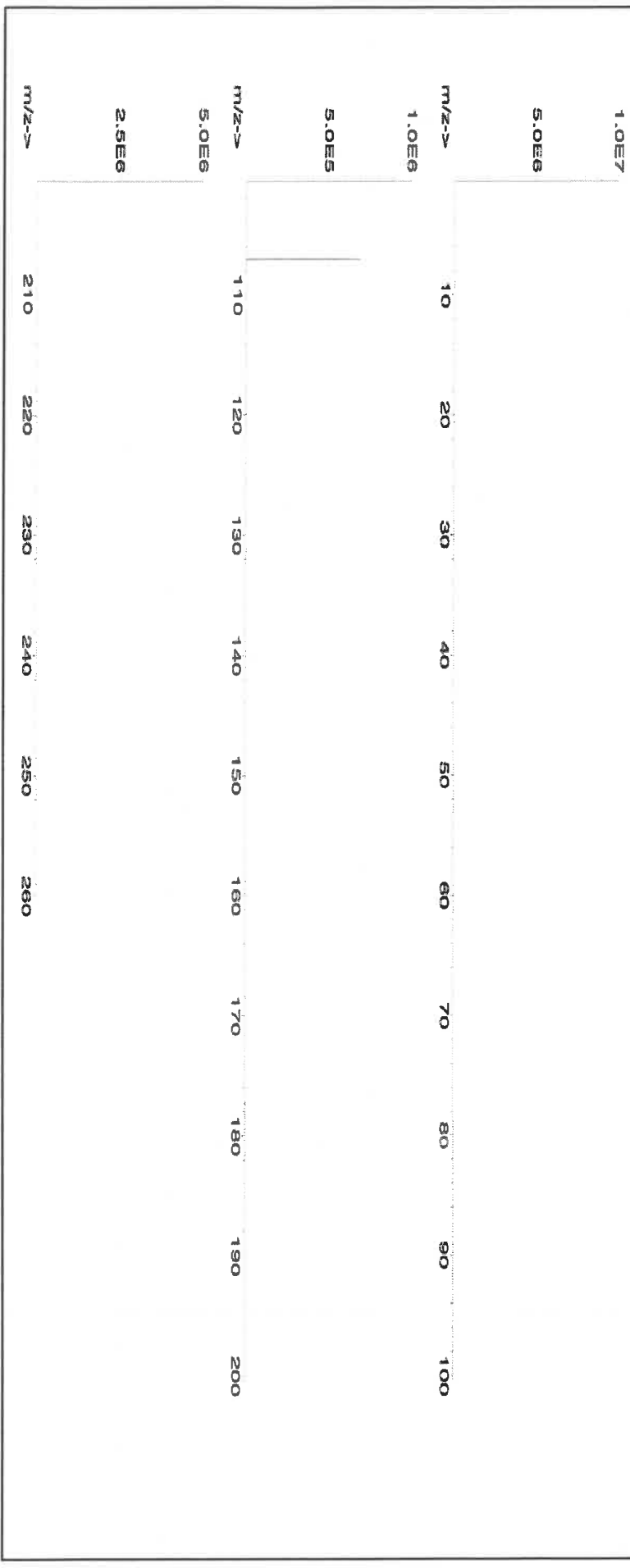
Part Number: 57047
Lot Number: 122823
Description: Silver (Ag)
Solvent: 24002546 Nitric Acid

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

Formulated By:	Benson Chan
122823	
Reviewed By:	Pedro L. Rentas
122823	

SDS Information									
Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)
1. Silver nitrate (Ag)	IN035	J0612AGAI	1000.0	99.9999	0.10	63.7	6.27992	6.27998	1000.0
							2.0	7761-88-8	10 µg/mL
									NA
									3151

[1] Spectrum No. 1 [14.044 sec]:58147.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	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).



CERTIFIED WEIGHT REPORT:

R: 03/16/23 MS473 MS474 MS475 MS476

Lot #

Part Number:

56138

Solvent:

20510011 Nitric Acid

Lot Number:

082922

Description:

Strontium (Sr)

Expiration Date:

082925

2%

20.0

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):

1000.12

0.058 Flask Uncertainty

Formulated By:	Lawrence Barry
	082922
Reviewed By:	Pedro L. Renteria
	082922

SDS Information

Compound

RM#

Lot

Number

Nominal

Purity (%)

Purity Uncertainty (%)

Assay (%)

Target

Weight (g)

Actual

Weight (g)

Actual

Conc. (µg/mL)

Expanded

Uncertainty

CAS#

OSHA PEL (TWA)

