SDG COVER PAGE

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

Lab Code: ACE Case No.: 51882 MA No.: SDG No.: MX1007

SOW No. : SFAM01.1

EPA Sample No.	Lab Sample Id	Analysis Method ICP-AES	ICP-MS	Mercury	Cyanide
MX1007	P4917-01	X	X	X	
MX1008	P4917-02				X
MX1009	P4917-03	X			
MX1010	P4917-04		X		
MX1011	P4917-05			X	
MX1012	P4917-06				X

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the SDG Narrative. All edits and manual integrations have been peer-reviewed. Release of the data contained in this hardcopy Complete SDG File and in the electronic data submitted has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Name:

Date: Title:

68HERH20D0011 SDG # MX1007

USEPA CLP COC (LAB COPY)
Date Shipped: 18-Nov-2024
Carrier Name: FedEx
AirBill No: 2819 2502 3487

CHAIN OF CUSTODY RECORD

Case #: 51882
Cooler #: Box 1 of 1

No: 110524-114640-0002
Lab: Alliance Technical Group LLC
Lab Contact: Sohil Jodhan
Lab Phone: 908-728-3154

2

Sample Identifier	CLP Sample No.	Matrix/Sampler	Coll. Method	Analysis/Turnaround (Days)	Tag/Preservative/Bottles	Location	Collection Date/Time	For Lab Use Only
Q11182401-2	MX1007	Soil/ERA		ICP-AES Metals, ICP-MS Metals and Mercury(21)	(1)	Box 1 of 1	18-Nov-2024 12:00	
Q11182401-3	MX1008	Soil/ERA		CN(21)	(1)	Box 1 of 1	18-Nov-2024 12:00	
Q11182401-1	MX1009	Water/ERA		ICP-AES(21)	(1)	Box 1 of 1	18-Nov-2024 12:00	
Q11182401-5	MX1010	Water/ERA		ICP-MS(21)	(1)	Box 1 of 1	18-Nov-2024 12:00	
Q11182401-4	MX1011	Water/ERA		Hg(21)	(1)	Box 1 of 1	18-Nov-2024 12:00	
Q11182401-6	MX1012	Water/ERA		CN(21)	(1)	Box 1 of 1	18-Nov-2024 12:00	

Special Instructions:

Shipment for Case Complete? N

Samples Transferred From Chain of Custody #

Analysis Key: CN=CLP Cyanide, ICP-AES=CLP ICP-AES Metals, ICP-MS=CLP ICP-MS Metals, Hg=CLP Mercury

Items/Reason	Relinquished By (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	[signature] /ERA	18 Nov 2024 12:00	[signature]	957 11-19-24	Ice Chest # 1 19.3°
					Custody Seal Intact
					No temps, no ICE

FORM DC-1

SAMPLE LOG-IN SHEET

Lab Name : Alliance Technical Group, LLC		Page 1 of 1
Received By (Print Name) Cazarara Reina		Log-in Date 11/19/2024
Received By (Signature)		
Case Number 51882	SDG No. MX1007	MA No. N/A

Remarks:	
1. Custody Seal (s)	Present, Intact
2. Custody Seal Nos.	n/a
3. Traffic Reports/Chain Of Custody Records	Present
4. Airbill	Present
5. Airbill No. and Shipping Container ID No.	281925023487 1
6. Shipping Container Temperature Indicator Bottle	Absent
7. Shipping Container Temperature	19.3 Degree C
8. Sample Condition	Intact
9. Sample Tags Sample Tag Numbers	Absent Listed on Traffic Report
10. Does information on Traffic Reports/Chain of Custody Records and Sample Tags agree ?	Yes
11. Date Received at Lab	11/19/2024
12.Time Received	09:57

	EPA Sample #	Aqueous/ Water Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
1	MX1007	N/A	N,A	P4917-01	Intact
2	MX1008	N/A	N,A	P4917-02	Intact
3	MX1009	N/A	N,A	P4917-03	Intact
4	MX1010	N/A	N,A	P4917-04	Intact
5	MX1011	N/A	N,A	P4917-05	Intact
6	MX1012	N/A	N,A	P4917-06	Intact
7	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A
11	N/A	N/A	N/A	N/A	N/A
12	N/A	N/A	N/A	N/A	N/A
13	N/A	N/A	N/A	N/A	N/A
14	N/A	N/A	N/A	N/A	N/A
15	N/A	N/A	N/A	N/A	N/A
16	N/A	N/A	N/A	N/A	N/A
17	N/A	N/A	N/A	N/A	N/A
18	N/A	N/A	N/A	N/A	N/A
19	N/A	N/A	N/A	N/A	N/A
20	N/A	N/A	N/A	N/A	N/A
21	N/A	N/A	N/A	N/A	N/A
22	N/A	N/A	N/A	N/A	N/A
23	N/A	N/A	N/A	N/A	N/A

* Contact SMO and attach record of resolution

Reviewed By		Logbook No.	N/A
Date	11/19/24	Logbook Page No.	N/A

FORM DC-2
COMPLETE SDG FILE (CSF) INVENTORY SHEET

LAB NAME	**Alliance Technical Group, LLC**		
LAB CODE	**ACE**		
CONTRACT NO.	**68HERH20D0011**		
CASE NO.	**51882**	SDG NO.	**MX1007**
MA NO.		SOW NO.	**SFAM01.1**

All documents delivered in the Complete SDG File must be original documents where possible. (Reference - Exhibit B Section 2.4)

	PAGE NOs: FROM	PAGE NOs: TO	CHECK LAB	CHECK REGION
1. SDG Cover Page	1	1	✓	
2. Traffic Report/Chain of Custody Record(s)	2	2	✓	
3. Sample Log-In Sheet (DC-1)	3	3	✓	
4. CSF Inventory Sheet (DC-2)	4	6	✓	
5. SDG Narrative	7	14	✓	
6. Communication Logs	NA	NA	✓	
7. Percent Solids Log	15	18	✓	
Analysis Forms and Data (ICP-AES)				
8. Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable	19	20	✓	
9. Instrument raw data by instrument in analysis order	21	143	✓	
Other Data				
10. Standard and Reagent Preparation Logs	144	275	✓	
11. Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	276	279	✓	
12. Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	280	290	✓	
13. Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions	291	296	✓	
14. Extraction Logs for TCLP and SPLP	NA	NA	✓	
15. Raw GPC Data	NA	NA	✓	
16. Raw Florisil Data	NA	NA	✓	
Analysis Forms and Data (ICP-MS)				
17. Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable	297	298	✓	
18. Instrument raw data by instrument in analysis order	299	487	✓	
Other Data				
19. Standard and Reagent Preparation Logs	488	622	✓	
20. Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	623	626	✓	
21. Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	627	628	✓	
22. Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions	629	634	✓	

	PAGE NOs: FROM	TO	CHECK LAB	REGION
23. Extraction Logs for TCLP and SPLP	NA	NA	✓	
24. Raw GPC Data	NA	NA	✓	
25. Raw Florisil Data	NA	NA	✓	
Analysis Forms and Data (Mercury)				
26. Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable	635	636	✓	
27. Instrument raw data by instrument in analysis order	637	640	✓	
Other Data				
28. Standard and Reagent Preparation Logs	641	677	✓	
29. Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	678	681	✓	
30. Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	682	683	✓	
31. Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions	684	689	✓	
32. Extraction Logs for TCLP and SPLP	NA	NA	✓	
33. Raw GPC Data	NA	NA	✓	
34. Raw Florisil Data	NA	NA	✓	
Analysis Forms and Data (Cyanide)				
35. Sample Analysis Data Forms (1A-OR, 1B-OR, and 1-IN) for each sample or sample analysis, laboratory QC as applicable	690	691	✓	
36. Instrument raw data by instrument in analysis order	692	694	✓	
Other Data				
37. Standard and Reagent Preparation Logs	695	726	✓	
38. Original Preparation and Cleanup forms or copies of Preparation and Cleanup Logbooks	727	730	✓	
39. Original Analysis or Instrument Run forms or copies of Analysis or Instrument Logbooks	731	732	✓	
40. Performance Evaluation (PE)/Proficiency Testing (PT) Sample Instructions	733	738	✓	
41. Extraction Logs for TCLP and SPLP	NA	NA	✓	
42. Raw GPC Data	NA	NA	✓	
43. Raw Florisil Data	NA	NA	✓	

	PAGE NOs: FROM	TO	CHECK LAB	REGION
Additional				
44. EPA Shipping/Receiving Documents				
Airbill (No. of Shipments 1)	739	739	✓	
Sample Tags	NA	NA	✓	
Sample Log-In Sheet (Lab)	740	740	✓	
45. Misc. Shipping/Receiving Records (list all individual records)				
	NA	NA	✓	
46. Internal Lab Sample Transfer Records and Tracking Sheets (describe or list)				
	741	748	✓	
47. Other Records and related Communication Logs (describe or list)				
	NA	NA	✓	

48. Comments:

Completed by: (CLP Lab)		Nimisha Pandya, Document Control Officer	
	(Signature)	(Print Name & Title)	(Date)
Audited by: (EPA)			
	(Signature)	(Print Name & Title)	(Date)

284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # MX1007
CASE # 51882
CONTRACT # 68HERH20D0011
SOW# SFAM01.1
LAB NAME: Alliance Technical Group, LLC
LAB CODE: ACE
LAB ORDER ID # P4917

A. Number of Samples and Date of Receipt

02 Soil & 04 Water samples were delivered to the laboratory intact on 11/19/2024.

B. Parameters

Test requested for Metals CLP FULL = Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc , Hardness Total & Mercury , Cyanide.

Test requested for Metals CLP MS = Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc.

Test requested for Metals CLP MS FULL = Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc

C. Cooler Temp

Indicator Bottle**:** Presence**/Absence**

Cooler: 19.3^{o}C

D. Detail Documentation (related to Sample Handling Shipping, Analytical Problem, Temp of Cooler etc):

Issue: A "P" or "M" prefix was listed at the beginning of a CLP sample ID.

E. Corrective Action taken for above:

Resolution: To maintain COC integrity, ASB requests no changes to the Sample IDs. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

F. Analytical Techniques:

All analyses were based on CLP Methodology by method SFAM01.1.

Inter Element correction factors (IECs) are determined annually and correction factor are applied during ICP-AES analysis.

G. Calculation:

Calculation for ICP-AES Soil Sample:

Conversion of Results from mg/L or ppm to mg/kg (Dry Weight Basis):

$$\text{Concentration (mg/kg)} = C \times \frac{Vf}{W \times S} \times DF$$

Where,

C = Instrument value in ppm (The average of all replicate exposures)
Vf = Final digestion volume (mL)
W = Initial aliquot amount (g) (Sample amount taken in prep)
S = % Solids / 100 (Fraction of Percent Solids)
DF = Dilution Factor

Example Calculation For Sample MX1007 For Antimony:

If C = 0.6306557 ppm
Vf = 100 ml
W = 1.33g
S = 1.0 (100/100)
DF = 1

$$\text{Concentration (mg/kg)} = 0.6306557 \times \frac{100}{1.33 \times 1.0} \times 1$$

$$= 47.41772 \text{ mg/kg}$$

$$= 47 \text{ mg/kg (Reported Result with Signification)}$$

Calculation for ICP-AES Water Sample:

$$\text{Concentration or Result (µg/L)} = C \times \frac{Vf}{Vi} \times DF \times 1000$$

Where,

C = Instrument value in ppm (The average of all replicate exposures)
Vf = Final digestion volume (mL)
Vi = Initial aliquot amount (mL) (Sample amount taken in prep)
DF = Dilution Factor

Example Calculation For Sample MX1009 For Antimony:

If C = 0.2218987 ppm
Vf = 50 ml
Vi = 50 ml
DF = 1

$$\text{Concentration or Result (µg/L)} = 0.2218987 \times \frac{50}{50} \times 1 \times 1000$$

$$= 221.8987 \text{ µg/L}$$

$$= 220 \text{ µg/L (Reported Result with Signification)}$$

Calculation for ICP-MS Soil Sample:

Conversion of Results from µg /L or ppb to mg/kg :

$$\text{Concentration (mg/kg)} = C \times \frac{Vf}{W \times S} \times DF / 1000$$

Where,

C = Instrument value in ppb (The average of all replicate integrations)
Vf = Final digestion volume (mL)
W = Initial aliquot amount (g) (Fraction of Sample amount taken in prep)
S = % Solids / 100 (Fraction of Percent Solids)
DF = Dilution Factor

Example Calculation For Sample MX1007 For Antimony :

If C = 154.17 ppb
Vf = 500 ml
W = 1.34 g
S = 1.0 (100/100)
DF = 1

$$\text{Concentration (mg/kg)} = 154.17 \times \frac{500}{1.34 \times 1.0} \times 1 / 1000$$

$$= 57.52611 \text{ mg/kg}$$

= 58 mg/kg (Reported Result with Signification)

Calculation for ICP-MS Water Sample:

$$\text{Concentration or Result (µg/L)} = C \times \frac{Vf}{Vi} \times DF$$

Where,

C = Instrument value in ppb (The average of all replicate integrations)
Vf = Final digestion volume (mL)
Vi = Initial aliquot amount (mL) (Sample amount taken in prep)
DF = Dilution Factor

Example Calculation For Sample MX1010 For Antimony:

If C = 12.85 ppb
Vf = 50 ml
Vi = 50 ml
DF = 1

$$\text{Concentration or Result (µg/L)} = 12.85 \times \frac{50}{50} \times 1$$

= 12.85 µg/L

= 13 µg/L (Reported Result with Signification)

Calculation for Hg Soil Sample:

Conversion of Results from µg /L or ppb to mg/kg :

$$\text{Concentration (mg/kg)} = C \times \frac{Vf}{W \times S} \times DF / 1000$$

Where,

C = Instrument response in µg/L from the calibration curve.
Vf = Final prepared (absorbing solution) volume (mL)
W = Initial aliquot amount (g) (Fraction of Sample amount taken in prep)
S = % Solids / 100 (Fraction of Percent Solids)
DF = Dilution Factor

Example Calculation For Sample MX1007:

If C =4.8462 ppb
Vf = 100 mL
W = 0.54g
S = 1.0(100/100)
DF = 10

$$\text{Concentration (mg/kg)} = 4.8462 \times \frac{100}{0.54 \times 1.0} \times 10 / 1000$$

$$= 8.97444 \text{ mg/kg}$$

$$= 9.0 \text{ mg/kg (Reported Result with Signification)}$$

Calculation for Hg Water Sample:

Concentration or Result (µg/L) = C x DF
Where,
C = Instrument response in µg/L from the calibration curve.
DF = Dilution Factor

Example Calculation For Sample MX1011:

If C = 8.3427 ppb
DF = 1
Concentration or Result (µg/L) = 8.3427 x 1

$$= 8.3427 \text{ µg/L}$$

$$= 8.3 \text{ µg/L (Reported Result with Signification)}$$

Calculation for CN Soil Sample:

Conversion of Results from µg /L or ppb to mg/kg:

$$\text{Concentration (mg/kg)} = C \times \frac{Vf}{W \times S} \times DF / 1000$$

Where,

C = Instrument response in µg/L CN from the calibration curve.
Vf = Final prepared (absorbing solution) volume (mL)
W = Initial aliquot amount (g) (Fraction of Sample amount taken in prep)
S = % Solids / 100 (Fraction of Percent Solids)
DF = Dilution Factor

Example Calculation For Sample MX1008:

If C = 311.4133 ppb
Vf = 50 ml
W = 1.00 g
S = 1.0(100/100)
DF = 5

$$\text{Concentration (mg/kg)} = 311.4133 \times \frac{50}{1.00 \times 1.0} \times 5 / 1000$$

= 77.853325 mg/kg

= 78 mg/kg (Reported Result with Signification)

Calculation for CN Water Sample:

$$\text{Concentration or Result (µg/L)} = C \times \frac{Vf}{Vi} \times DF$$

Where,

C = Instrument response in µg/L CN from the calibration curve.
Vf = Final prepared (absorbing solution) volume (mL)
Vi = Initial aliquot amount (mL) (Sample amount taken in prep)
DF = Dilution Factor

Example Calculation For Sample MX1012:

If C = 343.1507 ppb
Vf = 50 ml
Vi = 50 ml
DF = 1

$$\text{Concentration or Result (µg/L)} = 343.1507 \times \frac{50}{50} \times 1$$

= 343.1507 µg/L

= 340 µg/L(Reported Result with Signification)

H. QA/ QC

Calibrations met requirements. Interference check met requirements. Blank analyses did not indicate any presence of contamination. Laboratory Control sample was within control limits.

Collision cell is being used to remove potential interferences. The analytes Na, Mg, Al, K, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, As are being analyzed with collision cell and analytes Be, B, Ca, Ti, Se, Sr, Zr, Mo, Ag, Cd, Sn, Sb, Ba, Tl, Pb, U are being analyzed with Non-Collision Cell. Helium gas is used for the Collision Cell analysis.

Internal Standard Association for ICP-MS analysis.

Target Analyte	Associated Internal Standard
Aluminum	45Sc
Antimony	159Tb

284 Sheffield Street
Mountainside, NJ 07092

Arsenic	89Y
Barium	159Tb
Beryllium	6Li
Cadmium	159Tb
Calcium	45Sc
Chromium	45Sc
Cobalt	45Sc
Copper	45Sc
Iron	45Sc
Lead	209Bi
Magnesium	45Sc
Manganese	45Sc
Nickel	45Sc
Potassium	45Sc
Selenium	89Y
Silver	159Tb
Sodium	45Sc
Thallium	209Bi
Vanadium	45Sc
Zinc	45Sc

284 Sheffield Street
Mountainside, NJ 07092

I certify that the data package is in compliance with the terms and conditions of the contract both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Director or his designee, as verified by the following signature.