LD50

NIST SRM

1. Strontium nitrate (Sr)

IN017

SF2022018A1

10000

99.997

0.10

41.2

24.2756

24.2758

10000.1

20.0

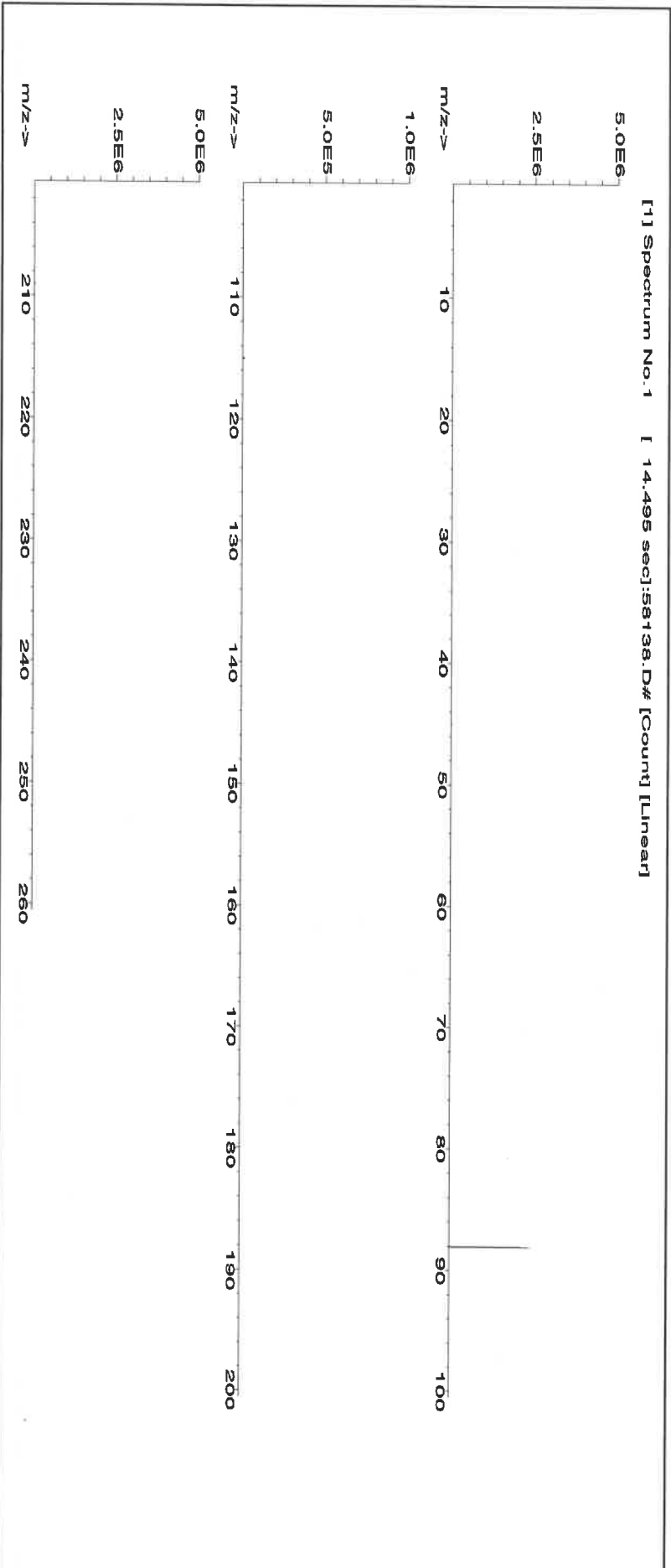
10042-76-9

NA

or-rat >2000mg/kg

3153a

[1] Spectrum No. 1 [14.495 sec]: 56138.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (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	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)

Lot #

Solvent: 24002546 Nitric Acid

2% 40.0 Nitric Acid (mL)

Expiration Date:

062727

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL): 2000.1

5E-05 Balance Uncertainty
0.10 Flask Uncertainty

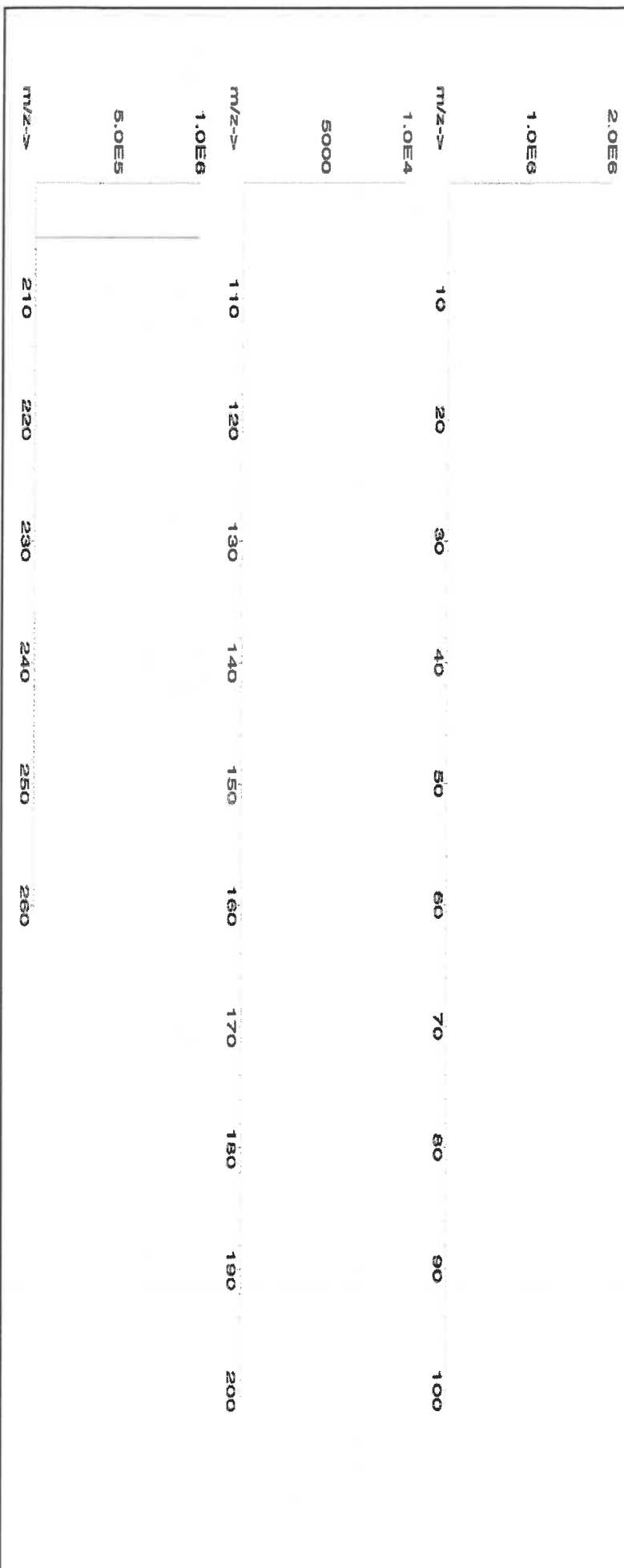
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	062724
Reviewed By:	<i>Pedro L. Renias</i>
	Pedro L. Renias
	062724

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
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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 orl-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:

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

M6021



CERTIFIED WEIGHT REPORT:

Part Number: 57023
Lot Number: 062424
Description: Vanadium (V)

Lot # 24002546
Solvent: Nitric Acid

Aleah O'Brady	
Formulated By:	Aleah O'Brady
Reviewed By:	Pedro L. Rantas
	062424

Expiration Date: 062427
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

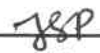
Volume shown below was diluted to (mL): 2000.3
5E-05 Balance Uncertainty
0.06 Flask Uncertainty

Volume shown below was diluted to (mL):

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
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]

m/z	10	20	30	40	50	60	70	80	90	100
2.0E6										
1.0E6										
2.0E7										
1.0E7										
m/z	110	120	130	140	150	160	170	180	190	200
5.0E6										
2.5E6										
m/z	210	220	230	240	250	260				

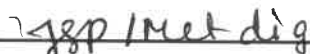
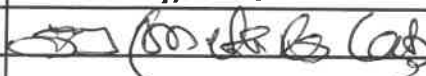
SOP ID : M3050B-Digestion-20, MSFAM01.1-Trace Metals-2
SDG No : MYE4W0 **Start Digest Date:** 11/03/2024 **Time :** 10:00 **Temp :** 95 °C
Matrix : SOIL **End Digest Date:** 11/03/2024 **Time :** 13:00 **Temp :** 95 °C
Pipette ID: ICP A **Digestion tube ID:** M6054
Balance ID : M SC-2 **Block thermometer ID:** MET-DIG. #3
Filter paper ID : N/A **Dig Technician Signature:** 
pH Strip ID : N/A **Supervisor Signature:** 
Hood ID : #3 **Temp :** 1. 95°C 2. N/A
Block ID: 1. HOT BLOCK #3 2. N/A

Standard Name	MLS USED	STD REF. # FROM LOG
LCSS	1.00	MP83141
LCSSD	0.50	MP83141
Spike Sol 6	2.00	MP83147
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
1:1 HNO3	10.00	MP81119
1:1 HCL	5.00	MP82127
Conc. HNO3	5.00	M6112
30% H2O2	3.00	M5634
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 #3 CELL #34 : 95 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
11/3/24 13:30	 Preparation Group	 Analysis Group