Signature_____ Name: Nimisha Pandya

Date _____ Title: Document Control Officer

PERCENT SOLID

Supervisor: Iwona
Analyst: jignesh
Date: 11/20/2024

OVENTEMP IN Celsius(°C): 107
Time IN: 16:45
In Date: 11/19/2024
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 103
Time OUT: 08:14
Out Date: 11/20/2024
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
BalanceID: M SC-4
Thermometer ID: % SOLID- OVEN

QC: LB133513

Lab ID	Client SampleID	Dish #	Dish Wt(g) (A)	Sample Wt(g)	Dish + Sample Wt(g) (B)	Dish+Dry Sample Wt(g) (C)	% Solid	Comments
P4916-01	TP-1-WC	1	1.15	8.48	9.63	9.26	95.6	
P4916-02	TP-1-EPH	2	1.15	8.53	9.68	9.17	94.0	
P4916-03	TP-1-VOC	3	1.14	8.76	9.9	9.52	95.7	
P4916-05	TP-2-WC	4	1.17	8.80	9.97	9.63	96.1	
P4916-06	TP-2-EPH	5	1.16	8.47	9.63	9.31	96.2	
P4916-07	TP-2-VOC	6	1.18	8.41	9.59	9.27	96.2	
P4916-09	TP-3-WC	7	1.14	8.66	9.8	8.91	89.7	
P4916-10	TP-3-EPH	8	1.15	8.82	9.97	8.68	85.4	
P4916-11	TP-3-VOC	9	1.14	8.63	9.77	8.68	87.4	
P4917-01	MX1007	10	1.00	1.00	2.00	2.00	100.0	P.T. SAMPLE
P4917-02	MX1008	11	1.00	1.00	2.00	2.00	100.0	P.T. SAMPLE
P4918-01	ROOF-1-CHIMNEY-GREY	12	1.00	1.00	2.00	2.00	100.0	caluk
P4918-02	ROOF-1-2A-2B-2C	13	1.00	1.00	2.00	2.00	100.0	caluk
P4918-03	ROOF-2-3A-3B-3C	14	1.00	1.00	2.00	2.00	100.0	caluk
P4918-04	EXTRERIOR-EXIT-2	15	1.00	1.00	2.00	2.00	100.0	caluk
P4918-05	ROOM-126	16	1.00	1.00	2.00	2.00	100.0	caluk
P4919-01	ROOF-1-OFF-WHITE	17	1.00	1.00	2.00	2.00	100.0	caluk
P4919-02	ROOF-1-BLACK	18	1.00	1.00	2.00	2.00	100.0	caluk
P4919-03	ROOF-11	19	1.00	1.00	2.00	2.00	100.0	caluk
P4922-01	W029060-END-1-1	20	1.00	1.00	2.00	2.00	100.0	pilc
P4922-02	W029060-END-1-2	21	1.00	1.00	2.00	2.00	100.0	pilc
P4923-02	COMP-1	22	1.00	1.00	2.00	2.00	100.0	debris
P4923-03	COMP-2	23	1.00	1.00	2.00	2.00	100.0	debris
P4923-04	COMP-3	24	1.00	1.00	2.00	2.00	100.0	debris
P4923-05	COMP-4	25	1.00	1.00	2.00	2.00	100.0	debris
P4923-06	72-11991	26	1.00	1.00	2.00	2.00	100.0	CONCRETE sample
P4924-01	MH-4	27	1.18	8.58	9.76	9.26	94.2	
P4924-02	MH-4-EPH	28	1.15	8.52	9.67	9.22	94.7	

PERCENT SOLID

Supervisor: Iwona
Analyst: jignesh
Date: 11/20/2024

OVENTEMP IN Celsius(°C): 107
Time IN: 16:45
In Date: 11/19/2024
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
OvenID: M OVEN#1

OVENTEMP OUT Celsius(°C): 103
Time OUT: 08:14
Out Date: 11/20/2024
Weight Check 1.0g: 1.00
Weight Check 10g: 10.00
BalanceID: M SC-4
Thermometer ID: % SOLID- OVEN

QC: LB133513

Lab ID	Client SampleID	Dish #	Dish Wt(g) (A)	Sample Wt(g)	Dish + Sample Wt(g) (B)	Dish+Dry Sample Wt(g) (C)	% Solid	Comments
P4924-03	MH-4-VOC	29	1.12	8.57	9.69	9.43	97.0	
P4925-01	MH-741	30	1.19	8.42	9.61	8.6	88.0	
P4925-02	MH-741-EPH	31	1.19	8.55	9.74	8.59	86.5	
P4925-03	MH-741-VOC	32	1.16	8.47	9.63	8.66	88.5	
P4925-05	MH-758	33	1.14	8.59	9.73	8.86	89.9	
P4925-06	MH-758-EPH	34	1.18	8.43	9.61	8.74	89.7	
P4925-07	MH-758-VOC	35	1.12	8.70	9.82	8.89	89.3	
P4926-01	111524-A	36	1.00	1.00	2.00	2.00	100.0	wipe sample
P4926-02	111524-B	37	1.00	1.00	2.00	2.00	100.0	wipe sample
P4928-01	BC215909-1-1	38	1.00	1.00	2.00	2.00	100.0	pilc
P4928-02	BC215909-1-2	39	1.00	1.00	2.00	2.00	100.0	pilc
P4929-01	ARS520	40	1.15	8.80	9.95	8.97	88.9	

$$\% \text{ Solid} = \frac{(C-A) * 100}{(B-A)}$$

WORKLIST(Hardcopy Internal Chain)

VB 133512

WorkList Name : %1-p4914 **WorkList ID :** 185581 **Department :** Wet-Chemistry **Date :** 11-19-2024 12:42:49

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4914-01	MBHHF2	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/15/2024	Chemtech -SO
P4914-02	MBHHF3	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/15/2024	Chemtech -SO
P4914-03	MBHHF4	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/15/2024	Chemtech -SO
P4914-04	MBHHF5	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/15/2024	Chemtech -SO
P4914-05	MBHHF6	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/15/2024	Chemtech -SO
P4914-06	MBHHF7	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/15/2024	Chemtech -SO
P4914-07	MBHHF8	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/15/2024	Chemtech -SO
P4914-08	MBHHF9	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/15/2024	Chemtech -SO
P4914-09	MBHHG0	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/15/2024	Chemtech -SO
P4914-10	MBHHG1	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/15/2024	Chemtech -SO
P4914-11	MBHHK4	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/15/2024	Chemtech -SO
P4914-12	MBHHK4D	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/14/2024	Chemtech -SO
P4914-13	MBHHK4S	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/14/2024	Chemtech -SO
P4914-14	MBHHK5	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/14/2024	Chemtech -SO
P4914-15	MBHHK6	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/14/2024	Chemtech -SO
P4914-16	MBHHK7	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/14/2024	Chemtech -SO
P4914-17	MBHHK8	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/14/2024	Chemtech -SO
P4914-18	MBHHK9	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/14/2024	Chemtech -SO
P4914-19	MBHHL0	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/14/2024	Chemtech -SO
P4914-20	MBHHL1	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/14/2024	Chemtech -SO
P4914-21	MBHHL2	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/15/2024	Chemtech -SO

LT

Date/Time 11-19-24 14:00

Raw Sample Received by: JA WC,

Raw Sample Relinquished by: [signature]

Date/Time 11-19-24 15:00

Raw Sample Received by: [signature]

Raw Sample Relinquished by: JA WC,

WORKLIST(Hardcopy Internal Chain)

JB 133512

WorkList Name : %1-p4914 **WorkList ID :** 185581 **Department :** Wet-Chemistry **Date :** 11-19-2024 12:42:49

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4914-22	MBHHL3	Solid	Percent Solids	Cool 4 deg C	USEP01	C11	11/15/2024	Chemtech -SO

18

Date/Time 11-19-24 14:00

Raw Sample Received by: JB (ADC)

Raw Sample Relinquished by:

Date/Time 11-19-24 15:00

Raw Sample Received by:

Raw Sample Relinquished by: JB (ADC)

EPA SAMPLE NO.

MX1007

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51882 MA No. : SDG No.: MX1007

Matrix: SOIL Lab Sample ID: P4917-01

% Solids: 100 Date Received: 11/19/2024

Analytical Method: ICP_AES

Concentration Units (µg/L, mg/L, mg/kg dry weight, µg, or µg/cm²): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	5500		12/02/2024	1854
7440-36-0	Antimony	47		12/02/2024	1854
7440-38-2	Arsenic	170		12/02/2024	1854
7440-39-3	Barium	340		12/02/2024	1854
7440-41-7	Beryllium	160	D	12/02/2024	1916
7440-43-9	Cadmium	110		12/02/2024	1854
7440-70-2	Calcium	5000		12/02/2024	1854
7440-47-3	Chromium	240		12/02/2024	1854
7440-48-4	Cobalt	170		12/02/2024	1854
7440-50-8	Copper	110		12/02/2024	1854
7439-89-6	Iron	7000		12/02/2024	1854
7439-92-1	Lead	150		12/02/2024	1854
7439-95-4	Magnesium	1600		12/02/2024	1854
7439-96-5	Manganese	390		12/02/2024	1854
7440-02-0	Nickel	110		12/02/2024	1854
7440-09-7	Potassium	1000		12/02/2024	1854
7782-49-2	Selenium	79		12/02/2024	1854
7440-22-4	Silver	43		12/02/2024	1854
7440-23-5	Sodium	460		12/02/2024	1854
7440-28-0	Thallium	180		12/02/2024	1854
7440-62-2	Vanadium	110		12/02/2024	1854
7440-66-6	Zinc	310		12/02/2024	1854

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

Comments:

EPA SAMPLE NO.

MX1009

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51882 MA No. : SDG No.: MX1007

Matrix: Water Lab Sample ID: P4917-03

% Solids: Date Received: 11/19/2024

Analytical Method: ICP_AES

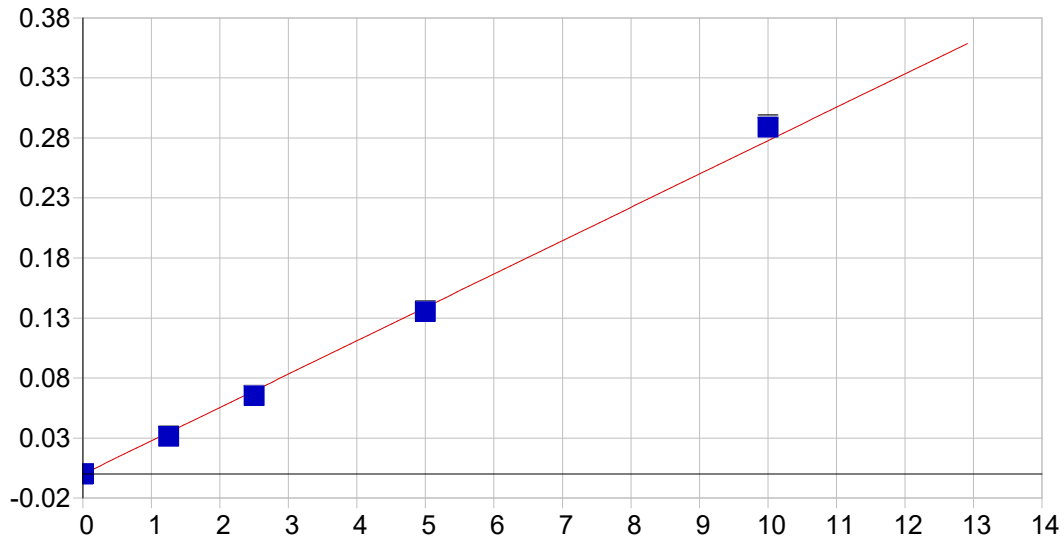
Concentration Units (µg/L, mg/L, mg/kg dry weight, µg, or µg/cm²): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	2400		12/02/2024	1850
7440-36-0	Antimony	220		12/02/2024	1850
7440-38-2	Arsenic	620		12/02/2024	1850
7440-39-3	Barium	850		12/02/2024	1850
7440-41-7	Beryllium	420		12/02/2024	1850
7440-43-9	Cadmium	250		12/02/2024	1850
7440-70-2	Calcium	5000	U	12/02/2024	1850
7440-47-3	Chromium	370		12/02/2024	1850
7440-48-4	Cobalt	120		12/02/2024	1850
7440-50-8	Copper	160		12/02/2024	1850
7439-89-6	Iron	790		12/02/2024	1850
7439-92-1	Lead	560		12/02/2024	1850
7439-95-4	Magnesium	5000	U	12/02/2024	1850
7439-96-5	Manganese	420		12/02/2024	1850
7440-02-0	Nickel	1500		12/02/2024	1850
7440-09-7	Potassium	5000	U	12/02/2024	1850
7782-49-2	Selenium	310		12/02/2024	1850
7440-22-4	Silver	610		12/02/2024	1850
7440-23-5	Sodium	5000	U	12/02/2024	1850
7440-28-0	Thallium	630		12/02/2024	1850
7440-62-2	Vanadium	410		12/02/2024	1850
7440-66-6	Zinc	340		12/02/2024	1850
Hardness	Hardness (total)	33	U	12/02/2024	1850

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

Comments:

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



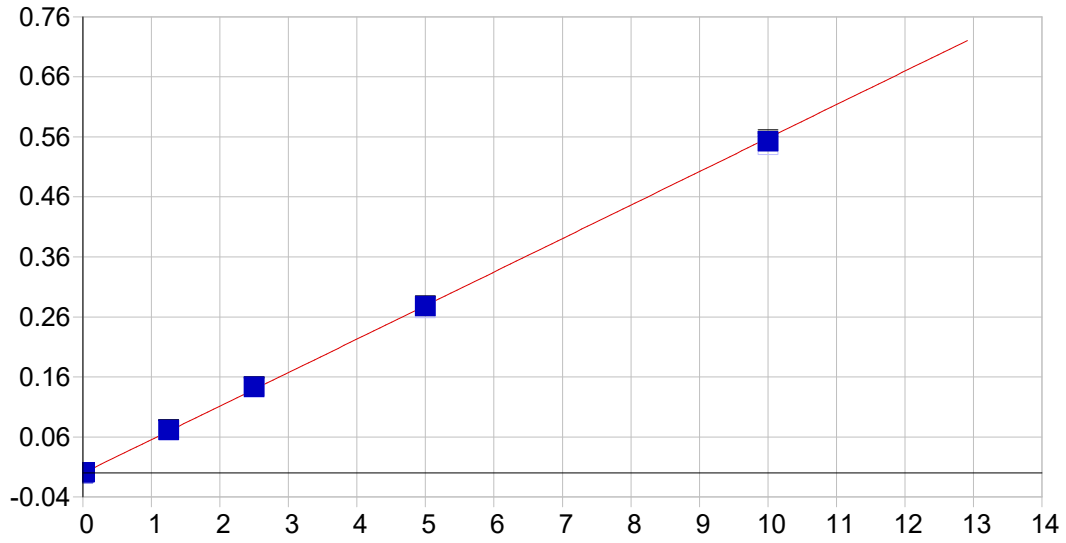
As 189.042 {479}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000161	Re-Slope:	1.000000
A1 (Gain):	0.027796	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998969	Status:	OK.
Std Error of Est:	0.000021		
Predicted MDL:	0.006988		
Predicted MQL:	0.023295		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00016	.000	1
S1	.01000	.01152	.002	15.2	.00016	.000	1
S2	1.2500	1.1325	-.118	-9.40	.03146	.000	1
S3	2.5000	2.3500	-.150	-6.00	.06545	.000	1
S4	5.0000	4.8721	-.128	-2.56	.13585	.000	1
S5	10.000	10.394	.394	3.94	.28991	.001	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



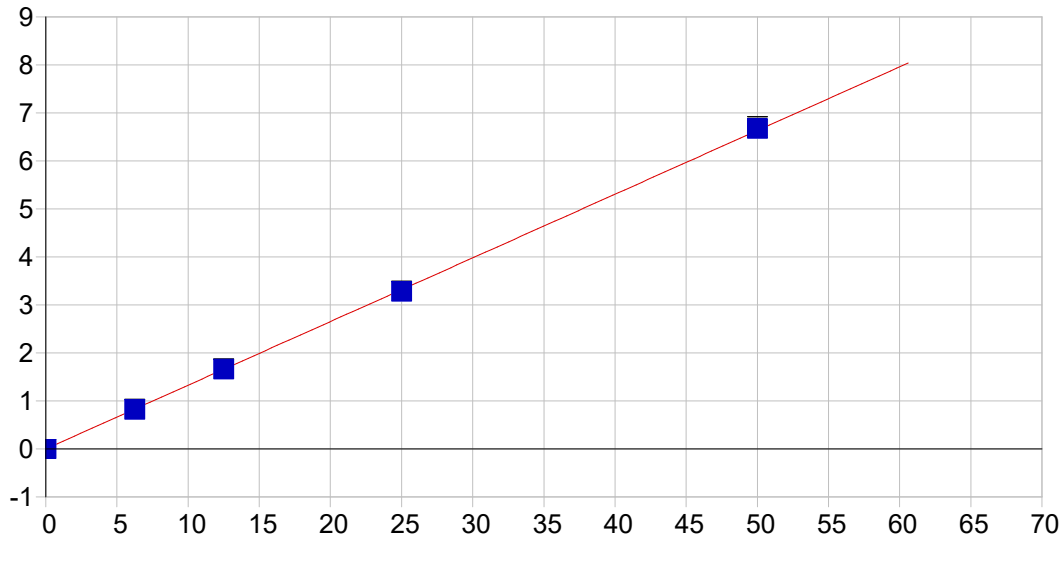
Tl 190.856 {477}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000374	Re-Slope:	1.000000
A1 (Gain):	0.055843	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999854	Status:	OK.
Std Error of Est:	0.000025		
Predicted MDL:	0.003872		
Predicted MQL:	0.012908		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	-.00037	.000	1
S1	.02500	.02969	.005	18.8	.00125	.000	1
S2	1.2500	1.2907	.041	3.26	.07095	.000	1
S3	2.5000	2.5726	.073	2.90	.14178	.000	1
S4	5.0000	4.9805	-.020	-.390	.27474	.000	1
S5	10.000	9.9016	-.098	-.984	.54653	.002	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



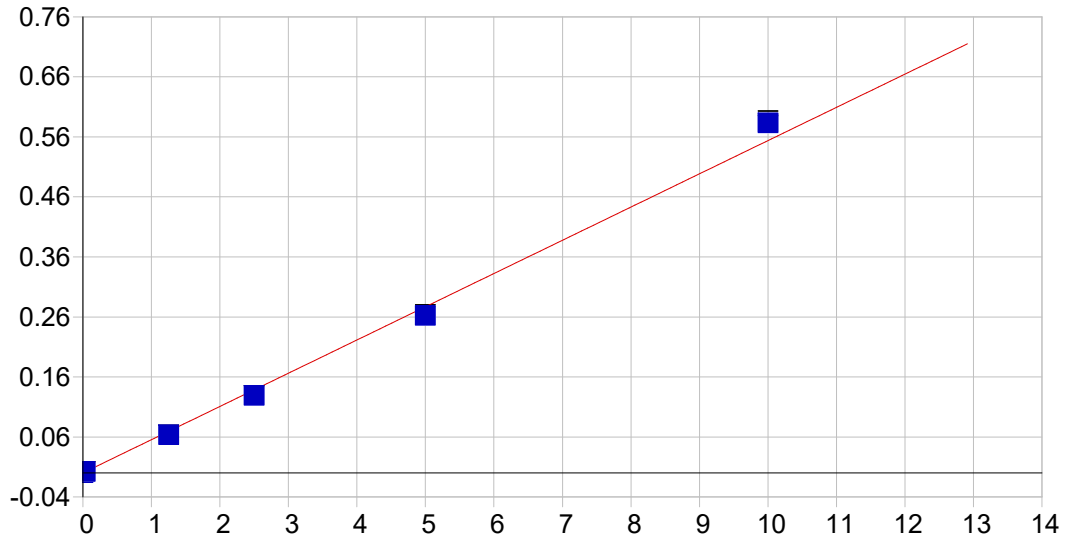
Pb 220.353 {453}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000205	Re-Slope:	1.000000
A1 (Gain):	0.132662	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999970	Status:	OK.
Std Error of Est:	0.000039		
Predicted MDL:	0.003468		
Predicted MQL:	0.011559		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00020	.000	1
S1	.01000	.00809	-.002	-19.1	.00087	.001	1
S2	6.2500	6.1953	-.055	-.875	.82147	.002	1
S3	12.500	12.529	.029	.233	1.6615	.004	1
S4	25.000	24.728	-.272	-1.09	3.2794	.008	1
S5	50.000	50.299	.299	.598	6.6709	.042	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



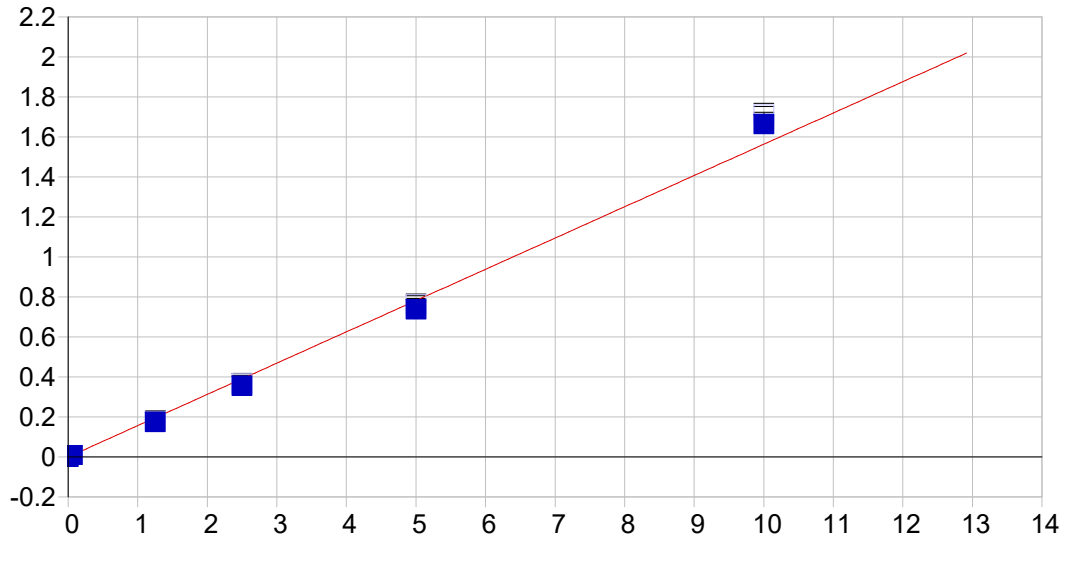
Se 196.090 {472}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000014	Re-Slope:	1.000000
A1 (Gain):	0.055397	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998329	Status:	OK.
Std Error of Est:	0.000100		
Predicted MDL:	0.006982		
Predicted MQL:	0.023275		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00001	.000	1
S1	.03500	.03747	.002	7.07	.00206	.000	1
S2	1.2500	1.1478	-.102	-8.18	.06344	.000	1
S3	2.5000	2.3287	-.171	-6.85	.12873	.000	1
S4	5.0000	4.7365	-.263	-5.27	.26185	.001	1
S5	10.000	10.534	.534	5.34	.58251	.004	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