Lab Sample ID	Client Sample ID	pH	Initial Weight (g)	Final Vol (ml)	Color Before	Color After	Texture	Artifact	Comment	Prep Pos
P4524-01	MYE4W0	N/A	1.28	100	Brown	Yellow	Medium	N/A	N/A	1
P4524-02	MYE4W1	N/A	1.39	100	Brown	Yellow	Medium	N/A	N/A	2
P4524-03	MYE4W2	N/A	1.22	100	Brown	Yellow	Medium	N/A	N/A	3
P4524-04	MYE4W3	N/A	1.34	100	Brown	Yellow	Medium	N/A	N/A	4
P4524-05	MYE4W4	N/A	1.23	100	Brown	Yellow	Medium	N/A	N/A	5
P4524-06	MYE4W5	N/A	1.18	100	Brown	Yellow	Medium	N/A	N/A	6
P4524-07	MYE4W5D	N/A	1.43	100	Brown	Yellow	Medium	N/A	N/A	8
P4524-08	MYE4W5S	N/A	1.21	100	Brown	Yellow	Medium	N/A	MP83147	24
P4524-09	MYE4W6	N/A	1.42	100	Brown	Yellow	Medium	N/A	N/A	10
P4524-10	MYE4W7	N/A	1.16	100	Brown	Yellow	Medium	N/A	N/A	11
P4524-11	MYE4Y0	N/A	1.10	100	Brown	Yellow	Medium	N/A	N/A	12
P4524-12	MYE4Y1	N/A	1.47	100	Brown	Yellow	Medium	N/A	N/A	13
P4524-13	MYE4Y2	N/A	1.38	100	Brown	Yellow	Medium	N/A	N/A	14
P4524-14	MYE4Y3	N/A	1.49	100	Brown	Yellow	Medium	N/A	N/A	15
P4524-15	MYE4Y4	N/A	1.38	100	Brown	Yellow	Medium	N/A	N/A	16
P4524-16	MYE4Y5	N/A	1.18	100	Brown	Yellow	Medium	N/A	N/A	17
P4524-17	MYE4Y6	N/A	1.35	100	Brown	Yellow	Medium	N/A	N/A	18
PB164598BL	PBS598	N/A	1.00	100	Colorless	Colorless	Fine	N/A	N/A	19
PB164598BS	LCS598	N/A	1.00	100	Colorless	Colorless	Fine	N/A	MP83141	22
PB164598BSD	LCSD598	N/A	1.00	100	Colorless	Colorless	Fine	N/A	MP83141	23

Instrument ID: P5

Daily Analysis Runlog For Sequence/QC Batch ID # LB133379

Review By	Sarabjit Jaswal	Review On	11/13/2024 3:15:58 AM
Supervise By	Mohan Bera	Supervise On	11/13/2024 3:17:23 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136		
ICV Standard	MP83143		
CCV Standard	MP83146		
ICSA Standard	MP83144,MP83145		
CRI Standard			
LCS Standard	MP83141		
Chk Standard	MP83148,MP83149		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	11/09/24 16:11		Kareem	OK
2	S1	S01	CAL2	11/09/24 16:15		Kareem	OK
3	S2	S02	CAL3	11/09/24 16:20		Kareem	OK
4	S3	S03	CAL4	11/09/24 16:24		Kareem	OK
5	S4	S04	CAL5	11/09/24 16:29		Kareem	OK
6	S5	S05	CAL6	11/09/24 16:33		Kareem	OK
7	S6	S06	CAL7	11/09/24 16:37		Kareem	OK
8	ICV007	ICV007	ICV	11/09/24 16:52	Inst. paused for calibration review	Kareem	OK
9	ICB007	ICB007	ICB	11/09/24 16:56		Kareem	OK
10	ICSA007	ICSA007	ICSA	11/09/24 17:01		Kareem	OK
11	ICSAB007	ICSAB007	ICSAB	11/09/24 17:05		Kareem	OK
12	CCV045	CCV045	CCV	11/09/24 17:10		Kareem	OK
13	CCB045	CCB045	CCB	11/09/24 17:14		Kareem	OK
14	PB164598BL	PBS598	MB	11/09/24 17:19		Kareem	OK
15	PB164598BS	LCS598	LCS	11/09/24 17:23		Kareem	OK
16	PB164600BL	PBS600	MB	11/09/24 17:28		Kareem	OK
17	PB164600BS	LCS600	LCS	11/09/24 17:32		Kareem	OK
18	PB164623BL	PBS623	MB	11/09/24 17:37		Kareem	OK

Instrument ID: P5

Daily Analysis Runlog For Sequence/QC Batch ID # LB133379

Review By	Sarabjit Jaswal	Review On	11/13/2024 3:15:58 AM
Supervise By	Mohan Bera	Supervise On	11/13/2024 3:17:23 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136		
ICV Standard	MP83143		
CCV Standard	MP83146		
ICSA Standard	MP83144,MP83145		
CRI Standard			
LCS Standard	MP83141		
Chk Standard	MP83148,MP83149		

19	PB164623BS	LCS623	LCS	11/09/24 17:41		Kareem	OK
20	PB164633BL	PBS633	MB	11/09/24 17:55		Kareem	OK
21	PB164633BS	LCS633	LCS	11/09/24 18:00		Kareem	OK
22	PB164598BSD	LCSD598	LCSD	11/09/24 18:04		Kareem	OK
23	PB164600BSD	LCSD600	LCSD	11/09/24 18:09		Kareem	OK
24	PB164623BSD	LCSD623	LCSD	11/09/24 18:13		Kareem	OK
25	PB164633BSD	LCSD633	LCSD	11/09/24 18:22		Kareem	OK
26	P4524-01DL	MYE4W0	SAM	11/09/24 18:27		Kareem	OK
27	P4524-02DL	MYE4W1	SAM	11/09/24 18:31		Kareem	OK
28	P4524-03DL	MYE4W2	SAM	11/09/24 18:36		Kareem	OK
29	P4524-04DL	MYE4W3	SAM	11/09/24 18:40		Kareem	OK
30	P4524-05DL	MYE4W4	SAM	11/09/24 18:45		Kareem	OK
31	CCV046	CCV046	CCV	11/09/24 18:49		Kareem	OK
32	CCB046	CCB046	CCB	11/09/24 18:53		Kareem	OK
33	PB164631BL	PBS631	MB	11/09/24 18:58		Kareem	OK
34	PB164631BS	LCS631	LCS	11/09/24 19:02		Kareem	OK
35	PB164631BSD	LCSD631	LCSD	11/09/24 19:07		Kareem	OK
36	P4524-06DL	MYE4W5	SAM	11/09/24 19:21		Kareem	OK
37	P4524-07DL	MYE4W5D	DUP	11/09/24 19:25		Kareem	OK
38	P4524-06LDL	MYE4W5L	SD	11/09/24 19:29		Kareem	OK

Instrument ID: P5

Daily Analysis Runlog For Sequence/QC Batch ID # LB133379

Review By	Sarabjit Jaswal	Review On	11/13/2024 3:15:58 AM
Supervise By	Mohan Bera	Supervise On	11/13/2024 3:17:23 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136		
ICV Standard	MP83143		
CCV Standard	MP83146		
ICSA Standard	MP83144,MP83145		
CRI Standard			
LCS Standard	MP83141		
Chk Standard	MP83148,MP83149		

39	P4524-08DL	MYE4W5S	MS	11/09/24 19:34		Kareem	OK
40	P4524-09DL	MYE4W6	SAM	11/09/24 19:38		Kareem	OK
41	P4524-10DL	MYE4W7	SAM	11/09/24 19:43		Kareem	OK
42	P4524-11DL	MYE4Y0	SAM	11/09/24 19:47		Kareem	OK
43	P4524-12DL	MYE4Y1	SAM	11/09/24 19:52		Kareem	OK
44	P4524-13DL	MYE4Y2	SAM	11/09/24 19:56		Kareem	OK
45	P4524-14DL	MYE4Y3	SAM	11/09/24 20:00		Kareem	OK
46	P4524-15DL	MYE4Y4	SAM	11/09/24 20:05		Kareem	OK
47	P4524-16DL	MYE4Y5	SAM	11/09/24 20:09		Kareem	OK
48	P4524-17DL	MYE4Y6	SAM	11/09/24 20:14		Kareem	OK
49	P4538-01DL	MYE4Y7	SAM	11/09/24 20:18		Kareem	OK
50	P4538-02DL	MYE4Y8	SAM	11/09/24 20:23		Kareem	OK
51	CCV047	CCV047	CCV	11/09/24 20:27		Kareem	OK
52	CCB047	CCB047	CCB	11/09/24 20:31		Kareem	OK
53	P4538-03DL	MYE4Y9	SAM	11/09/24 20:36		Kareem	OK
54	P4538-04DL	MYE4Z0	SAM	11/09/24 20:40		Kareem	OK
55	P4538-05DL	MYE4Z1	SAM	11/09/24 20:45		Kareem	OK
56	P4538-06DL	MYE4Z2	SAM	11/09/24 20:49		Kareem	OK
57	P4538-07DL	MYE4Z3	SAM	11/09/24 20:53		Kareem	OK
58	P4538-08DL	MYE4Z4	SAM	11/09/24 20:58		Kareem	OK

Instrument ID: P5

Daily Analysis Runlog For Sequence/QC Batch ID # LB133379

Review By	Sarabjit Jaswal	Review On	11/13/2024 3:15:58 AM
Supervise By	Mohan Bera	Supervise On	11/13/2024 3:17:23 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136		
ICV Standard	MP83143		
CCV Standard	MP83146		
ICSA Standard	MP83144,MP83145		
CRI Standard			
LCS Standard	MP83141		
Chk Standard	MP83148,MP83149		