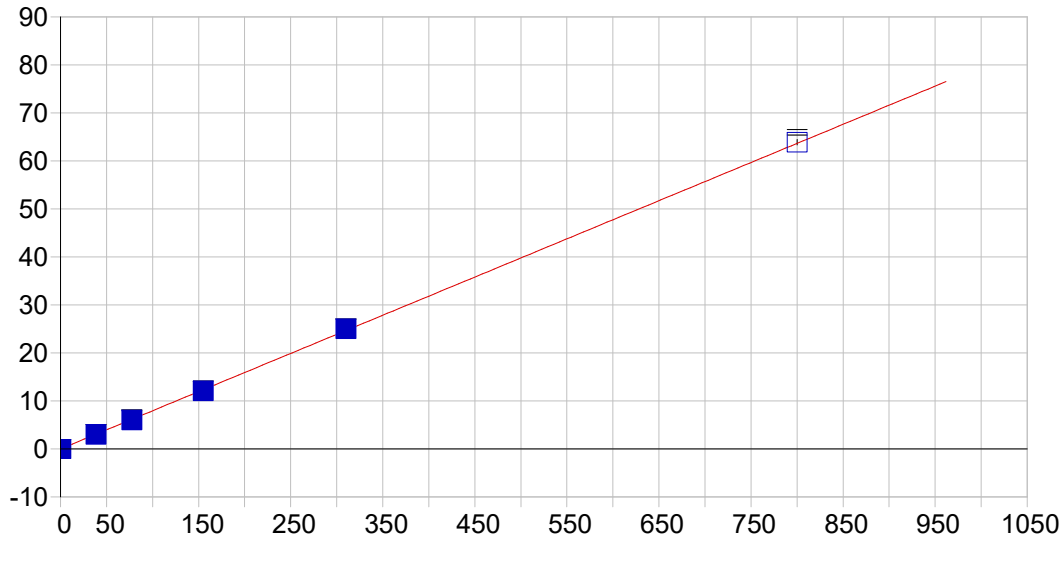
Sb 206.833 {463}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000028	Re-Slope:	1.000000
A1 (Gain):	0.156333	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.997678	Status:	OK.
Std Error of Est:	0.000452		
Predicted MDL:	0.002909		
Predicted MQL:	0.009698		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	-.00003	.000	1
S1	.06000	.05748	-.003	-4.20	.00896	.000	1
S2	1.2500	1.1126	-.137	-11.0	.17967	.000	1
S3	2.5000	2.2741	-.226	-9.04	.36703	.000	1
S4	5.0000	4.7206	-.279	-5.59	.76102	.004	1
S5	10.000	10.645	.645	6.45	1.7103	.009	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



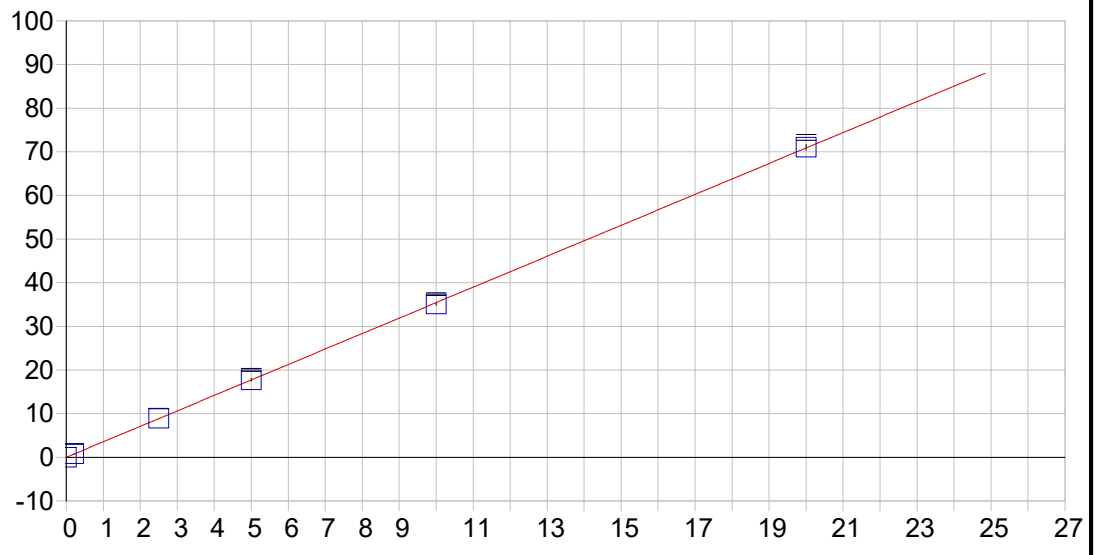
Al 396.152 { 85}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.002282	Re-Slope:	1.000000
A1 (Gain):	0.079563	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999908	Status:	OK.
Std Error of Est:	0.000672		
Predicted MDL:	0.012315		
Predicted MQL:	0.041051		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	-.00228	.000	1
S1	.20000	.20101	.001	.507	.01374	.000	1
S2	38.750	37.524	-1.23	-3.16	2.9870	.005	1
S3	77.500	75.131	-2.37	-3.06	5.9828	.116	1
S4	155.00	151.50	-3.50	-2.26	12.066	.020	1
S5	310.00	314.06	4.06	1.31	25.015	.070	1
S6	800.00	803.04	3.04	.381	63.890	.560	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



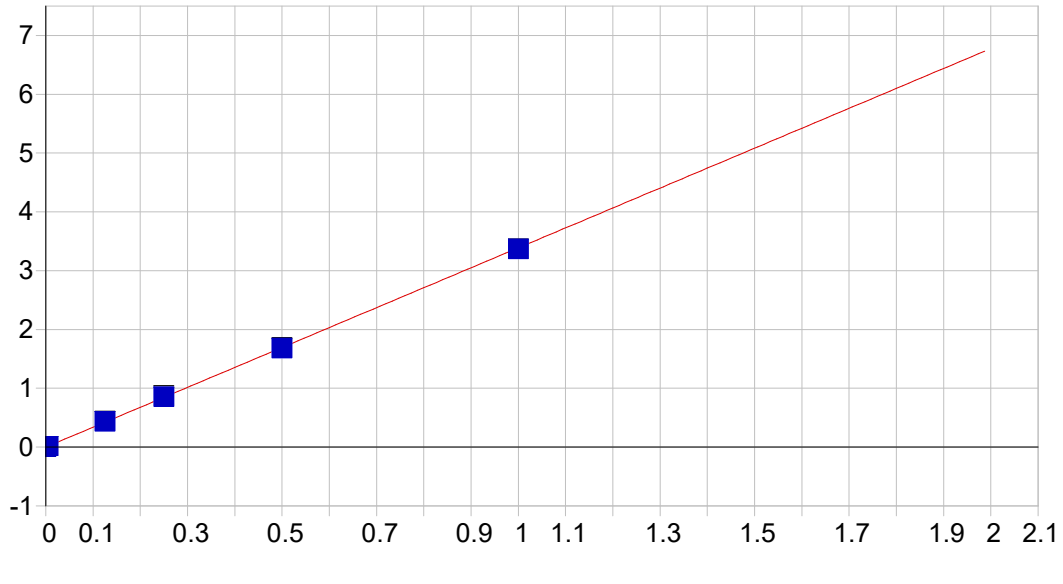
Ba 493.409 { 68}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.002067	Re-Slope:	1.000000
A1 (Gain):	3.543739	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999940	Status:	OK.
Std Error of Est:	0.004133		
Predicted MDL:	0.000645		
Predicted MQL:	0.002149		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00003	-.000	.000	-.00216	.003	1
S1	.20000	.22667	.027	13.3	.80120	.003	1
S2	2.5000	2.5123	.012	.492	8.9009	.024	1
S3	5.0000	5.0069	.007	.138	17.741	.342	1
S4	10.000	9.9100	-.090	-.900	35.116	.279	1
S5	20.000	20.044	.044	.221	71.029	.686	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



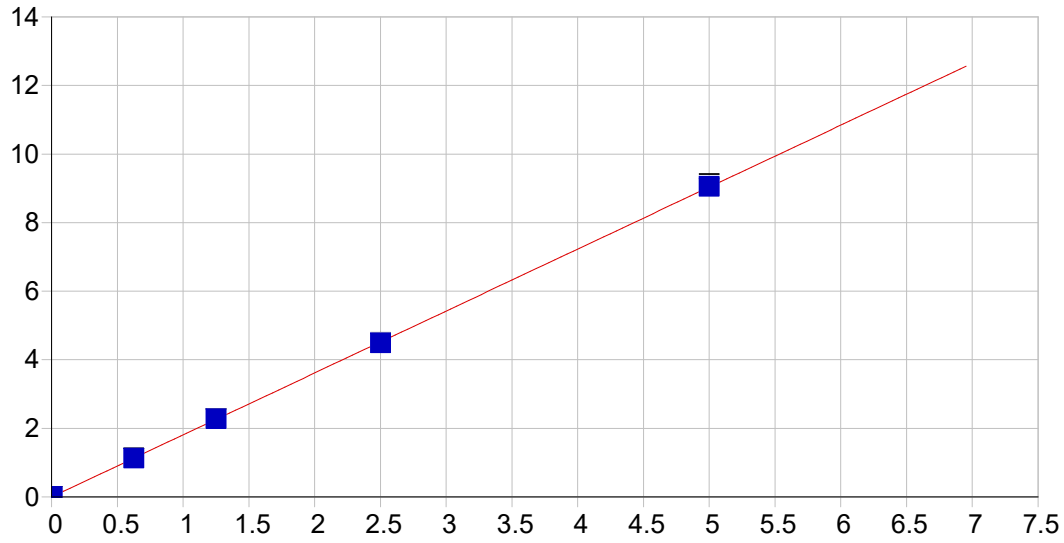
Be 234.861 {144}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000953	Re-Slope:	1.000000
A1 (Gain):	3.389273	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999861	Status:	OK.
Std Error of Est:	0.000211		
Predicted MDL:	0.000119		
Predicted MQL:	0.000396		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00096	.000	1
S1	.00500	.00610	.001	22.1	.01972	.000	1
S2	.12500	.12961	.005	3.69	.43766	.001	1
S3	.25000	.25349	.003	1.39	.85682	.013	1
S4	.50000	.49664	-.003	-.671	1.6796	.007	1
S5	1.0000	.99415	-.006	-.585	3.3630	.003	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



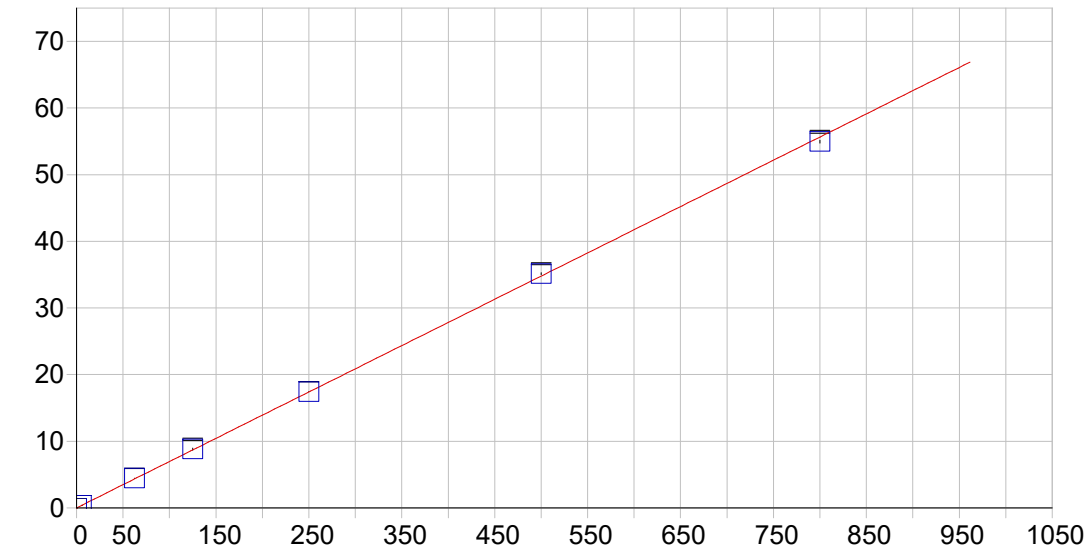
Cd 214.438 {457}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000353	Re-Slope:	1.000000
A1 (Gain):	1.807009	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999986	Status:	OK.
Std Error of Est:	0.000081		
Predicted MDL:	0.000154		
Predicted MQL:	0.000512		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00035	.000	1
S1	.00500	.00556	.001	11.1	.01040	.000	1
S2	.62500	.62390	-.001	-.176	1.1305	.003	1
S3	1.2500	1.2592	.009	.739	2.2812	.004	1
S4	2.5000	2.4825	-.017	-.698	4.4972	.009	1
S5	5.0000	5.0088	.009	.175	9.0729	.064	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



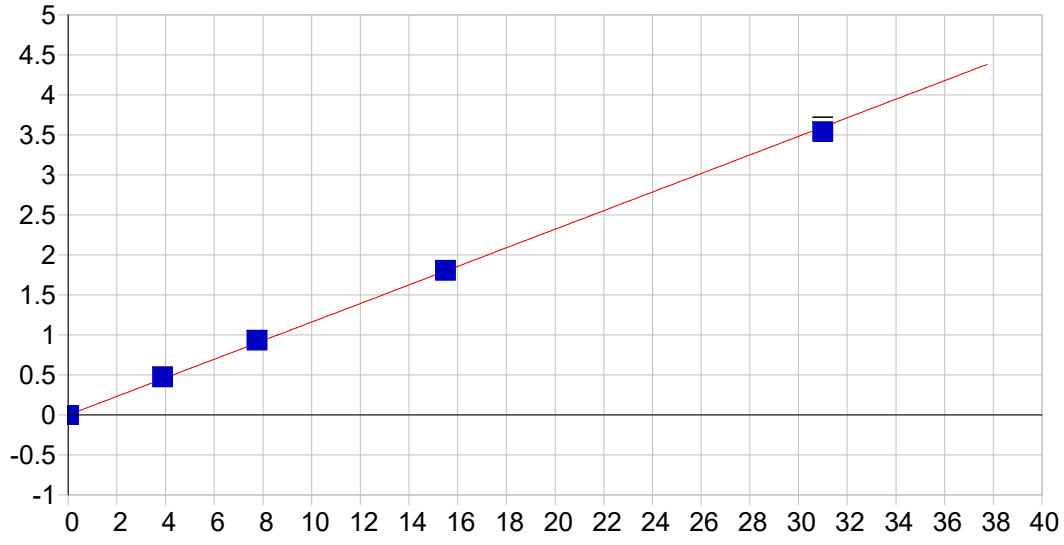
Ca 373.690 { 90}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.004286	Re-Slope:	1.000000
A1 (Gain):	0.069559	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999897	Status:	OK.
Std Error of Est:	0.003490		
Predicted MDL:	0.012468		
Predicted MQL:	0.041559		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00097	-.001	.000	.00422	.000	1
S1	5.0000	5.7804	.780	15.6	.40637	.001	1
S2	62.500	63.920	1.42	2.27	4.4505	.013	1
S3	125.00	126.73	1.73	1.39	8.8199	.167	1
S4	250.00	250.57	.568	.227	17.434	.028	1
S5	500.00	505.39	5.39	1.08	35.159	.141	1
S6	800.00	790.11	-9.89	-1.24	54.964	.229	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



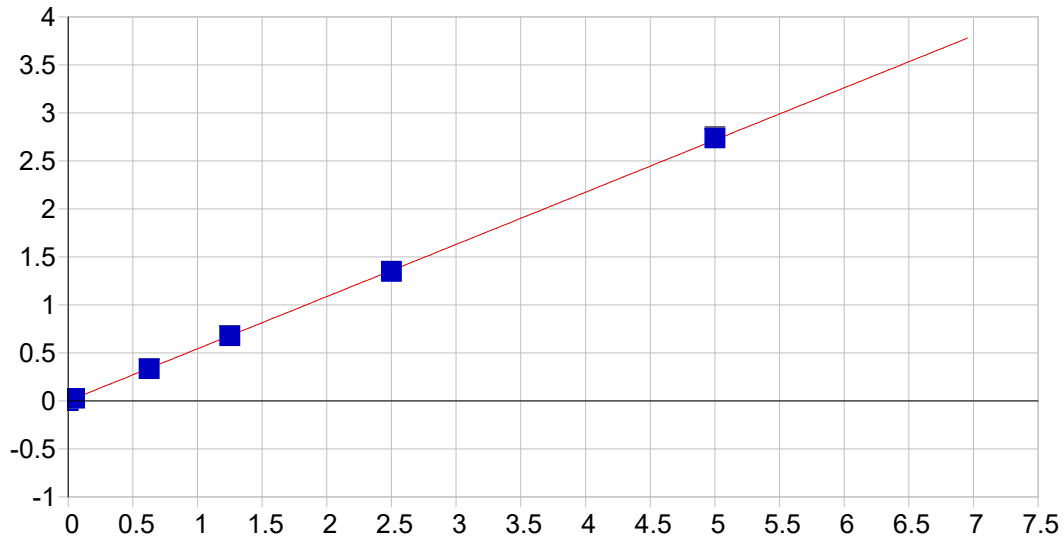
Cr 267.716 {126}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000202	Re-Slope:	1.000000
A1 (Gain):	0.116066	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999752	Status:	OK.
Std Error of Est:	0.000076		
Predicted MDL:	0.001160		
Predicted MQL:	0.003867		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00020	.000	1
S1	.01000	.01256	.003	25.6	.00126	.000	1
S2	3.8750	4.0724	.197	5.10	.47298	.001	1
S3	7.7500	8.0253	.275	3.55	.93227	.001	1
S4	15.500	15.535	.035	.224	1.8049	.002	1
S5	31.000	30.490	-.510	-1.65	3.5427	.058	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



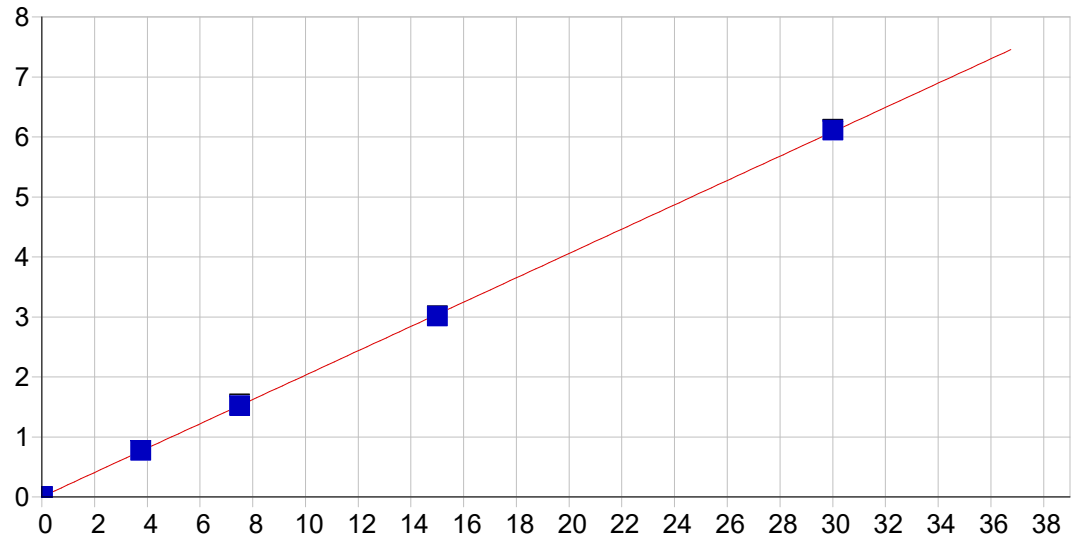
Co 228.616 {448}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000318	Re-Slope:	1.000000
A1 (Gain):	0.543535	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999963	Status:	OK.
Std Error of Est:	0.000125		
Predicted MDL:	0.000588		
Predicted MQL:	0.001961		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00032	.000	1
S1	.05000	.05235	.002	4.70	.02823	.000	1
S2	.62500	.61444	-.011	-1.69	.33407	.001	1
S3	1.2500	1.2469	-.003	-.252	.67822	.001	1
S4	2.5000	2.4782	-.022	-.872	1.3483	.002	1
S5	5.0000	5.0332	.033	.663	2.7387	.013	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



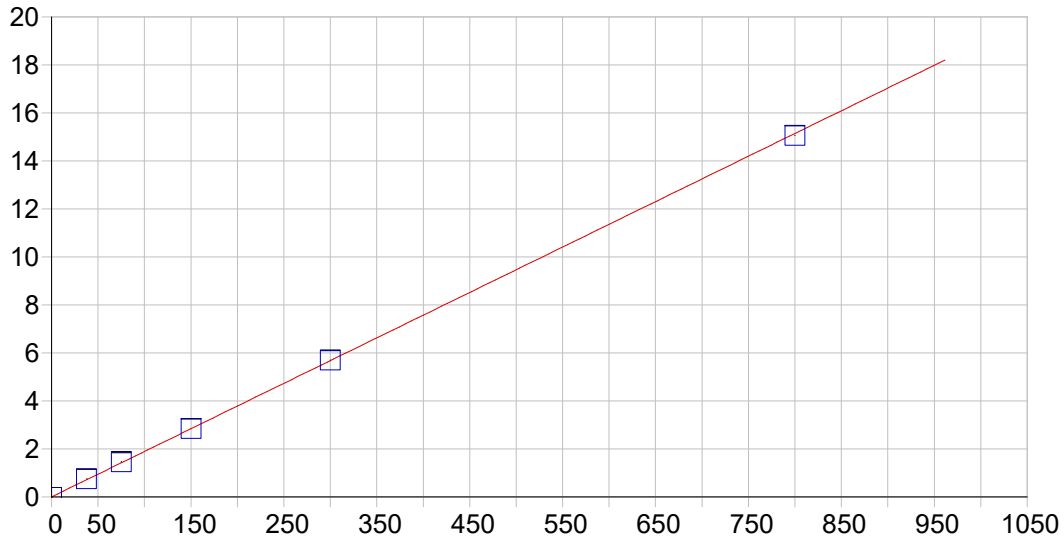
Cu 324.754 {104}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.001848	Re-Slope:	1.000000
A1 (Gain):	0.202778	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999974	Status:	OK.
Std Error of Est:	0.000068		
Predicted MDL:	0.002816		
Predicted MQL:	0.009388		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00185	.000	1
S1	.02500	.02738	.002	9.52	.00740	.000	1
S2	3.7500	3.7957	.046	1.22	.77105	.002	1
S3	7.5000	7.4822	-.018	-.238	1.5181	.027	1
S4	15.000	14.844	-.156	-1.04	3.0100	.001	1
S5	30.000	30.125	.125	.418	6.1067	.018	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



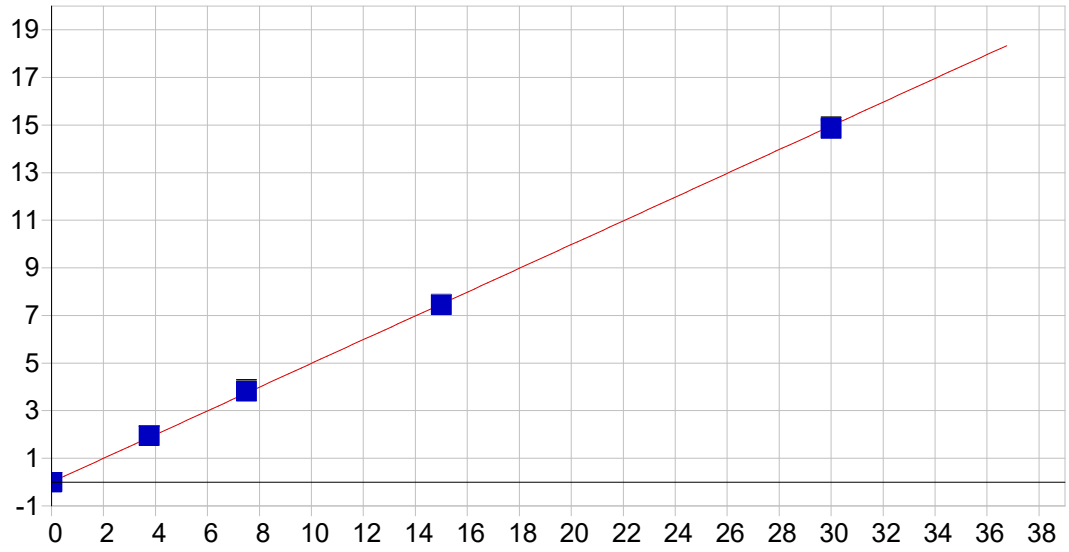
Fe 259.837 {130}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000261	Re-Slope:	1.000000
A1 (Gain):	0.018929	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999948	Status:	OK.
Std Error of Est:	0.000085		
Predicted MDL:	0.013284		
Predicted MQL:	0.044282		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00002	-.000	.000	.00026	.000	1
S1	.10000	.10966	.010	9.66	.00234	.000	1
S2	37.500	39.149	1.65	4.40	.74130	.001	1
S3	75.000	76.780	1.78	2.37	1.4536	.031	1
S4	150.00	150.27	.271	.181	2.8447	.008	1
S5	300.00	300.75	.751	.250	5.6930	.009	1
S6	800.00	795.54	-4.46	-.558	15.059	.009	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

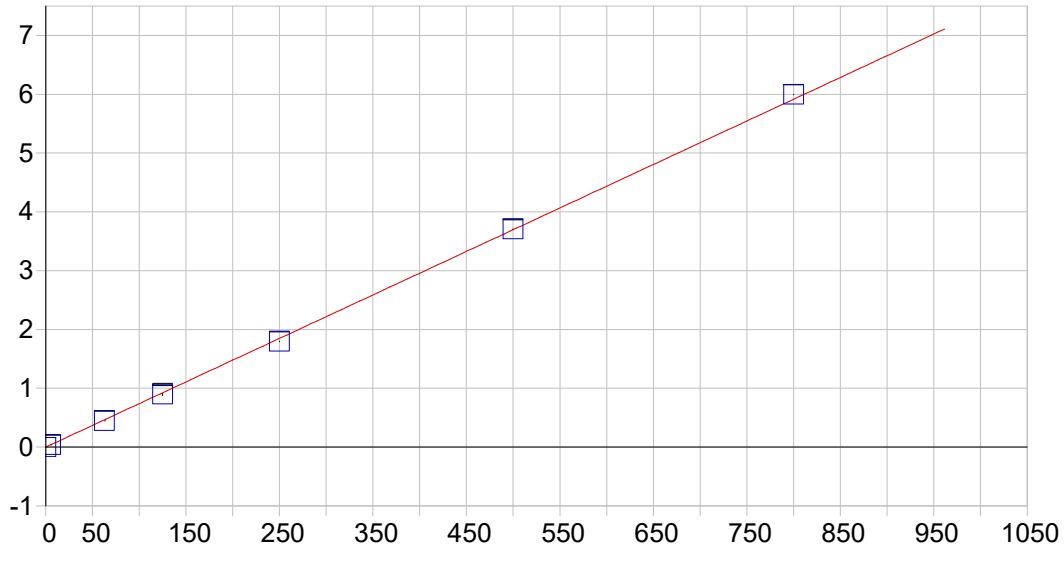


Mn 257.610 {131}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000165	Re-Slope:	1.000000
A1 (Gain):	0.498854	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999905	Status:	OK.
Std Error of Est:	0.000245		
Predicted MDL:	0.000589		
Predicted MQL:	0.001963		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	-.00017	.000	1
S1	.01500	.01901	.004	26.7	.00933	.000	1
S2	3.7500	3.8885	.138	3.69	1.9399	.007	1
S3	7.5000	7.6411	.141	1.88	3.8122	.072	1
S4	15.000	14.933	-.067	-.448	7.4502	.020	1
S5	30.000	29.784	-.216	-.721	14.860	.063	1



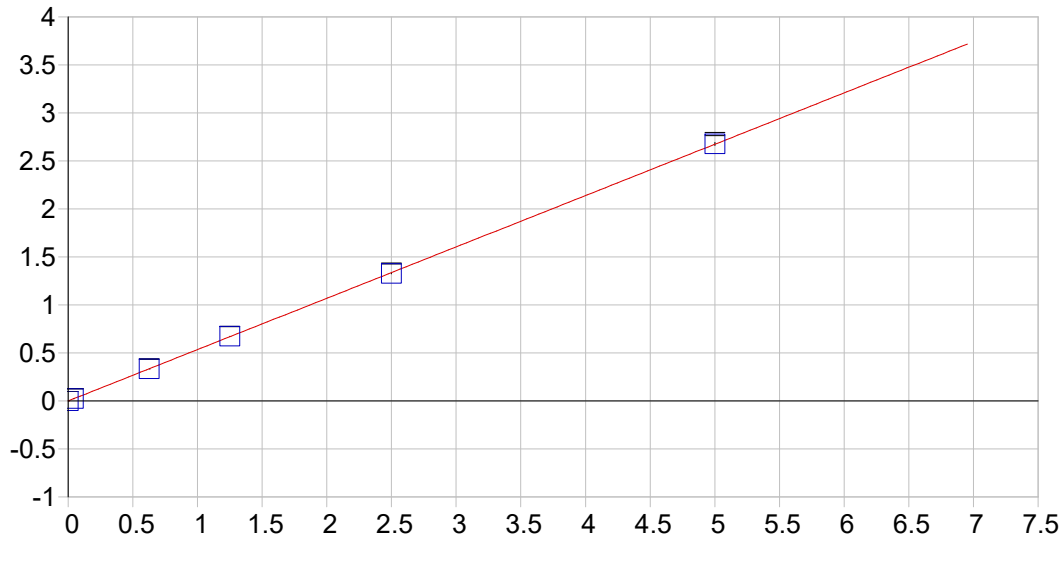
Mg 279.079 {121}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000095	Re-Slope:	1.000000
A1 (Gain):	0.007394	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999839	Status:	OK.
Std Error of Est:	0.000464		
Predicted MDL:	0.040506		
Predicted MQL:	0.135019		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00006	-.000	.000	-.00010	.000	1
S1	5.0000	5.4224	.422	8.45	.04000	.001	1
S2	62.500	60.584	-1.92	-3.07	.44787	.001	1
S3	125.00	121.26	-3.74	-2.99	.89650	.021	1
S4	250.00	242.94	-7.06	-2.82	1.7962	.005	1
S5	500.00	501.21	1.21	.242	3.7059	.008	1
S6	800.00	811.09	11.1	1.39	5.9972	.003	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



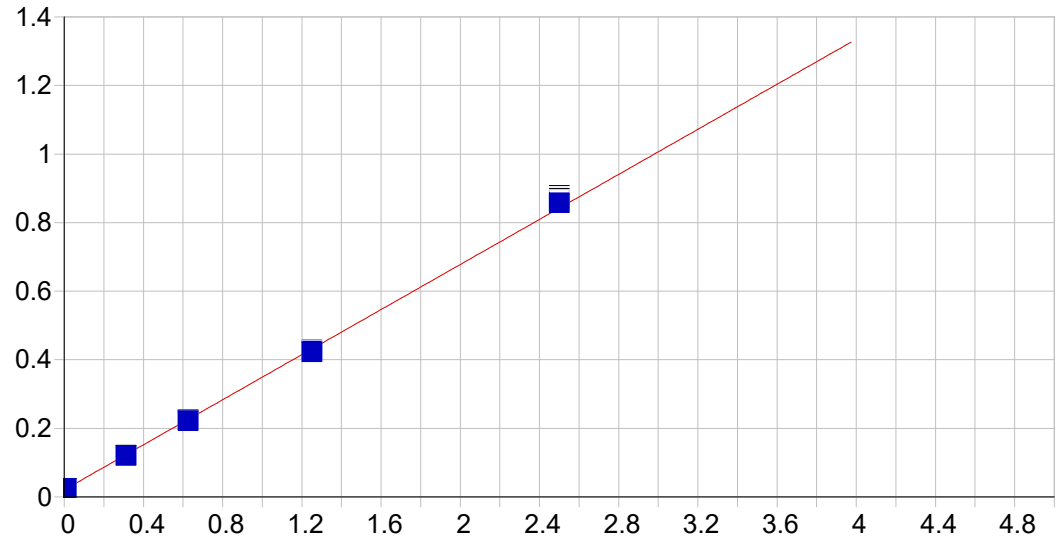
Ni 231.604 {446}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear
Weighting:	1/Conc		

A0 (Offset):	0.000049	Re-Slope:	1.000000
A1 (Gain):	0.534681	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999952	Status:	OK.
Std Error of Est:	0.000124		
Predicted MDL:	0.000636		
Predicted MQL:	0.002122		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	.00005	.000	1
S1	.04000	.04548	.005	13.7	.02437	.000	1
S2	.62500	.62266	-.002	-.374	.33298	.001	1
S3	1.2500	1.2568	.007	.548	.67206	.000	1
S4	2.5000	2.4842	-.016	-.633	1.3283	.004	1
S5	5.0000	5.0058	.006	.117	2.6766	.016	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



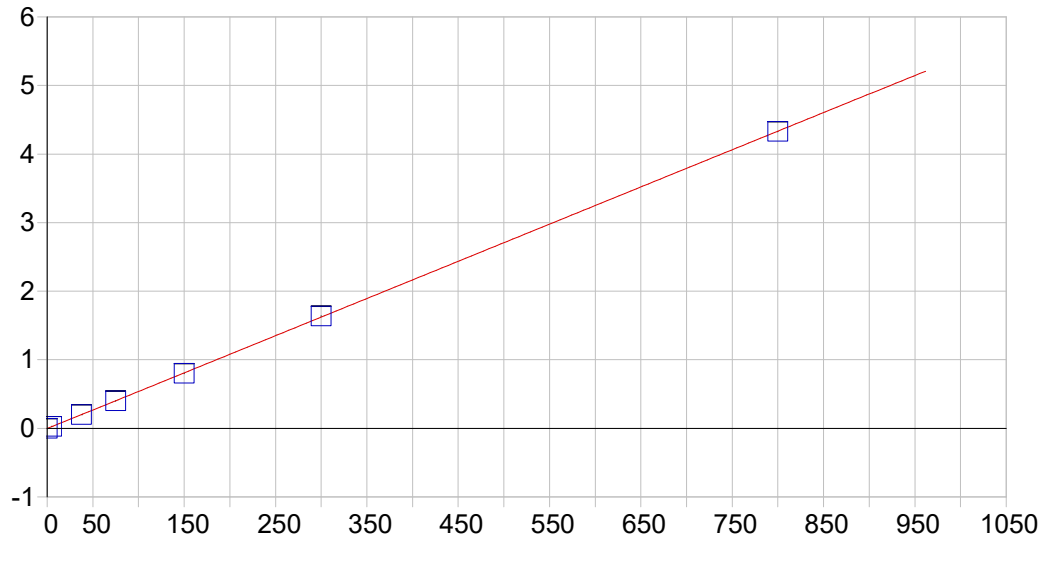
Ag 328.068 {103}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.020745	Re-Slope:	1.000000
A1 (Gain):	0.328605	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999754	Status:	OK.
Std Error of Est:	0.000062		
Predicted MDL:	n/a		
Predicted MQL:	n/a		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.02074	.000	1
S1	.01000	.01176	.002	17.6	.02460	.000	1
S2	.31250	.30310	-.009	-3.01	.12145	.000	1
S3	.62500	.61165	-.013	-2.14	.22395	.001	1
S4	1.2500	1.2233	-.027	-2.14	.42714	.001	1
S5	2.5000	2.5478	.048	1.91	.86680	.013	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



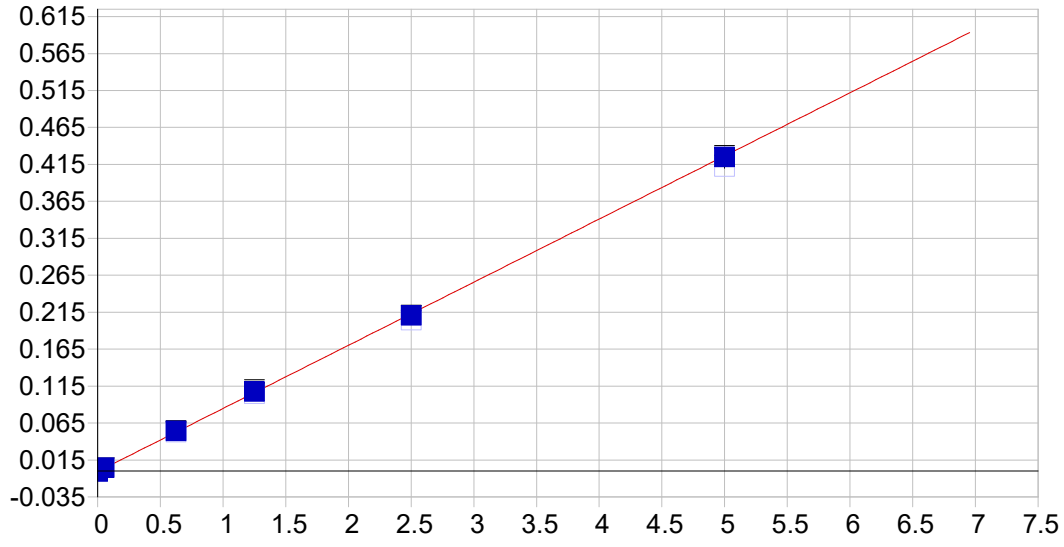
Na 818.326 { 41}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.003534	Re-Slope:	1.000000
A1 (Gain):	0.005421	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999929	Status:	OK.
Std Error of Est:	0.000199		
Predicted MDL:	0.342793		
Predicted MQL:	1.142644		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00081	-.001	.000	-.00354	.001	1
S1	5.0000	5.8608	.861	17.2	.02824	.002	1
S2	37.500	37.567	.067	.178	.20011	.001	1
S3	75.000	74.461	-.539	-.718	.40011	.004	1
S4	150.00	148.27	-1.73	-1.15	.80020	.002	1
S5	300.00	302.42	2.42	.807	1.6358	.005	1
S6	800.00	798.92	-1.08	-.135	4.3273	.002	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



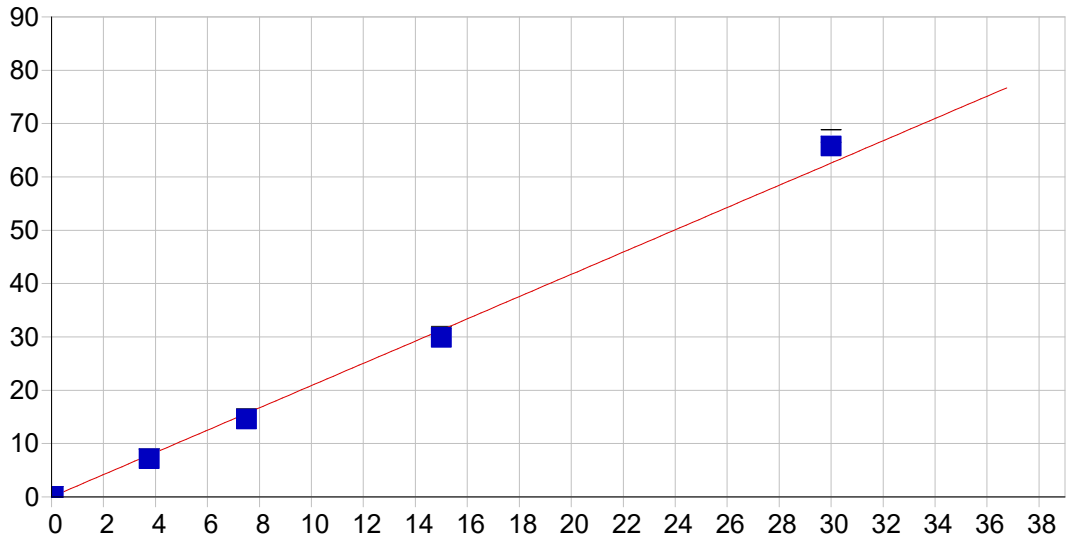
V 292.402 {115}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000726	Re-Slope:	1.000000
A1 (Gain):	0.085442	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999839	Status:	OK.
Std Error of Est:	0.000039		
Predicted MDL:	0.006461		
Predicted MQL:	0.021538		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	-.00073	.000	1
S1	.05000	.05961	.010	19.2	.00436	.000	1
S2	.62500	.64143	.016	2.63	.05244	.001	1
S3	1.2500	1.2672	.017	1.37	.10426	.003	1
S4	2.5000	2.4737	-.026	-1.05	.20407	.000	1
S5	5.0000	4.9828	-.017	-.344	.41188	.002	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