59	P4538-09DL	MYE4Z5	SAM	11/09/24 21:02		Kareem	OK
60	P4538-10DL	MYE4Z6	SAM	11/09/24 21:07		Kareem	OK
61	P4538-11DL	MYE4Z6D	DUP	11/09/24 21:11		Kareem	OK
62	P4538-10LDL	MYE4Z6L	SD	11/09/24 21:16		Kareem	OK
63	P4538-12DL	MYE4Z6S	MS	11/09/24 21:20		Kareem	OK
64	P4538-13DL	MYE4Z7	SAM	11/09/24 21:24		Kareem	OK
65	P4538-14DL	MYE4Z8	SAM	11/09/24 21:29		Kareem	OK
66	P4538-15DL	MYE4Z9	SAM	11/09/24 21:33		Kareem	OK
67	P4538-16DL	MYE500	SAM	11/09/24 21:38		Kareem	OK
68	P4538-17DL	MYE501	SAM	11/09/24 21:42		Kareem	OK
69	P4538-18DL	MYE502	SAM	11/09/24 21:47		Kareem	OK
70	P4538-19DL	MYE503	SAM	11/09/24 21:51		Kareem	OK
71	P4538-20DL	MYE504	SAM	11/09/24 21:55		Kareem	OK
72	P4538-21DL	MYE505	SAM	11/09/24 22:00		Kareem	OK
73	CCV048	CCV048	CCV	11/09/24 22:04		Kareem	OK
74	CCB048	CCB048	CCB	11/09/24 22:09		Kareem	OK
75	P4541-01DL	MYE5B3	SAM	11/09/24 22:14		Kareem	OK
76	P4541-02DL	MYE5B4	SAM	11/09/24 22:18		Kareem	OK
77	P4541-03DL	MYE5B5	SAM	11/09/24 22:23		Kareem	OK
78	P4541-04DL	MYE5B6	SAM	11/09/24 22:27		Kareem	OK

Instrument ID: P5

Daily Analysis Runlog For Sequence/QC Batch ID # LB133379

Review By	Sarabjit Jaswal	Review On	11/13/2024 3:15:58 AM
Supervise By	Mohan Bera	Supervise On	11/13/2024 3:17:23 AM

STD. NAME	STD REF.#
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136
ICV Standard	MP83143
CCV Standard	MP83146
ICSA Standard	MP83144,MP83145
CRI Standard	
LCS Standard	MP83141
Chk Standard	MP83148,MP83149

79	P4541-05DL	MYE5B7	SAM	11/09/24 22:32		Kareem	OK
80	P4541-06DL	MYE5B7D	DUP	11/09/24 22:36		Kareem	OK
81	P4541-05LDL	MYE5B7L	SD	11/09/24 22:41		Kareem	OK
82	P4541-07DL	MYE5B7S	MS	11/09/24 22:45	MS fail for Sb(Below RL),Cu(1035 ppb),Zn(931 ppb)	Kareem	OK
83	P4541-08DL	MYE5B8	SAM	11/09/24 22:49		Kareem	OK
84	P4541-09DL	MYE5B9	SAM	11/09/24 22:54		Kareem	OK
85	P4541-10DL	MYE5C0	SAM	11/09/24 22:58		Kareem	OK
86	P4541-11DL	MYE5C1	SAM	11/09/24 23:03		Kareem	OK
87	P4541-12DL	MYE5C2	SAM	11/09/24 23:07		Kareem	OK
88	P4541-13DL	MYE5C3	SAM	11/09/24 23:12		Kareem	OK
89	P4541-14DL	MYE5C4	SAM	11/09/24 23:16		Kareem	OK
90	P4541-15DL	MYE5C5	SAM	11/09/24 23:20		Kareem	OK
91	P4541-16DL	MYE5C6	SAM	11/09/24 23:25		Kareem	OK
92	P4541-17DL	MYE5C7	SAM	11/09/24 23:29		Kareem	OK
93	P4541-18DL	MYE5C8	SAM	11/09/24 23:34		Kareem	OK
94	P4541-19DL	MYE5C9	SAM	11/09/24 23:38		Kareem	OK
95	CCV049	CCV049	CCV	11/09/24 23:43		Kareem	OK
96	CCB049	CCB049	CCB	11/09/24 23:47		Kareem	OK
97	P4541-20DL	MYE5D0	SAM	11/09/24 23:51	Not Use	Kareem	Not Ok

Instrument ID: P5

Daily Analysis Runlog For Sequence/QC Batch ID # LB133379

Review By	Sarabjit Jaswal	Review On	11/13/2024 3:15:58 AM
Supervise By	Mohan Bera	Supervise On	11/13/2024 3:17:23 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136		
ICV Standard	MP83143		
CCV Standard	MP83146		
ICSA Standard	MP83144,MP83145		
CRI Standard			
LCS Standard	MP83141		
Chk Standard	MP83148,MP83149		