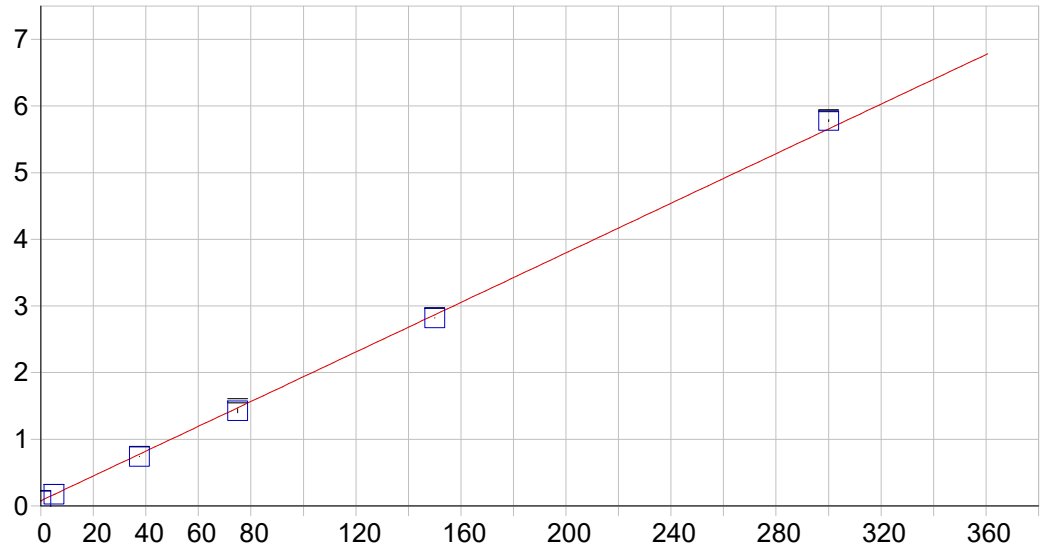
Zn 213.856 {158}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002237	Re-Slope:	1.000000
A1 (Gain):	2.086653	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998429	Status:	OK.
Std Error of Est:	0.008341		
Predicted MDL:	0.000541		
Predicted MQL:	0.001804		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00223	.001	1
S1	.06000	.07144	.011	19.1	.15192	.003	1
S2	3.7500	3.4081	-.342	-9.12	7.1233	.006	1
S3	7.5000	6.9792	-.521	-6.94	14.584	.076	1
S4	15.000	14.324	-.676	-4.51	29.929	.170	1
S5	30.000	31.527	1.53	5.09	65.865	1.17	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



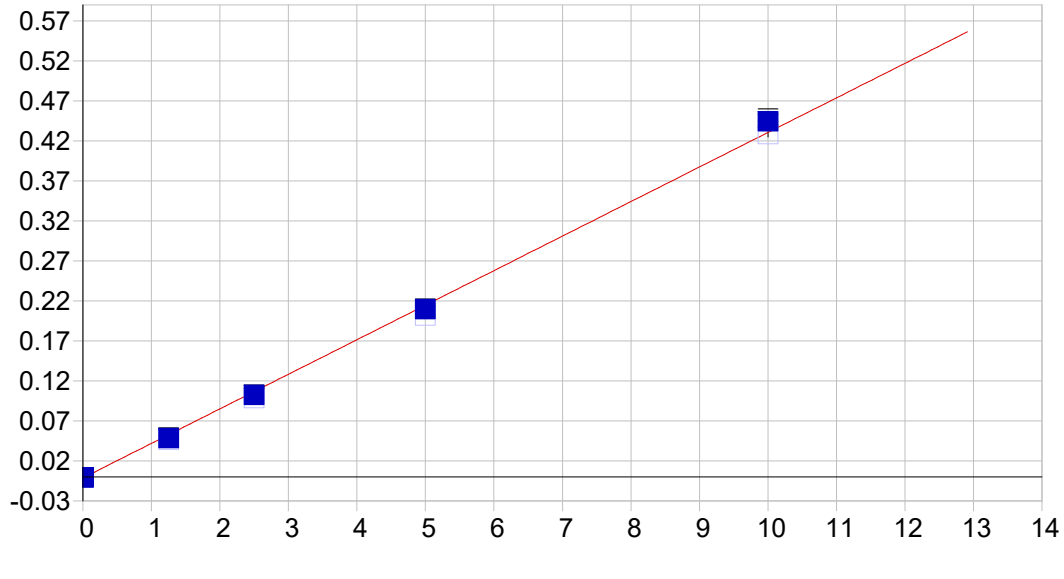
K 769.896 { 44}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.077967	Re-Slope:	1.000000
A1 (Gain):	0.018597	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999688	Status:	OK.
Std Error of Est:	0.000957		
Predicted MDL:	0.125574		
Predicted MQL:	0.418580		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00030	.000	.000	.07797	.002	1
S1	5.0000	5.0753	.075	1.51	.17235	.001	1
S2	37.500	35.696	-1.80	-4.81	.74180	.001	1
S3	75.000	72.597	-2.40	-3.20	1.4280	.031	1
S4	150.00	147.49	-2.51	-1.67	2.8209	.003	1
S5	300.00	306.64	6.64	2.21	5.7804	.013	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



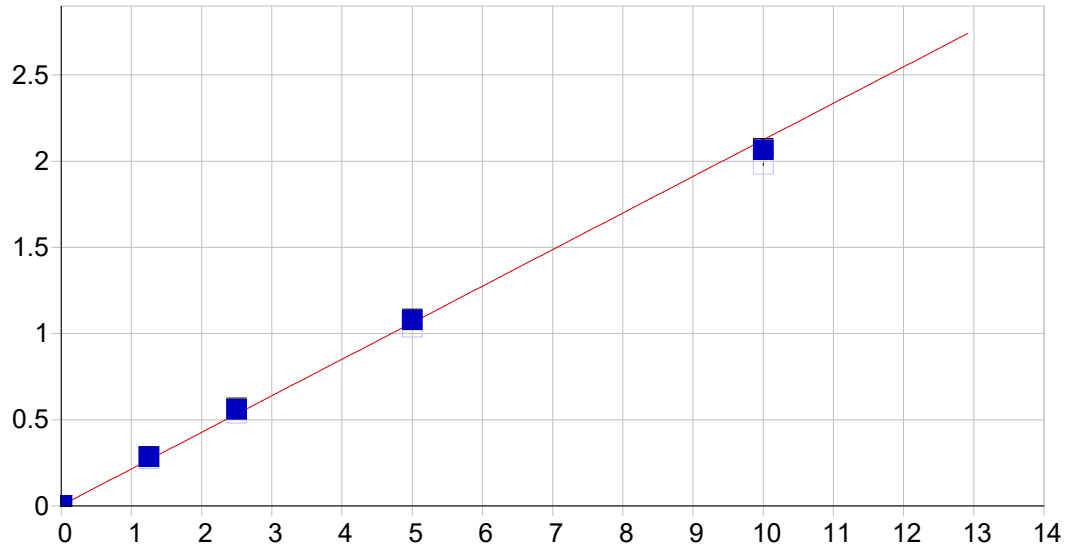
P 177.495 {490}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.001290	Re-Slope:	1.000000
A1 (Gain):	0.043186	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999290	Status:	OK.
Std Error of Est:	0.000026		
Predicted MDL:	0.004392		
Predicted MQL:	0.014641		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00129	.000	1
S1	.01000	.00969	-.000	-3.14	-.00088	.000	1
S2	1.2500	1.1497	-.100	-8.02	.04638	.000	1
S3	2.5000	2.3993	-.101	-4.03	.09836	.000	1
S4	5.0000	4.8850	-.115	-2.30	.20174	.000	1
S5	10.000	10.316	.316	3.16	.42835	.003	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

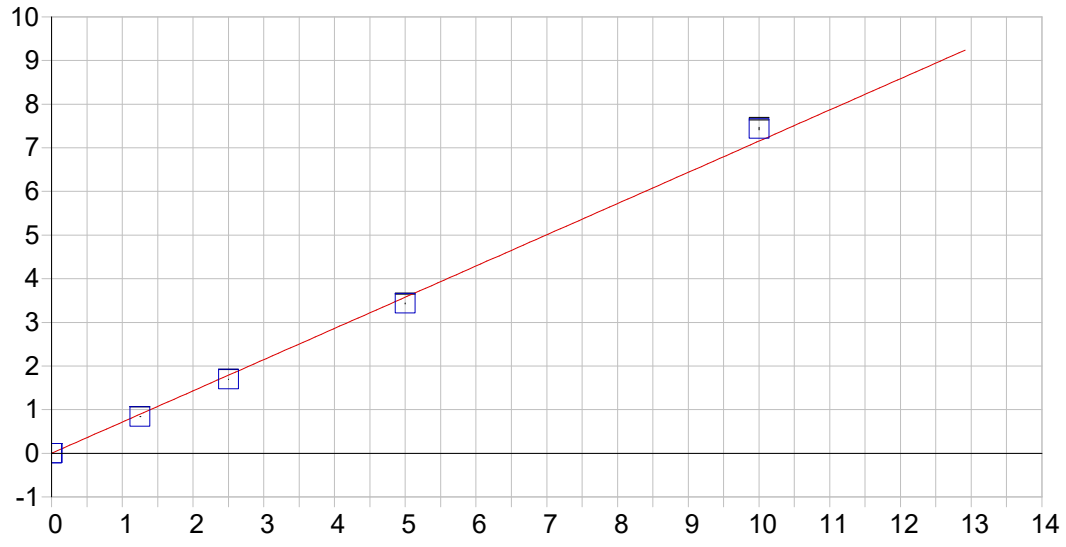


B 249.678 {135}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.002406	Re-Slope:	1.000000
A1 (Gain):	0.212099	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999064	Status:	OK.
Std Error of Est:	0.000148		
Predicted MDL:	0.001949		
Predicted MQL:	0.006498		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00241	.000	1
S1	.01000	-.00150	-.012	-115.	.00207	.000	1
S2	1.2500	1.3286	.079	6.29	.27349	.002	1
S3	2.5000	2.6220	.122	4.88	.53714	.009	1
S4	5.0000	5.0770	.077	1.54	1.0364	.005	1
S5	10.000	9.7342	-.266	-2.66	1.9814	.006	1



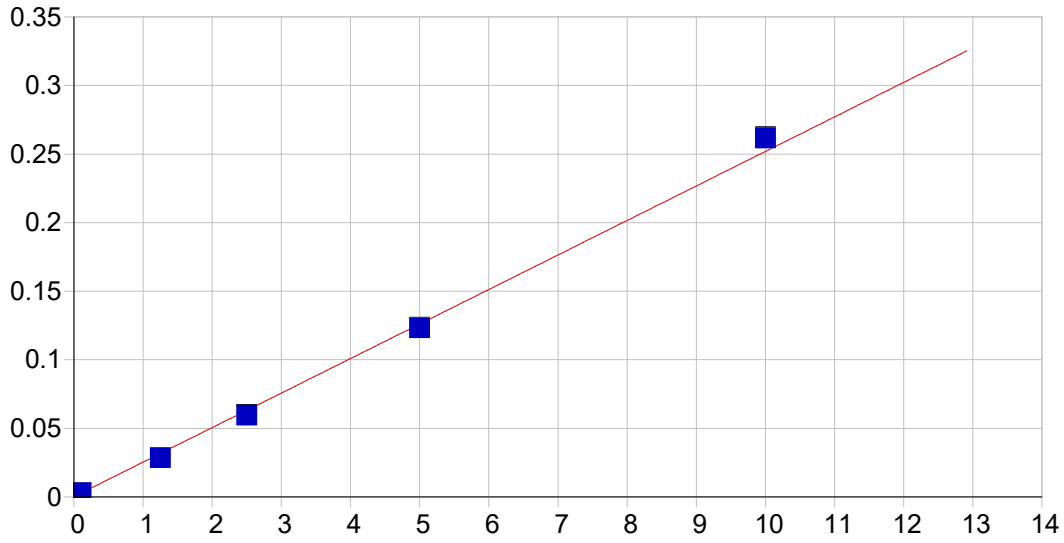
Mo 202.030 {467}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	-0.000179	Re-Slope:	1.000000
A1 (Gain):	0.715331	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999065	Status:	OK.
Std Error of Est:	0.000519		
Predicted MDL:	0.000575		
Predicted MQL:	0.001915		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00018	.000	1
S1	.01000	.01068	.001	6.77	.00746	.000	1
S2	1.2500	1.1751	-.075	-5.99	.84039	.002	1
S3	2.5000	2.3718	-.128	-5.13	1.6964	.001	1
S4	5.0000	4.8010	-.199	-3.98	3.4342	.012	1
S5	10.000	10.401	.401	4.01	7.4403	.033	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



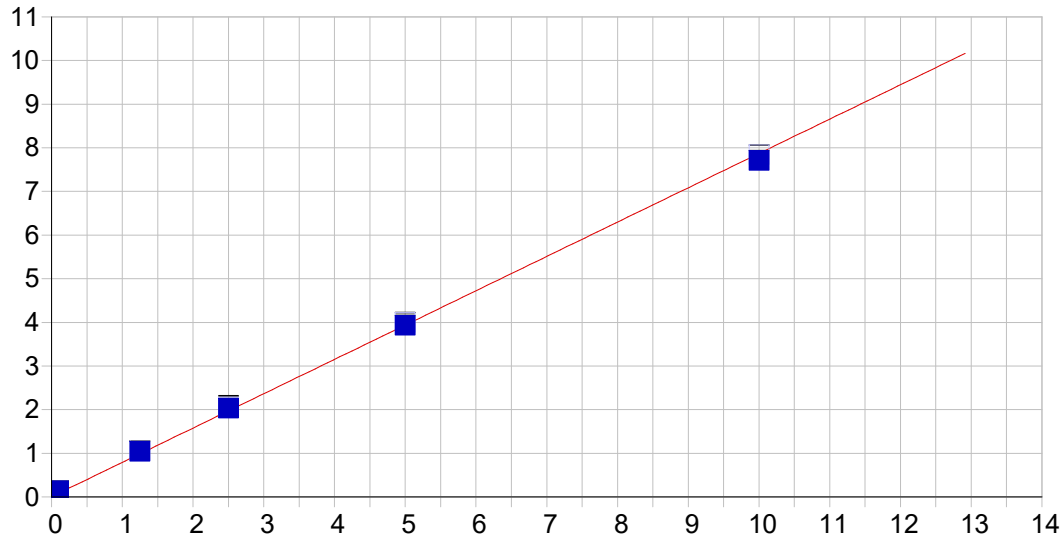
S 182.034 {485}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000222	Re-Slope:	1.000000
A1 (Gain):	0.025168	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998963	Status:	OK.
Std Error of Est:	0.000061		
Predicted MDL:	0.007247		
Predicted MQL:	0.024157		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.00022	.000	1
S1	.10000	.10747	.007	7.47	.00293	.000	1
S2	1.2500	1.1203	-.130	-10.4	.02842	.000	1
S3	2.5000	2.3591	-.141	-5.64	.05960	.000	1
S4	5.0000	4.8829	-.117	-2.34	.12312	.001	1
S5	10.000	10.380	.380	3.80	.26149	.001	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



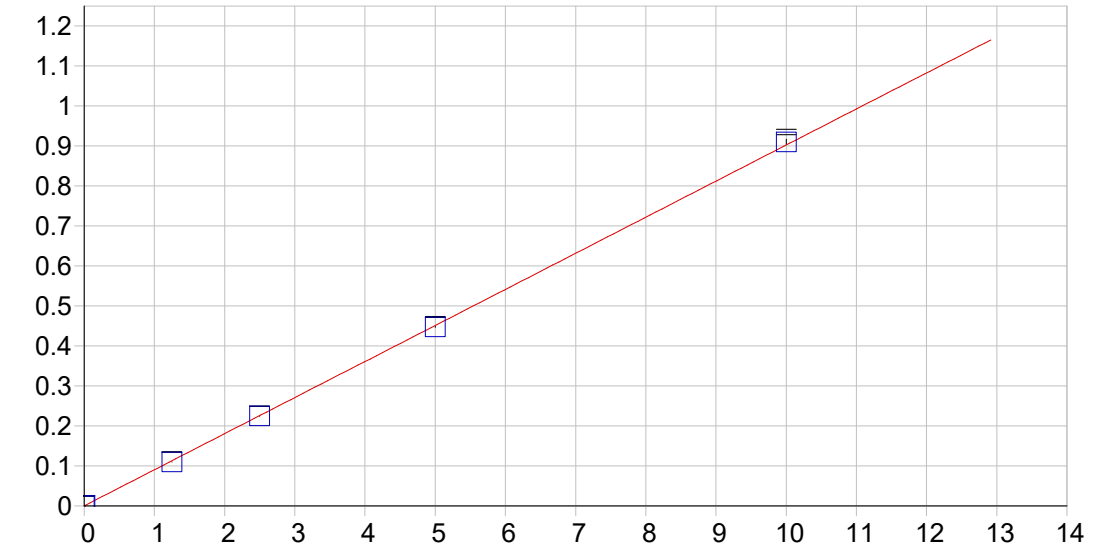
Si 251.611 {134}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.004970	Re-Slope:	1.000000
A1 (Gain):	0.786594	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.998483	Status:	OK.
Std Error of Est:	0.002342		
Predicted MDL:	0.000493		
Predicted MQL:	0.001645		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00008	-.000	.000	.00491	.000	1
S1	.10000	.17007	.070	70.1	.13927	.001	1
S2	1.2500	1.3178	.068	5.42	1.0574	.003	1
S3	2.5000	2.5729	.073	2.92	2.0606	.039	1
S4	5.0000	4.9949	-.005	-.102	3.9975	.007	1
S5	10.000	9.7949	-.205	-2.05	7.8368	.006	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



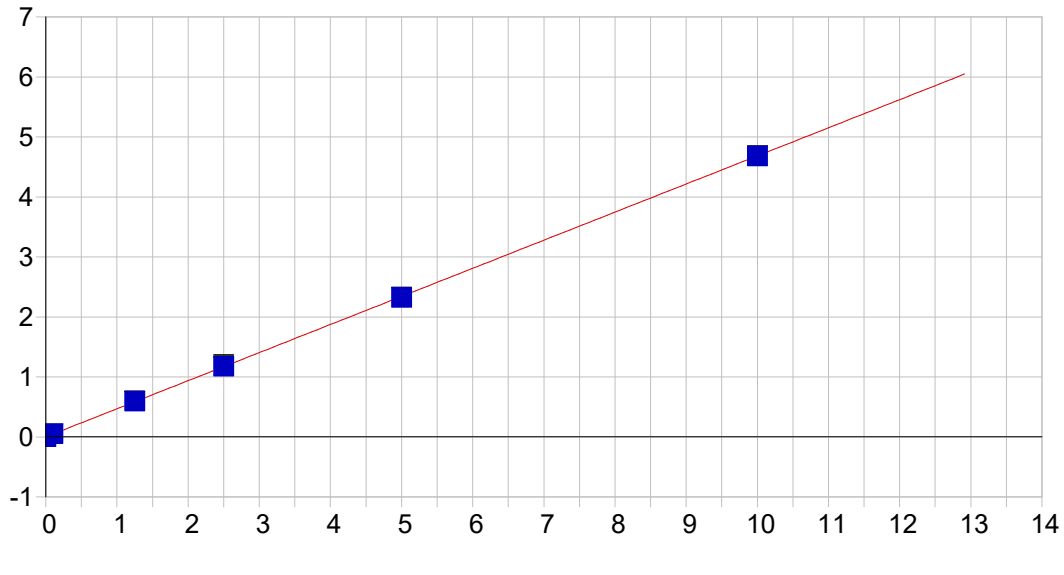
Sn 189.989 {478}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000198	Re-Slope:	1.000000
A1 (Gain):	0.090218	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999936	Status:	OK.
Std Error of Est:	0.000014		
Predicted MDL:	0.002010		
Predicted MQL:	0.006701		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00020	.000	1
S1	.00700	.00858	.002	22.6	.00097	.000	1
S2	1.2500	1.2161	-.034	-2.71	.10991	.000	1
S3	2.5000	2.4867	-.013	-.533	.22454	.001	1
S4	5.0000	4.9606	-.039	-.788	.44773	.001	1
S5	10.000	10.085	.085	.851	.91005	.007	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