98	P4541-21DL	MYE5D1	SAM	11/09/24 23:56		Kareem	OK
99	P4541-22DL	MYE5D2	SAM	11/10/24		Kareem	OK
100	P4542-01DL	MYE5D3	SAM	11/10/24 00:05		Kareem	OK
101	P4542-02DL	MYE5D4	SAM	11/10/24 00:09		Kareem	OK
102	P4542-03DL	MYE5D5	SAM	11/10/24 00:14		Kareem	OK
103	P4542-04DL	MYE5D6	SAM	11/10/24 00:18		Kareem	OK
104	P4542-05DL	MYE5D6D	DUP	11/10/24 00:22		Kareem	OK
105	P4542-04LDL	MYE5D6L	SD	11/10/24 00:27		Kareem	OK
106	P4542-06DL	MYE5D6S	MS	11/10/24 00:31	MS fail for As(140 ppb),Cu(1023 ppb)	Kareem	OK
107	P4542-07DL	MYE5D7	SAM	11/10/24 00:36		Kareem	OK
108	P4542-08DL	MYE5D8	SAM	11/10/24 00:40		Kareem	OK
109	P4542-09DL	MYE5D9	SAM	11/10/24 00:44		Kareem	OK
110	P4542-10DL	MYE5E0	SAM	11/10/24 00:49		Kareem	OK
111	P4542-11DL	MYE5E1	SAM	11/10/24 00:53		Kareem	OK
112	P4542-12DL	MYE5E2	SAM	11/10/24 00:58		Kareem	OK
113	P4542-13DL	MYE5E3	SAM	11/10/24 01:02		Kareem	OK
114	P4542-14DL	MYE5E4	SAM	11/10/24 01:07	Not Use	Kareem	Not Ok
115	P4542-15DL	MYE5E5	SAM	11/10/24 01:11		Kareem	OK
116	P4542-16DL	MYE5E6	SAM	11/10/24 01:15		Kareem	OK

Instrument ID: P5

Daily Analysis Runlog For Sequence/QC Batch ID # LB133379

Review By	Sarabjit Jaswal	Review On	11/13/2024 3:15:58 AM
Supervise By	Mohan Bera	Supervise On	11/13/2024 3:17:23 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136		
ICV Standard	MP83143		
CCV Standard	MP83146		
ICSA Standard	MP83144,MP83145		
CRI Standard			
LCS Standard	MP83141		
Chk Standard	MP83148,MP83149		

117	CCV050	CCV050	CCV	11/10/24 01:20		Kareem	OK
118	CCB050	CCB050	CCB	11/10/24 01:24		Kareem	OK
119	P4542-17DL	MYE5E7	SAM	11/10/24 01:29		Kareem	OK
120	P4542-18DL	MYE5E8	SAM	11/10/24 01:33		Kareem	OK
121	P4542-19DL	MYE5E9	SAM	11/10/24 01:38		Kareem	OK
122	P4542-20DL	MYE5F0	SAM	11/10/24 01:42		Kareem	OK
123	P4542-21DL	MYE5F1	SAM	11/10/24 01:46		Kareem	OK
124	P4542-22DL	MYE5F2	SAM	11/10/24 01:51		Kareem	OK
125	P4543-01DL	MYE5F3	SAM	11/10/24 01:55		Kareem	OK
126	P4543-02DL	MYE5F4	SAM	11/10/24 02:00		Kareem	OK
127	P4543-03DL	MYE5F5	SAM	11/10/24 02:04		Kareem	OK
128	P4543-04DL	MYE5F5D	DUP	11/10/24 02:09		Kareem	OK
129	P4543-03LDL	MYE5F5L	SD	11/10/24 02:13		Kareem	OK
130	P4543-05DL	MYE5F5S	MS	11/10/24 02:17	MS fail for for As(182 ppb)	Kareem	OK
131	P4543-06DL	MYE5F6	SAM	11/10/24 02:22		Kareem	OK
132	P4543-07DL	MYE5F7	SAM	11/10/24 02:26		Kareem	OK
133	P4543-08DL	MYE5F8	SAM	11/10/24 02:31		Kareem	OK
134	P4543-09DL	MYE5F9	SAM	11/10/24 02:35		Kareem	OK
135	P4543-10DL	MYE5G0	SAM	11/10/24 02:40		Kareem	OK
136	P4543-11DL	MYE5G2	SAM	11/10/24 02:44		Kareem	OK

Instrument ID: P5

Daily Analysis Runlog For Sequence/QC Batch ID # LB133379

Review By	Sarabjit Jaswal	Review On	11/13/2024 3:15:58 AM
Supervise By	Mohan Bera	Supervise On	11/13/2024 3:17:23 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136		
ICV Standard	MP83143		
CCV Standard	MP83146		
ICSA Standard	MP83144,MP83145		
CRI Standard			
LCS Standard	MP83141		
Chk Standard	MP83148,MP83149		