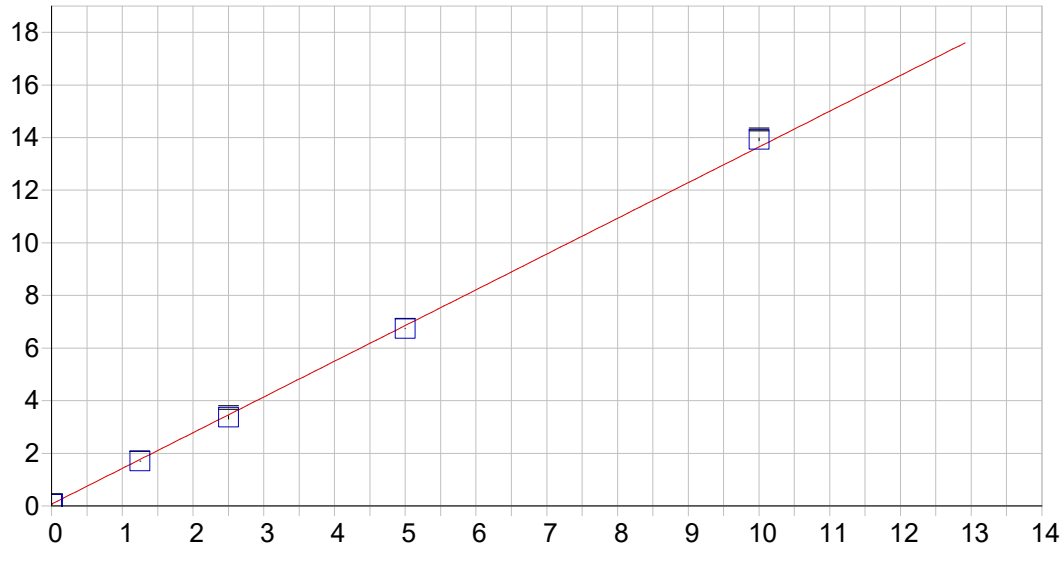


Ti 336.121 {100}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000000	Re-Slope:	1.000000
A1 (Gain):	0.468376	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999947	Status:	OK.
Std Error of Est:	0.000257		
Predicted MDL:	0.001335		
Predicted MQL:	0.004450		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00001	-.000	.000	-.00001	.001	1
S1	.10000	.11109	.011	11.1	.05201	.001	1
S2	1.2500	1.2713	.021	1.70	.59513	.000	1
S3	2.5000	2.5125	.012	.500	1.1762	.024	1
S4	5.0000	4.9581	-.042	-.837	2.3211	.005	1
S5	10.000	9.9970	-.003	-.030	4.6800	.011	1



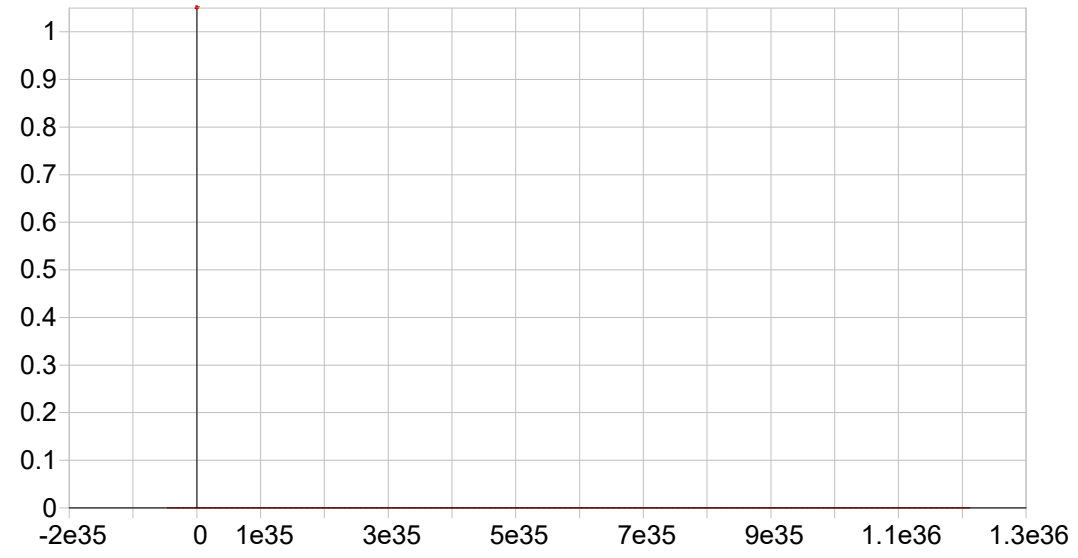
Li 670.784 { 50}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.067757	Re-Slope:	1.000000
A1 (Gain):	1.357791	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999645	Status:	OK.
Std Error of Est:	0.000743		
Predicted MDL:	0.001376		
Predicted MQL:	0.004588		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00001	.000	.000	.06777	.002	1
S5	10.000	10.211	.211	2.11	13.933	.052	1
S4	5.0000	4.9156	-.084	-1.69	6.7421	.008	1
S3	2.5000	2.4273	-.073	-2.91	3.3635	.067	1
S2	1.2500	1.2029	-.047	-3.76	1.7011	.004	1
S1	.01500	.00771	-.007	-48.6	.07823	.002	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

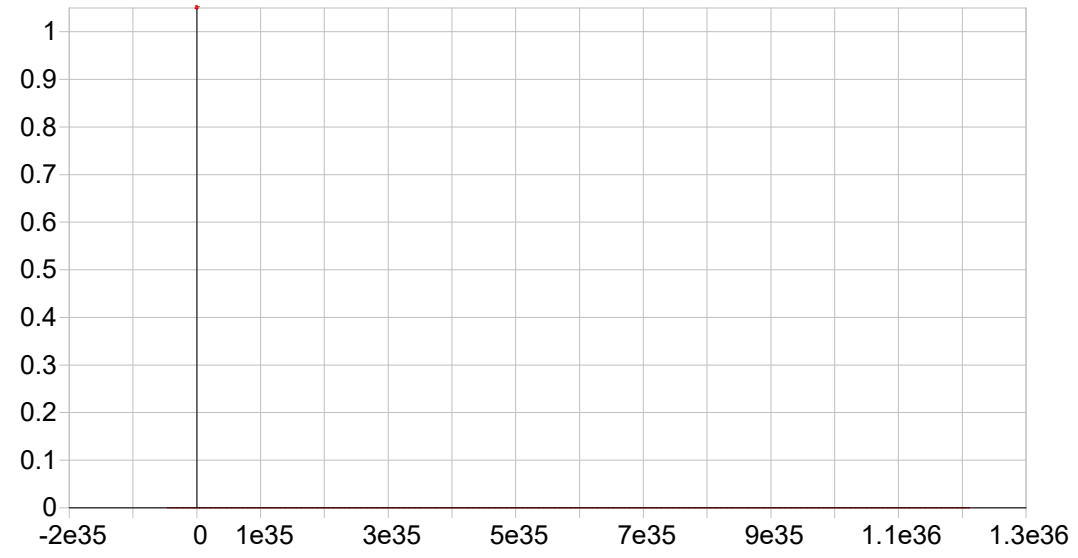


Y 224.306 {450}*

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



Y 360.073 { 94}*

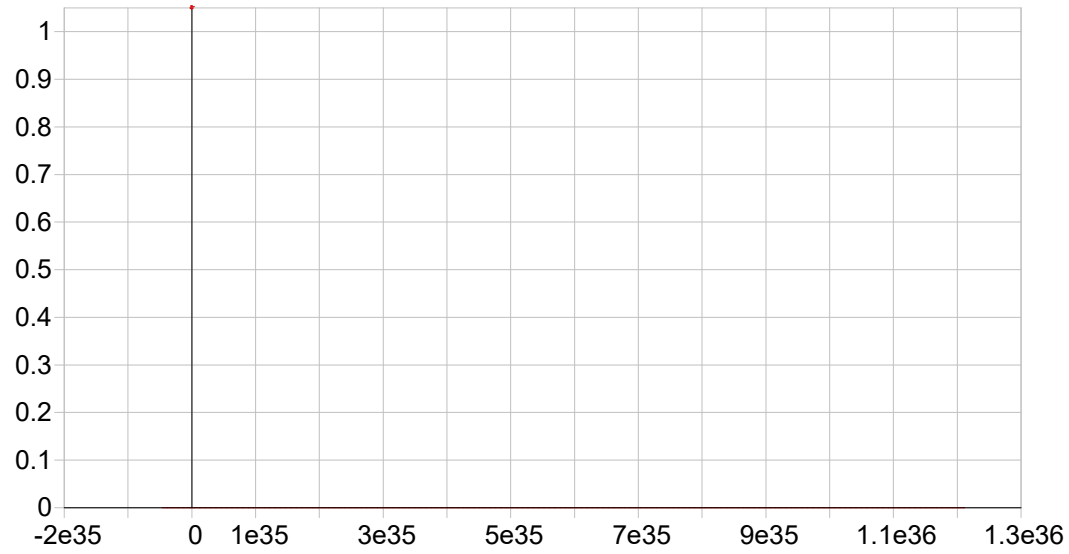
Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc

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

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000	Status:	Warning	Zero Gain	
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

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



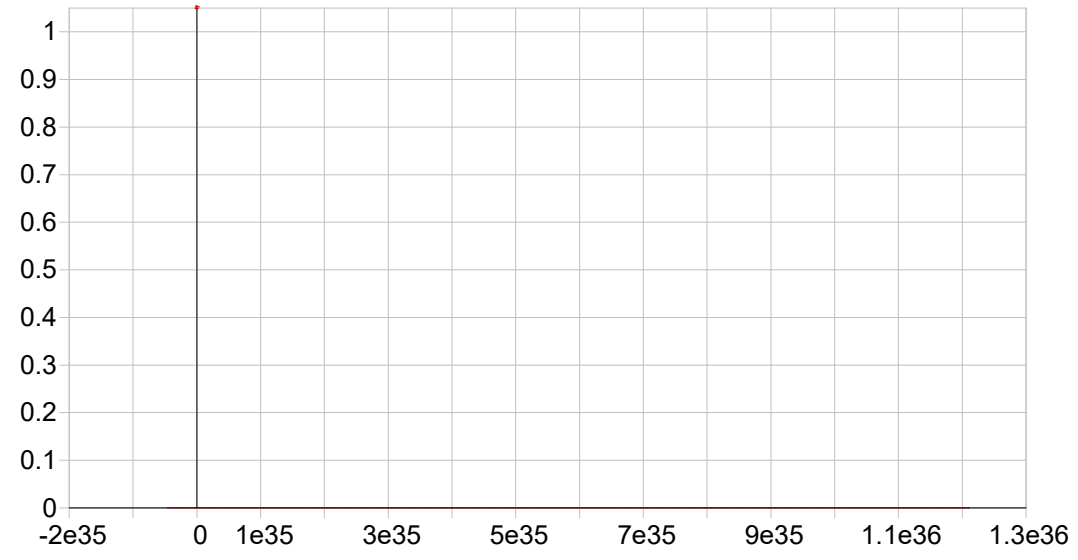
Y 371.030 { 91}*

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

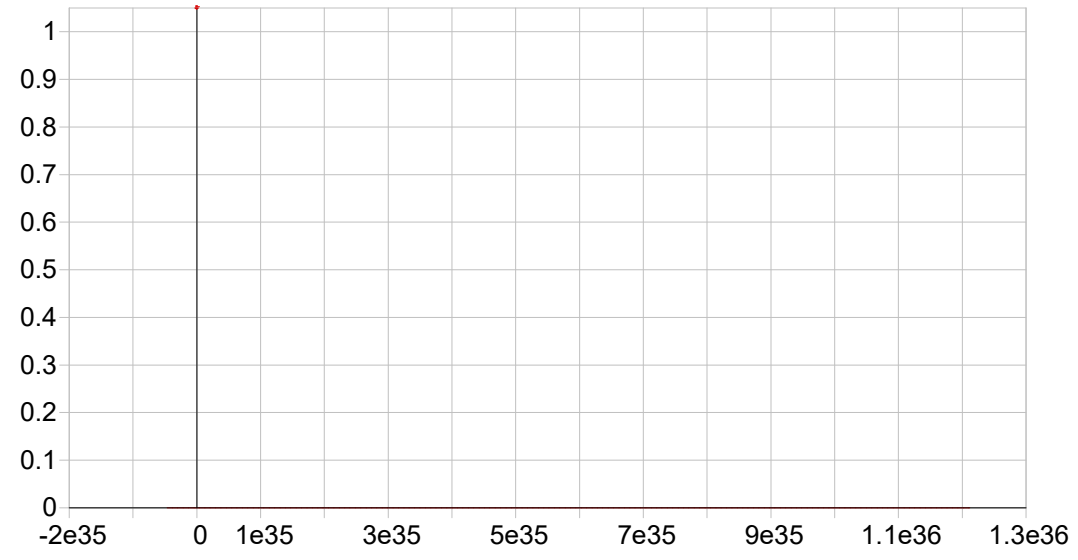
Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5



Y 224.306 {150}*

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



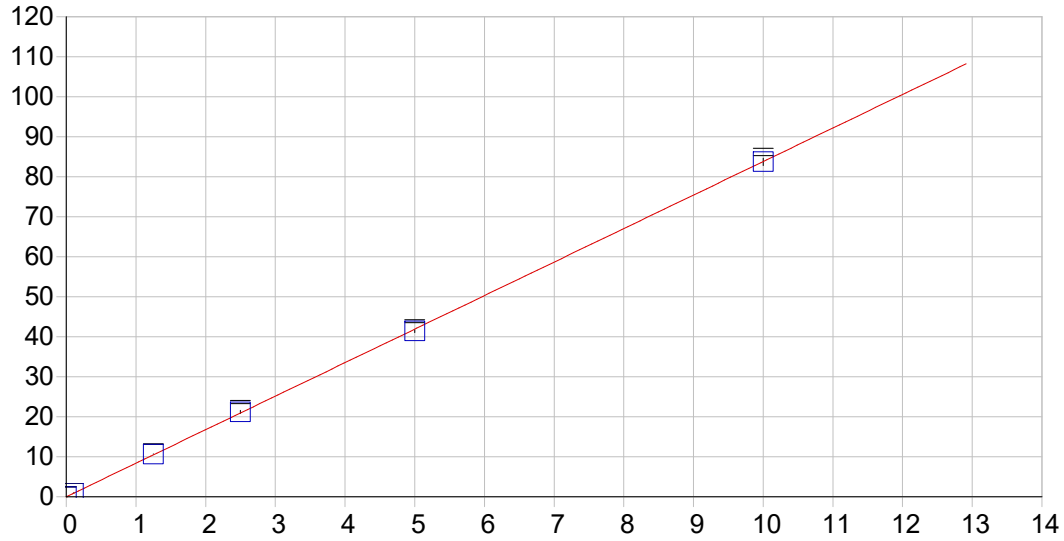
In 230.606 {446}*

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

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

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



Sr 407.771 { 83}

Date of Fit:	12/02/2024 7:50:46	Type of Fit:	Linear	Weighting:	1/Conc

A0 (Offset):	0.000828	Re-Slope:	1.000000
A1 (Gain):	8.380198	Y-int:	0.000000
A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
Correlation:	0.999910	Status:	OK.
Std Error of Est:	0.005990		
Predicted MDL:	0.000107		
Predicted MQL:	0.000356		

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00002	-.000	.000	.00070	.000	1
S1	.10000	.11412	.014	14.1	.95718	.002	1
S2	1.2500	1.2727	.023	1.82	10.666	.023	1
S3	2.5000	2.5274	.027	1.10	21.181	.409	1
S4	5.0000	4.9410	-.059	-1.18	41.407	.390	1
S5	10.000	9.9948	-.005	-.052	83.759	.920	1

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: S0 Acquired: 12/02/2024 15:21:38 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) 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	-.00016	-.00037	-.00020	-.00001	-.00003	-.00228	-.00216	-.00096
Stddev	.00015	.00009	.00033	.00015	.00033	.00008	.00287	.00048
%RSD	93.771	25.132	163.29	1107.4	1278.3	3.3580	132.62	49.995
#1	-.00004	-.00041	.00018	.00015	-.00010	-.00229	-.00168	-.00072
#2	-.00033	-.00027	-.00036	-.00005	.00033	-.00235	-.00524	-.00064
#3	-.00011	-.00045	-.00043	-.00014	-.00031	-.00220	.00043	-.00151

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	.00035	.00422	-.00020	-.00032	.00185	.00026	-.00017	-.00010
Stddev	.00009	.00035	.00009	.00021	.00015	.00015	.00016	.00013
%RSD	26.833	8.3951	46.871	66.498	8.3473	57.696	95.210	135.96
#1	.00044	.00431	-.00012	-.00037	.00170	.00043	-.00003	-.00011
#2	.00025	.00452	-.00031	-.00050	.00184	.00022	-.00034	.00004
#3	.00036	.00383	-.00017	-.00009	.00201	.00014	-.00013	-.00022

Elem	Ni2316	Ag3280	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.00005	.02074	-.00354	-.00073	.00223	.07797	-.00129	.00241
Stddev	.00018	.00028	.00102	.00031	.00136	.00248	.00010	.00016
%RSD	385.24	1.3301	28.901	42.691	60.754	3.1764	7.4758	6.6167
#1	-.00005	.02106	-.00280	-.00062	.00092	.08014	-.00136	.00259
#2	.00025	.02061	-.00311	-.00048	.00363	.07850	-.00118	.00236
#3	-.00006	.02056	-.00471	-.00108	.00215	.07527	-.00133	.00228

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	-.00018	.00022	.00491	.00020	-.00001	.06777	.00070
Stddev	.00043	.00008	.00027	.00005	.00087	.00222	.00008
%RSD	241.38	34.570	5.4780	27.173	15732.	3.2780	11.386
#1	-.00045	.00013	.00505	.00021	-.00063	.06834	.00063
#2	-.00041	.00026	.00508	.00024	-.00037	.06965	.00068
#3	.00032	.00027	.00460	.00014	.00098	.06532	.00078

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: S0 Acquired: 12/02/2024 15:21:38 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) 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	1001.8	29499.	5655.6	877.64	1845.6
Stddev	2.1	191.	55.1	4.23	7.7
%RSD	.20499	.64877	.97376	.48188	.41519
#1	1001.7	29280.	5650.3	872.76	1843.0
#2	1003.9	29635.	5603.4	880.29	1854.2
#3	999.75	29581.	5713.2	879.86	1839.5

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: S1 Acquired: 12/02/2024 15:26:14 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) 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	.00016	.00125	.00087	.00206	.00896	.01374	.80120	.01972
Stddev	.00011	.00014	.00057	.00018	.00026	.00025	.00317	.00035
%RSD	71.840	11.263	65.607	8.9718	2.9308	1.8417	.39580	1.7588
#1	.00003	.00112	.00148	.00192	.00897	.01396	.80171	.02007
#2	.00026	.00123	.00035	.00227	.00921	.01380	.79780	.01938
#3	.00019	.00140	.00078	.00200	.00869	.01346	.80408	.01972