137	P4543-12DL	MYE5G3	SAM	11/10/24 02:48		Kareem	OK
138	P4543-13DL	MYE506	SAM	11/10/24 02:53		Kareem	OK
139	CCV051	CCV051	CCV	11/10/24 02:57		Kareem	OK
140	CCB051	CCB051	CCB	11/10/24 03:02		Kareem	OK
141	P4543-14DL	MYE507	SAM	11/10/24 03:06		Kareem	OK
142	P4543-15DL	MYE508	SAM	11/10/24 03:10		Kareem	OK
143	P4543-16DL	MYE509	SAM	11/10/24 03:15		Kareem	OK
144	P4543-17DL	MYE510	SAM	11/10/24 03:19		Kareem	OK
145	P4543-18DL	MYE511	SAM	11/10/24 03:24		Kareem	OK
146	P4543-19DL	MYE512	SAM	11/10/24 03:28		Kareem	OK
147	P4543-20DL	MYE513	SAM	11/10/24 03:33		Kareem	OK
148	P4543-21DL	MYE514	SAM	11/10/24 03:37		Kareem	OK
149	P4543-22DL	MYE515	SAM	11/10/24 03:42		Kareem	OK
150	PB164626BL	PBS626	MB	11/10/24 03:46		Kareem	OK
151	PB164626BS	LCS626	LCS	11/10/24 03:51		Kareem	OK
152	PB164626BSD	LCSD626	LCSD	11/10/24 03:55		Kareem	OK
153	PB164628BL	PBS628	MB	11/10/24 04:13		Kareem	OK
154	PB164628BS	LCS628	LCS	11/10/24 04:18		Kareem	OK
155	PB164628BSD	LCSD628	LCSD	11/10/24 04:22		Kareem	OK
156	P4569-01DL	MYE516	SAM	11/10/24 04:27		Kareem	OK

Instrument ID: P5

Daily Analysis Runlog For Sequence/QC Batch ID # LB133379

Review By	Sarabjit Jaswal	Review On	11/13/2024 3:15:58 AM
Supervise By	Mohan Bera	Supervise On	11/13/2024 3:17:23 AM

STD. NAME	STD REF.#
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136
ICV Standard	MP83143
CCV Standard	MP83146
ICSA Standard	MP83144,MP83145
CRI Standard	
LCS Standard	MP83141
Chk Standard	MP83148,MP83149

157	P4569-02DL	MYE517	SAM	11/10/24 04:31		Kareem	OK
158	CCV052	CCV052	CCV	11/10/24 04:36		Kareem	OK
159	CCB052	CCB052	CCB	11/10/24 04:40		Kareem	OK
160	P4569-03DL	MYE518	SAM	11/10/24 04:44		Kareem	OK
161	P4569-04DL	MYE519	SAM	11/10/24 04:49		Kareem	OK
162	P4569-05DL	MYE519D	DUP	11/10/24 04:53		Kareem	OK
163	P4569-04LDL	MYE519L	SD	11/10/24 04:58		Kareem	OK
164	P4569-06DL	MYE519S	MS	11/10/24 05:02	MS fail for Cu(1099 ppb),Zn(978 ppb)	Kareem	OK
165	P4569-07DL	MYE520	SAM	11/10/24 05:07		Kareem	OK
166	P4569-08DL	MYE521	SAM	11/10/24 05:11		Kareem	OK
167	P4569-09DL	MYE522	SAM	11/10/24 05:15		Kareem	OK
168	P4569-10DL	MYE523	SAM	11/10/24 05:20		Kareem	OK
169	P4569-11DL	MYE524	SAM	11/10/24 05:24		Kareem	OK
170	P4569-12DL	MYE525	SAM	11/10/24 05:29		Kareem	OK
171	P4569-13DL	MYE526	SAM	11/10/24 05:33		Kareem	OK
172	P4569-14DL	MYE527	SAM	11/10/24 05:38		Kareem	OK
173	P4569-15DL	MYE528	SAM	11/10/24 05:42		Kareem	OK
174	P4569-16DL	MYE529	SAM	11/10/24 05:47		Kareem	OK
175	P4569-17DL	MYE530	SAM	11/10/24 05:51		Kareem	OK

Instrument ID: P5

Daily Analysis Runlog For Sequence/QC Batch ID # LB133379

Review By	Sarabjit Jaswal	Review On	11/13/2024 3:15:58 AM
Supervise By	Mohan Bera	Supervise On	11/13/2024 3:17:23 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83134,MP83142,MP83140,MP83139,MP83138,MP83137,MP83136		
ICV Standard	MP83143		
CCV Standard	MP83146		
ICSA Standard	MP83144,MP83145		
CRI Standard			
LCS Standard	MP83141		
Chk Standard	MP83148,MP83149		

176	P4569-18DL	MYE532	SAM	11/10/24 05:55		Kareem	OK
177	P4569-19DL	MYE533	SAM	11/10/24 06:00		Kareem	OK
178	P4569-20DL	MYE534	SAM	11/10/24 06:04		Kareem	OK
179	P4569-21DL	MYE535	SAM	11/10/24 06:09		Kareem	OK
180	CCV053	CCV053	CCV	11/10/24 06:13		Kareem	OK
181	CCB053	CCB053	CCB	11/10/24 06:17		Kareem	OK