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	.01040	.40637	.00126	.02823	.00740	.00234	.00933	.04000
Stddev	.00014	.00105	.00004	.00040	.00031	.00028	.00045	.00067
%RSD	1.3939	.25885	3.0987	1.4232	4.2578	11.820	4.8295	1.6778
#1	.01023	.40730	.00121	.02778	.00709	.00237	.00956	.03922
#2	.01051	.40657	.00129	.02834	.00739	.00260	.00963	.04039
#3	.01045	.40523	.00127	.02857	.00772	.00205	.00882	.04038

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	.02437	.02460	.02824	.00436	.15192	.17235	-.00088	.00207
Stddev	.00015	.00017	.00196	.00035	.00264	.00103	.00004	.00042
%RSD	.62873	.69980	6.9478	8.1230	1.7397	.59492	4.2953	20.548
#1	.02454	.02472	.03029	.00452	.15382	.17199	-.00085	.00211
#2	.02426	.02467	.02639	.00460	.14890	.17155	-.00092	.00247
#3	.02429	.02440	.02803	.00395	.15304	.17351	-.00087	.00162

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	.00746	.00293	.13927	.00097	.05201	.07823	.95718
Stddev	.00032	.00003	.00076	.00013	.00065	.00168	.00212
%RSD	4.3338	.98860	.54779	13.537	1.2564	2.1516	.22168
#1	.00747	.00289	.13854	.00084	.05194	.07792	.95835
#2	.00713	.00294	.14007	.00111	.05270	.08005	.95846
#3	.00778	.00295	.13921	.00097	.05140	.07673	.95473

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: S1 Acquired: 12/02/2024 15:26:14 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) 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	993.94	29377.	5693.6	871.62	1793.9
Stddev	3.01	97.	15.4	6.69	3.7
%RSD	.30271	.32982	.26978	.76741	.20572
#1	993.18	29297.	5676.0	864.39	1794.3
#2	997.25	29350.	5704.4	877.59	1797.4
#3	991.38	29485.	5700.3	872.88	1790.0

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: S2 Acquired: 12/02/2024 15:30:52 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) 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	.03146	.07095	.82147	.06344	.17967	2.9870	8.9009	.43766
Stddev	.00008	.00046	.00224	.00024	.00042	.0049	.0238	.00116
%RSD	.26302	.65451	.27246	.37509	.23494	.16448	.26752	.26397
#1	.03156	.07141	.82007	.06353	.18001	2.9813	8.8852	.43636
#2	.03141	.07096	.82029	.06317	.17981	2.9897	8.9283	.43804
#3	.03142	.07048	.82405	.06362	.17920	2.9900	8.8892	.43857

Elem	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.1305	4.4505	.47298	.33407	.77105	.74130	1.9399	.44787
Stddev	.0030	.0131	.00094	.00082	.00186	.00100	.0068	.00084
%RSD	.26559	.29441	.19906	.24429	.24157	.13547	.34861	.18648
#1	1.1284	4.4408	.47256	.33379	.76901	.74016	1.9325	.44733
#2	1.1291	4.4654	.47232	.33342	.77148	.74205	1.9458	.44744
#3	1.1339	4.4454	.47406	.33498	.77266	.74168	1.9414	.44883

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	.33298	.12145	.20011	.05244	7.1233	.74180	.04638	.27349
Stddev	.00057	.00022	.00075	.00053	.0063	.00095	.00025	.00174
%RSD	.17000	.17921	.37463	1.0126	.08920	.12756	.54017	.63474
#1	.33262	.12141	.19940	.05198	7.1302	.74074	.04667	.27183
#2	.33267	.12169	.20090	.05231	7.1222	.74207	.04627	.27336
#3	.33363	.12126	.20002	.05302	7.1177	.74258	.04620	.27529

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	.84039	.02842	1.0574	.10991	.59513	1.7011	10.666
Stddev	.00232	.00021	.0032	.00023	.00045	.0040	.023
%RSD	.27587	.74621	.30353	.20972	.07482	.23486	.21338
#1	.83925	.02859	1.0552	.10978	.59538	1.6986	10.643
#2	.83886	.02848	1.0561	.11018	.59540	1.7057	10.688
#3	.84306	.02818	1.0611	.10977	.59462	1.6990	10.668

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: S2 Acquired: 12/02/2024 15:30:52 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) 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	952.61	28593.	5707.2	828.80	1618.3
Stddev	.90	15.	20.2	1.26	2.8
%RSD	.09454	.05177	.35451	.15190	.17260
#1	953.61	28605.	5730.2	829.44	1620.8
#2	952.36	28576.	5699.7	827.35	1618.8
#3	951.87	28597.	5691.9	829.60	1615.3

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: S3 Acquired: 12/02/2024 15:35:16 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) 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	.06545	.14178	1.6615	.12873	.36703	5.9828	17.741	.85682
Stddev	.00018	.00026	.0038	.00030	.00025	.1161	.343	.01311
%RSD	.28162	.18124	.23081	.23505	.06750	1.9413	1.9305	1.5297
#1	.06529	.14195	1.6575	.12887	.36699	6.0172	17.837	.86187
#2	.06565	.14191	1.6618	.12838	.36729	5.8533	17.361	.84193
#3	.06541	.14149	1.6652	.12893	.36680	6.0777	18.026	.86664

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	2.2812	8.8199	.93227	.67822	1.5181	1.4536	3.8122	.89650
Stddev	.0039	.1668	.00142	.00128	.0275	.0313	.0717	.02124
%RSD	.17037	1.8917	.15231	.18804	1.8089	2.1529	1.8807	2.3687
#1	2.2803	8.8778	.93069	.67881	1.5250	1.4638	3.8335	.90277
#2	2.2779	8.6318	.93267	.67676	1.4878	1.4185	3.7322	.87283
#3	2.2855	8.9500	.93345	.67910	1.5414	1.4785	3.8708	.91389

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	.67206	.22395	.40011	.10426	14.584	1.4280	.09836	.53714
Stddev	.00049	.00052	.00400	.00251	.076	.0307	.00026	.00893
%RSD	.07261	.23304	.99946	2.4107	.51865	2.1497	.26937	1.6629
#1	.67262	.22344	.40117	.10524	14.584	1.4359	.09847	.54040
#2	.67180	.22392	.39568	.10141	14.660	1.3942	.09855	.52703
#3	.67176	.22449	.40346	.10614	14.509	1.4540	.09806	.54398

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	1.6964	.05960	2.0606	.22454	1.1762	3.3635	21.181
Stddev	.0015	.00028	.0394	.00050	.0237	.0667	.409
%RSD	.08786	.47629	1.9133	.22347	2.0174	1.9827	1.9291
#1	1.6978	.05953	2.0752	.22431	1.1831	3.3788	21.289
#2	1.6948	.05936	2.0160	.22420	1.1498	3.2905	20.729
#3	1.6966	.05991	2.0907	.22512	1.1957	3.4212	21.525

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: S3 Acquired: 12/02/2024 15:35:16 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) 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	910.56	27836.	5689.1	775.27	1523.0
Stddev	1.40	60.	97.0	4.87	1.1
%RSD	.15376	.21478	1.7049	.62867	.07336
#1	908.97	27886.	5658.5	774.28	1522.8
#2	911.10	27769.	5797.7	770.97	1524.2
#3	911.62	27852.	5611.0	780.56	1522.0

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: S4 Acquired: 12/02/2024 15:39:40 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) 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	.13585	.27474	3.2794	.26185	.76102	12.066	35.116	1.6796
Stddev	.00022	.00042	.0076	.00140	.00428	.020	.279	.0066
%RSD	.15883	.15295	.23158	.53603	.56238	.16820	.79501	.39591
#1	.13584	.27483	3.2736	.26061	.75754	12.044	34.866	1.6825
#2	.13607	.27510	3.2880	.26157	.75974	12.084	35.417	1.6843
#3	.13563	.27428	3.2767	.26337	.76580	12.070	35.066	1.6720

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	4.4972	17.434	1.8049	1.3483	3.0100	2.8447	7.4502	1.7962
Stddev	.0086	.028	.0021	.0017	.0007	.0077	.0201	.0052
%RSD	.19007	.15873	.11585	.12752	.02259	.27115	.27005	.28829
#1	4.4911	17.435	1.8047	1.3479	3.0093	2.8363	7.4422	1.7910
#2	4.5069	17.461	1.8071	1.3502	3.0102	2.8515	7.4731	1.8013
#3	4.4935	17.405	1.8029	1.3469	3.0106	2.8463	7.4354	1.7964

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	1.3283	.42714	.80020	.20407	29.929	2.8209	.20174	1.0364
Stddev	.0037	.00119	.00209	.00043	.170	.0029	.00034	.0052
%RSD	.27757	.27910	.26078	.21116	.56684	.10314	.16952	.50438
#1	1.3246	.42658	.79784	.20443	30.101	2.8175	.20153	1.0415
#2	1.3320	.42851	.80096	.20419	29.762	2.8227	.20213	1.0368
#3	1.3283	.42633	.80180	.20359	29.925	2.8224	.20155	1.0310

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707	Sr4077
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.4342	.12312	3.9975	.44773	2.3211	6.7421	41.407
Stddev	.0116	.00057	.0070	.00118	.0048	.0077	.390
%RSD	.33807	.46626	.17423	.26251	.20491	.11484	.94092
#1	3.4281	.12262	4.0019	.44656	2.3184	6.7379	41.235
#2	3.4269	.12375	4.0012	.44891	2.3266	6.7510	41.853
#3	3.4475	.12300	3.9895	.44772	2.3183	6.7373	41.133

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: S4 Acquired: 12/02/2024 15:39:40 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) 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	843.05	26858.	5602.8	694.25	1415.1
Stddev	3.09	32.	22.1	3.57	1.2
%RSD	.36697	.11938	.39403	.51357	.08479
#1	844.88	26881.	5597.6	690.87	1415.0
#2	844.79	26822.	5583.7	697.97	1414.0
#3	839.48	26872.	5627.0	693.90	1416.4

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: S5 Acquired: 12/02/2024 15:44:19 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) 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	.28991	.54653	6.6709	.58251	1.7103	25.015	71.029	3.3630
Stddev	.00109	.00241	.0418	.00377	.0087	.070	.686	.0029
%RSD	.37465	.44038	.62718	.64656	.50745	.28062	.96602	.08754
#1	.28912	.54449	6.6271	.57918	1.7005	25.000	70.296	3.3617
#2	.28947	.54593	6.6751	.58176	1.7169	25.091	71.655	3.3664
#3	.29115	.54919	6.7105	.58660	1.7136	24.953	71.136	3.3610

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	9.0729	35.159	3.5427	2.7387	6.1067	5.6930	14.860	3.7059
Stddev	.0635	.141	.0577	.0129	.0180	.0092	.063	.0078
%RSD	.70000	.40174	1.6292	.46917	.29512	.16206	.42235	.21014
#1	9.0058	35.164	3.5629	2.7254	6.0967	5.6833	14.857	3.7048
#2	9.0810	35.297	3.4776	2.7397	6.1275	5.7017	14.924	3.7142
#3	9.1320	35.015	3.5876	2.7510	6.0959	5.6942	14.798	3.6987

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	2.6766	.86680	1.6358	.41188	65.865	5.7804	.42835	1.9814
Stddev	.0159	.01262	.0051	.00199	1.166	.0134	.00339	.0062
%RSD	.59353	1.4554	.31064	.48412	1.7709	.23096	.79221	.31233
#1	2.6591	.86886	1.6353	.41345	66.316	5.7723	.42513	1.9744
#2	2.6805	.85328	1.6412	.41256	64.540	5.7959	.42803	1.9840
#3	2.6901	.87826	1.6311	.40964	66.738	5.7731	.43190	1.9859

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	7.4403	.26149	7.8368	.91005	4.6800	13.933	83.759
Stddev	.0325	.00100	.0056	.00679	.0107	.052	.920
%RSD	.43735	.38083	.07112	.74660	.22931	.36999	1.0984
#1	7.4028	.26035	7.8307	.90318	4.6821	13.920	84.464
#2	7.4611	.26196	7.8415	.91021	4.6896	13.990	84.095
#3	7.4569	.26217	7.8383	.91676	4.6684	13.889	82.718

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: S5 Acquired: 12/02/2024 15:44:19 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) 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	731.31	25681.	5494.8	560.91	1291.4
Stddev	2.70	321.	24.4	7.53	6.3
%RSD	.36901	1.2497	.44334	1.3427	.48817
#1	734.37	25572.	5497.8	557.69	1298.1
#2	729.29	26042.	5469.0	569.51	1290.4
#3	730.26	25428.	5517.5	555.52	1285.7

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: S6 Acquired: 12/02/2024 15:48:56 Type: Cal
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) 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	63.890	54.964	15.059	5.9972	4.3273
Stddev	.560	.229	.009	.0028	.0017
%RSD	.87655	.41583	.06163	.04634	.03821
#1	63.249	54.753	15.069	5.9995	4.3277
#2	64.141	55.206	15.053	5.9941	4.3287
#3	64.282	54.932	15.054	5.9980	4.3255

Int. Std.	Y_3710
Units	Cts/S
Avg	5358.7
Stddev	21.0
%RSD	.39280
#1	5378.1
#2	5361.8
#3	5336.3

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: ICV011 Acquired: 12/02/2024 16:20:15 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV011 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9302695	1.077490	.9994085	.9762459	.9423681	2.395106
Stddev	.0025601	.001033	.0037936	.0015982	.0026759	.019797
%RSD	.2751957	.0958875	.3795861	.1637118	.2839569	.8265414
#1	.9273881	1.076343	1.002739	.9752293	.9453444	2.417314
#2	.9311384	1.078346	.995279	.9780881	.9401610	2.388694
#3	.9322820	1.077782	1.000208	.9754204	.9415988	2.379310

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5290852	.5379932	.5055187	10.33042	.5696593	.5014732
Stddev	.0048960	.0036699	.0011069	.09042	.0008267	.0026168
%RSD	.9253711	.6821427	.2189632	.8753210	.1451214	.5218206
#1	.5344996	.5421364	.5060549	10.39491	.5699674	.5035100
#2	.5277865	.5366919	.5042458	10.22706	.5687229	.4985219
#3	.5249696	.5351513	.5062554	10.36929	.5702878	.5023878

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4994544	10.65218	.5424813	5.511067	.5143140	.2472287
Stddev	.0052329	.06052	.0013977	.129799	.0010810	.0017727
%RSD	1.047716	.5681763	.2576545	2.355236	.2101808	.7170071
#1	.4969227	10.70684	.5439791	5.521749	.5142313	.2488812
#2	.5054717	10.58714	.5412116	5.376257	.5132768	.2453564
#3	.4959689	10.66256	.5422534	5.635194	.5154340	.2474484

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.26040	.5397740	.9637626	9.640514	F .0004175	F -.007729
Stddev	.06868	.0049298	.0049788	.030881	.0031663	.001340
%RSD	.6694021	.9133131	.5165961	.3203226	758.4383	17.33107
#1	10.32202	.5441468	.9580416	9.612325	.0030345	-.008346
#2	10.27283	.5344313	.9671141	9.635696	-.003102	-.008649
#3	10.18635	.5407440	.9661320	9.673520	.001320	-.006192

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: ICV011 Acquired: 12/02/2024 16:20:15 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV011 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.001020	F .0048618	F -.000397	F -.001816	F -.000684	F -.022489
Stddev	.000239	.0034269	.000673	.000998	.001474	.000652
%RSD	23.45924	70.48565	169.6956	54.99106	215.3425	2.901331
#1	-.001296	.0087564	-.000647	-.002967	-.002241	-.022800
#2	-.000885	.0035209	-.000909	-.001288	.000689	-.022927
#3	-.000878	.0023081	.000366	-.001192	-.000501	-.021739

Elem	Sr4077
Units	ppm
Avg	F .0012307
Stddev	.0000389
%RSD	3.162423
#1	.0011898
#2	.0012673
#3	.0012350

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	996.2054	29230.52	5672.246	865.0635	1768.258
Stddev	1.4263	47.13	45.891	2.7598	1.474
%RSD	.1431730	.1612303	.8090445	.3190265	.0833825
#1	994.6983	29176.11	5619.880	865.9822	1767.125
#2	996.3838	29256.82	5691.407	861.9615	1769.925
#3	997.5341	29258.62	5705.451	867.2467	1767.724

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: ICB011 Acquired: 12/02/2024 16:27:30 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB011 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0055759	-.000679	-.003299	-.000265	.0016441	.1272186
Stddev	.0031555	.003761	.002077	.006979	.0013411	.0064931
%RSD	56.59195	554.2649	62.98253	2633.142	81.56961	5.103911
#1	.0063755	.002585	-.003070	.002679	.0010999	.1274920
#2	.0082547	-.004792	-.001345	-.008234	.0006606	.1335708
#3	.0020975	.000171	-.005481	.004760	.0031717	.1205932

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001254	.0000890	-.000062	-.003432	.0010345	.0001256
Stddev	.000613	.0001450	.000164	.002133	.0007488	.0002297
%RSD	48.84000	162.8600	264.6484	62.13127	72.38804	182.7979
#1	-.001676	.0000207	-.000239	-.001167	.0006321	.0000716
#2	-.001536	.0002555	.000085	-.005401	.0018985	-.000072
#3	-.000552	-.000009	-.000032	-.003728	.0005728	.000378

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0021699	-.014340	.0005434	-.041417	.0001904	-.000634
Stddev	.0020004	.004834	.0003209	.034257	.0002420	.000301
%RSD	92.18770	33.70865	59.05669	82.71190	127.1016	47.50741
#1	.0020049	-.014769	.0007834	-.001885	-.000088	-.000288
#2	.0042477	-.018945	.0006680	-.062379	.000312	-.000842
#3	.0002571	-.009306	.0001789	-.059987	.000348	-.000771

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1787751	.0015458	.0018483	-.308000	.0008048	-.005658
Stddev	.4961219	.0051434	.0001761	.018786	.0009717	.001210
%RSD	277.5117	332.7261	9.524758	6.099362	120.7282	21.38208
#1	.0056868	.0014093	.0016451	-.322127	.0019155	-.004363
#2	-.207615	.0067561	.0019555	-.286680	.0003874	-.005850
#3	.738254	-.003528	.0019443	-.315193	.0001116	-.006760

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: ICB011 Acquired: 12/02/2024 16:27:30 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB011 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000209	.0030293	-.000504	-.001894	.0014801	F -.017423
Stddev	.000293	.0066123	.000854	.002208	.0016425	.000465
%RSD	140.2775	218.2784	169.2918	116.5243	110.9677	2.671596
#1	-.000546	.0106497	-.000986	.000528	.0027666	-.017290
#2	-.000073	-.000368	-.001009	-.003794	.0020437	-.017039
#3	-.000009	-.001193	.000481	-.002418	-.000370	-.017941

Elem	Sr4077
Units	ppm
Avg	.0000030
Stddev	.0000664
%RSD	2212.207
#1	-.000055
#2	.000075
#3	-.000011

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1000.870	29608.19	5668.537	880.7435	1840.476
Stddev	8.905	48.94	15.757	5.0473	18.654
%RSD	.8896866	.1652985	.2779656	.5730728	1.013520
#1	993.741	29563.10	5653.964	875.4743	1827.431
#2	1010.851	29601.22	5685.257	881.2213	1861.842
#3	998.017	29660.24	5666.389	885.5350	1832.156

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: ICSA011 Acquired: 12/02/2024 16:40:20 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA011 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0081323	-.009915	-.003614	-.002237	.0033938	239.4328
Stddev	.0089927	.011501	.006858	.006723	.0026041	.2942
%RSD	110.5792	115.9988	189.7737	300.6082	76.73153	.1228941
#1	.0166047	-.022304	-.010189	.005420	.0062260	239.2216
#2	-.001303	-.007861	-.004147	-.007175	.0028526	239.3080
#3	.009095	.000421	.003495	-.004954	.0011028	239.7689

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0046464	.0001036	.0024688	245.9508	.0501755	.0019943
Stddev	.0002763	.0000805	.0002636	.8808	.0010407	.0010831
%RSD	5.946510	77.75337	10.67735	.3581170	2.074027	54.30956
#1	.0049164	.0000146	.0027456	245.1165	.0495049	.0032270
#2	.0046586	.0001245	.0022207	245.8643	.0496473	.0011948
#3	.0043642	.0001716	.0024401	246.8717	.0513744	.0015612

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001801	100.5962	.0134654	237.3921	.0039712	.0035427
Stddev	.002316	.0354	.0006050	.1044	.0005385	.0007981
%RSD	128.6151	.0351689	4.492676	.0439698	13.56047	22.52759
#1	-.003112	100.5751	.0136734	237.2774	.0045832	.0038652
#2	-.003165	100.5764	.0127839	237.4174	.0035702	.0041291
#3	.000874	100.6370	.0139390	237.4816	.0037601	.0026338

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6440614	-.003624	.0115685	-.848029	-.003646	-.006639
Stddev	.3313827	.003244	.0011573	.053711	.002481	.002630
%RSD	51.45204	89.52944	10.00416	6.333627	68.05724	39.61612
#1	.6958579	-.001574	.0128406	-.820267	-.006369	-.007471
#2	.9464959	-.007364	.0105779	-.813880	-.003053	-.003694
#3	.2898305	-.001934	.0112870	-.909939	-.001514	-.008753

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: ICSA011 Acquired: 12/02/2024 16:40:20 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA011 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001955	.0116872	-.001365	-.006814	-.001659	F -.018833
Stddev	.001230	.0031475	.000440	.001042	.000405	.000991
%RSD	62.91286	26.93154	32.28250	15.29189	24.38956	5.262364
#1	-.002243	.0146750	-.001214	-.007518	-.001242	-.018557
#2	-.000607	.0084012	-.001861	-.005617	-.002049	-.019932
#3	-.003016	.0119854	-.001019	-.007308	-.001686	-.018008

Elem	Sr4077
Units	ppm
Avg	F .1020231
Stddev	.0002192
%RSD	.2148269
#1	.1021279
#2	.1017712
#3	.1021702

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	932.7902	27354.34	5619.640	819.7372	1488.299
Stddev	2.0508	222.15	20.393	6.1719	3.430
%RSD	.2198557	.8121375	.3628864	.7529132	.2304504
#1	932.0933	27217.81	5638.587	816.0194	1484.339
#2	935.0987	27234.54	5622.274	816.3306	1490.334
#3	931.1787	27610.68	5598.058	826.8617	1490.224

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: ICSAB011 Acquired: 12/02/2024 16:44:49 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB011 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1106477	.0961374	.0446091	.0428251	.5565713	243.8267
Stddev	.0051468	.0103482	.0019759	.0057489	.0034802	6.7269
%RSD	4.651545	10.76398	4.429328	13.42405	.6252877	2.758902
#1	.1080148	.0869533	.0437382	.0422425	.5525552	245.4954
#2	.1165783	.0941093	.0432183	.0488430	.5584595	236.4225
#3	.1073499	.1073495	.0468708	.0373897	.5586994	249.5622

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5332873	.5263197	1.058453	250.0722	.6108176	.5229085
Stddev	.0148916	.0128599	.002604	6.8146	.0022958	.0013919
%RSD	2.792416	2.443356	.2459767	2.725033	.3758515	.2661872
#1	.5379205	.5294018	1.060781	252.0789	.6114800	.5228196
#2	.5166298	.5121989	1.058937	242.4796	.6082634	.5243428
#3	.5453115	.5373585	1.055642	255.6581	.6127093	.5215633

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4802189	102.3314	.5331132	241.6859	1.046630	.1913993
Stddev	.0105276	2.9510	.0152152	7.4873	.001927	.0008120
%RSD	2.192242	2.883806	2.854024	3.097927	.1841559	.4242602
#1	.4837177	102.9159	.5386283	243.0838	1.045631	.1919691
#2	.4683874	99.1318	.5159096	233.5983	1.048852	.1917593
#3	.4885516	104.9464	.5448018	248.3757	1.045408	.1904695

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7157905	.5348270	.9190002	-.969729	.0024145	-.008626
Stddev	.3189468	.0154976	.0025822	.110113	.0061227	.001656
%RSD	44.55868	2.897691	.2809733	11.35503	253.5779	19.19568
#1	.3705867	.5414253	.9219413	-.981110	.0094843	-.006952
#2	.7772491	.5171222	.9179536	-1.07371	-.001154	-.008663
#3	.9995357	.5459335	.9171056	-.85437	-.001087	-.010263

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: ICSAB011 Acquired: 12/02/2024 16:44:49 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB011 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002141	.0116675	-.000564	F -.007418	-.003106	F -.020865
Stddev	.000281	.0112687	.000761	.003189	.001200	.001471
%RSD	13.12379	96.58262	134.9399	42.99027	38.62013	7.051671
#1	-.002381	.0232384	-.001429	-.010990	-.002684	-.022539
#2	-.002209	.0007274	-.000264	-.004856	-.002175	-.020283
#3	-.001832	.0110366	.000001	-.006409	-.004460	-.019774

Elem	Sr4077
Units	ppm
Avg	F .1041065
Stddev	.0027938
%RSD	2.683635
#1	.1048780
#2	.1010080
#3	.1064335

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	913.1938	27176.59	5648.939	810.9195	1460.121
Stddev	3.2337	21.68	145.535	3.5448	2.817
%RSD	.3541136	.0797784	2.576323	.4371369	.1929573
#1	914.1136	27153.32	5610.159	809.3064	1458.871
#2	909.5998	27180.25	5809.935	808.4681	1458.144
#3	915.8680	27196.22	5526.722	814.9840	1463.347

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: CCV071 Acquired: 12/02/2024 16:49:09 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV071 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.354240	5.007314	26.29863	5.005511	5.078064	421.0349	10.57685
Stddev	.013204	.012337	.07648	.029543	.026923	.4795	.07260
%RSD	.2466108	.2463830	.2907960	.5902193	.5301820	.1138946	.6864425
#1	5.359434	5.014706	26.36342	5.027076	5.108345	421.5043	10.53317
#2	5.339229	4.993071	26.21427	4.971837	5.056831	420.5458	10.66066
#3	5.364058	5.014164	26.31820	5.017620	5.069015	421.0547	10.53671

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5202912	2.672174	428.9746	16.30034	2.658752	15.70624	431.7915
Stddev	.0024431	.002538	.2367	.03253	.005445	.00486	.8081
%RSD	.4695707	.0949869	.0551818	.1995591	.2047815	.0309276	.1871539
#1	.5192911	2.674895	428.9043	16.33693	2.663005	15.70448	431.6196
#2	.5185068	2.671757	428.7810	16.28938	2.652616	15.71173	431.0832
#3	.5230757	2.669870	429.2385	16.27470	2.660635	15.70250	432.6717

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	15.66322	419.1440	2.631106	1.341973	423.4561	2.617352	15.56337
Stddev	.00305	.6158	.005930	.003759	.6797	.008090	.10091
%RSD	.0195005	.1469219	.2253896	.2801418	.1605087	.3091018	.6484065
#1	15.66567	419.6549	2.631206	1.345552	423.4738	2.626118	15.45086
#2	15.65980	418.4602	2.625127	1.342311	424.1268	2.615766	15.59335
#3	15.66419	419.3169	2.636986	1.338056	422.7677	2.610172	15.64590

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	161.2836	5.193361	4.710887	5.025665	5.357626	4.513891	5.288317
Stddev	.0353	.009733	.019892	.012042	.014493	.023067	.011745
%RSD	.0219119	.1874121	.4222510	.2396131	.2705209	.5110298	.2220840
#1	161.2657	5.204287	4.696055	5.034433	5.342099	4.498846	5.286305
#2	161.2608	5.185618	4.703114	5.011934	5.370797	4.502378	5.277708
#3	161.3243	5.190179	4.733491	5.030626	5.359981	4.540448	5.300937

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: CCV071 Acquired: 12/02/2024 16:49:09 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV071 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.217583	5.346988	5.282098
Stddev	.005845	.004813	.017239
%RSD	.1120173	.0900068	.3263726
#1	5.223709	5.352540	5.268496
#2	5.216972	5.344434	5.276312
#3	5.212067	5.343992	5.301486

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	792.6437	25398.02	5451.134	645.1227	1290.447
Stddev	1.3177	57.86	9.813	3.7801	1.260
%RSD	.1662381	.2278073	.1800115	.5859488	.0976259
#1	791.3355	25344.67	5453.410	649.4152	1289.287
#2	793.9707	25389.87	5459.609	642.2912	1291.787
#3	792.6250	25459.52	5440.384	643.6616	1290.265

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: CCB071 Acquired: 12/02/2024 16:53:48 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB071 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0060817	-.002176	-.003386	.0081089	.0008043	.0086501	-.000674
Stddev	.0039151	.004569	.005729	.0049901	.0028007	.0042680	.000288
%RSD	64.37514	209.9511	169.2018	61.53792	348.2174	49.34074	42.76625
#1	.0086243	-.004790	.001625	.0124634	.0038149	.0038499	-.000499
#2	.0080475	-.004838	-.009632	.0026637	-.001724	.0100835	-.001006
#3	.0015732	.003099	-.002151	.0091997	.000322	.0120168	-.000516

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000320	-.000071	.0052776	.0008504	-.000410	.0004825	.0052189
Stddev	.0001331	.000100	.0090250	.0005843	.000559	.0036555	.0136472
%RSD	415.6533	142.1556	171.0052	68.71751	136.2559	757.6872	261.4966
#1	.0001115	-.000037	-.004846	.0010331	.000119	.0044120	.0025858
#2	.0001061	-.000183	.008200	.0001965	-.000994	-.002817	.0199908
#3	-.000122	.000009	.012479	.0013214	-.000355	-.000148	-.006920

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0006036	-.000896	.0000463	.0005813	.2254280	-.004867	-.000065
Stddev	.0004315	.017882	.0001619	.0003188	.1982798	.005215	.000263
%RSD	71.48636	1995.602	349.4828	54.83926	87.95706	107.1458	400.9955
#1	.0001533	-.021522	-.000141	.0004195	.1767684	-.002230	-.000368
#2	.0006441	.010237	.000137	.0009485	.4435078	-.010874	.000095
#3	.0010134	.008598	.000143	.0003759	.0560077	-.001497	.000077

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0785240	.0015817	-.000228	-.000444	.0017591	-.000313	-.002616
Stddev	.0244322	.0032596	.001770	.000468	.0065280	.000212	.000192
%RSD	31.11437	206.0793	777.0349	105.2591	371.1095	67.80582	7.321698
#1	.0832390	.0053159	-.000202	.000062	-.005581	-.000490	-.002835
#2	.0520779	.0001239	.001529	-.000533	.003942	-.000369	-.002478
#3	.1002551	-.000695	-.002011	-.000861	.006916	-.000078	-.002536

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: CCB071 Acquired: 12/02/2024 16:53:48 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB071 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0006305	-.013240	.0000648
Stddev	.0013755	.001070	.0001328
%RSD	218.1616	8.084883	205.0711
#1	.0009651	-.012611	.0001888
#2	.0018077	-.014476	.0000808
#3	-.000881	-.012632	-.000075

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	990.7179	29357.00	5632.036	878.1902	1807.997
Stddev	6.9828	60.56	10.659	2.3288	11.961
%RSD	.7048239	.2062924	.1892534	.2651809	.6615688
#1	992.5577	29356.42	5641.736	878.2199	1814.266
#2	996.5966	29296.73	5633.746	880.5041	1815.521
#3	982.9994	29417.85	5620.625	875.8468	1794.205

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165190BL Acquired: 12/02/2024 16:58:22 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBW190 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0090017	.0012442	-.004629	.0031700	.0011472	-.000231
Stddev	.0036182	.0016634	.002099	.0030735	.0025173	.001181
%RSD	40.19481	133.6942	45.33231	96.95509	219.4293	511.8578
#1	.0131205	.0029169	-.002221	.0066242	.0002446	-.000976
#2	.0075489	.0012252	-.006068	.0007377	.0039914	-.000848
#3	.0063357	-.000410	-.005599	.0021480	-.000794	.001131

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001431	.0000458	-.000193	-.006037	.0003835	.0001500
Stddev	.000206	.0000552	.000144	.009337	.0008531	.0005337
%RSD	14.41128	120.4669	74.55933	154.6529	222.4647	355.8243
#1	-.001578	.0000858	-.000359	.004690	.0011707	.0007589
#2	-.001519	.0000689	-.000109	-.010463	.0005027	-.000072
#3	-.001195	-.000017	-.000111	-.012338	-.000523	-.000237

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005762	-.009631	-.000275	-.007924	.0002080	.0008239
Stddev	.0013733	.002748	.000375	.047601	.0002508	.0005271
%RSD	238.3432	28.53159	136.2665	600.7126	120.5965	63.97365
#1	.0000341	-.006911	.000155	-.027864	-.000068	.0010986
#2	.0021378	-.012406	-.000446	.046404	.000422	.0002162
#3	-.000443	-.009576	-.000535	-.042313	.000270	.0011569

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1578571	-.000093	-.000048	-.028526	.0007413	-.003319
Stddev	.1097060	.002066	.000473	.024320	.0043298	.000969
%RSD	69.49701	2232.478	986.6039	85.25507	584.0775	29.20223
#1	.2824334	.001138	-.000432	-.014028	.0053946	-.003612
#2	.1154681	-.002477	-.000193	-.056603	-.000002	-.002237
#3	.0756700	.001062	.000481	-.014947	-.003169	-.004108

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165190BL Acquired: 12/02/2024 16:58:22 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBW190 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000384	.0031643	-.000377	-.000622	.0004784	F -.017997
Stddev	.000355	.0016822	.000164	.002938	.0009760	.000826
%RSD	92.43661	53.15983	43.60531	472.7010	203.9940	4.590065
#1	-.000174	.0021209	-.000455	.000458	-.000644	-.018391
#2	-.000795	.0022672	-.000188	-.003947	.000954	-.018552
#3	-.000184	.0051049	-.000488	.001624	.001126	-.017048

Elem	Sr4077
Units	ppm
Avg	-.000029
Stddev	.000104
%RSD	358.6581
#1	.000083
#2	-.000048
#3	-.000123

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	998.6403	29271.82	5648.525	867.2073	1820.210
Stddev	4.7225	96.84	27.523	1.1358	12.988
%RSD	.4728947	.3308412	.4872614	.1309709	.7135637
#1	997.4103	29166.14	5640.836	865.9825	1814.084
#2	1003.856	29356.32	5679.075	868.2257	1835.128
#3	994.655	29292.99	5625.664	867.4137	1811.417

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165190BS Acquired: 12/02/2024 17:02:54 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS190 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0194298	.0559269	.0193643	.0686695	.1172624	.4243081
Stddev	.0064840	.0023865	.0015947	.0046810	.0023109	.0132288
%RSD	33.37161	4.267176	8.235265	6.816650	1.970730	3.117733
#1	.0119814	.0539616	.0178230	.0632865	.1185788	.4394081
#2	.0224957	.0552366	.0192624	.0717836	.1145940	.4187563
#3	.0238123	.0585824	.0210076	.0709384	.1186143	.4147598

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4554164	.0113401	.0114192	11.63667	.0246662	.1082348
Stddev	.0006257	.0000736	.0002121	.03658	.0004424	.0008522
%RSD	.1373848	.6487824	1.857361	.3143709	1.793759	.7873436
#1	.4548644	.0113853	.0111927	11.66038	.0251347	.1075868
#2	.4560961	.0113798	.0114517	11.65509	.0246084	.1079174
#3	.4552886	.0112552	.0116132	11.59454	.0242554	.1092001

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0565334	.2195580	.0384482	10.71487	.0937846	.0248819
Stddev	.0018617	.0137223	.0001799	.05334	.0012200	.0004853
%RSD	3.293041	6.249977	.4679356	.4978357	1.300871	1.950537
#1	.0584087	.2322694	.0385624	10.74566	.0934657	.0250746
#2	.0565056	.2050098	.0382408	10.74568	.0927558	.0252412
#3	.0546857	.2213949	.0385414	10.65328	.0951324	.0243298

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.18801	.1204540	.1427037	10.51342	.0231885	F -.003528
Stddev	.32647	.0015717	.0005108	.05325	.0036456	.000636
%RSD	2.918012	1.304788	.3579456	.5064716	15.72180	18.02169
#1	11.34830	.1189637	.1421810	10.56165	.0265955	-.004236
#2	10.81238	.1220961	.1432017	10.45628	.0193437	-.003004
#3	11.40334	.1203023	.1427282	10.52232	.0236263	-.003345

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165190BS Acquired: 12/02/2024 17:02:54 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS190 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0206536	.2061772	F .3291862	.0141562	.2188605	F .0120564
Stddev	.0001104	.0094235	.0011623	.0023178	.0002409	.0017924
%RSD	.5344041	4.570570	.3530933	16.37299	.1100853	14.86697
#1	.0206511	.2104917	.3302712	.0153326	.2191161	.0136875
#2	.0205445	.1953689	.3293277	.0156499	.2188280	.0123440
#3	.0207652	.2126711	.3279595	.0114861	.2186376	.0101375

Elem	Sr4077
Units	ppm
Avg	.2265703
Stddev	.0005901
%RSD	.2604364
#1	.2261280
#2	.2272403
#3	.2263426

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	981.4666	28915.71	5700.247	862.0643	1720.664
Stddev	5.0550	86.50	20.634	6.3306	12.905
%RSD	.5150502	.2991475	.3619821	.7343581	.7500209
#1	982.6109	28891.83	5697.135	864.6414	1725.141
#2	985.8514	28843.65	5681.346	854.8516	1730.735
#3	975.9375	29011.64	5722.260	866.6999	1706.117

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165192BL Acquired: 12/02/2024 17:07:24 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS192 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016645	.0012658	-.002981	-.001328	-.001618	.0647226
Stddev	.0010808	.0026875	.002097	.005641	.001496	.0024522
%RSD	64.93052	212.3172	70.32501	424.7770	92.43475	3.788841
#1	.0026491	-.000521	-.000907	-.002420	-.003343	.0675144
#2	.0018363	-.000038	-.005100	-.006342	-.000696	.0637361
#3	.0005081	.004357	-.002937	.004779	-.000814	.0629172

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000803	.0000073	-.000000	-.008608	.0007264	.0001722
Stddev	.000383	.0001032	.000176	.012558	.0008492	.0003379
%RSD	47.72260	1421.078	889037.8	145.8858	116.9128	196.2629
#1	-.000426	-.000012	-.000109	-.011938	-.000049	.0001146
#2	-.000792	-.000085	.000203	-.019167	.001634	.0005351
#3	-.001192	.000119	-.000094	.005279	.000594	-.000133

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016674	-.002796	.0003694	.0075011	-.000237	.0005596
Stddev	.0029869	.001101	.0010041	.0533804	.000104	.0001391
%RSD	179.1403	39.36014	271.8289	711.6349	43.90406	24.86233
#1	-.000643	-.004027	.0011451	-.028382	-.000308	.0006335
#2	.005040	-.001906	-.000765	.068845	-.000286	.0003991
#3	.000604	-.002456	.000728	-.017959	-.000118	.0006462

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4709581	-.001681	.0003815	-.022858	.0004412	-.005396
Stddev	.1487196	.000418	.0004842	.130234	.0035495	.002454
%RSD	31.57809	24.88939	126.9233	569.7405	804.5336	45.48556
#1	.5043568	-.001963	.0007480	.013854	-.003409	-.008060
#2	.3083790	-.001200	.0005638	-.167508	.003584	-.003226
#3	.6001387	-.001880	-.000167	.085079	.001149	-.004902

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165192BL Acquired: 12/02/2024 17:07:24 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS192 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002210	.0051443	-.000038	-.000266	.0009636	F -.020974
Stddev	.0003579	.0069393	.000342	.001979	.0006722	.000309
%RSD	161.9701	134.8917	898.7325	744.4633	69.75428	1.471008
#1	.0001154	.0051766	.000122	-.001986	.0016400	-.020633
#2	-.000072	.0120675	.000195	-.000708	.0002957	-.021052
#3	.000620	-.001811	-.000431	.001897	.0009552	-.021236

Elem	Sr4077
Units	ppm
Avg	-.000046
Stddev	.000070
%RSD	152.3761
#1	-.000088
#2	.000035
#3	-.000086

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	997.9179	29300.54	5679.283	868.2943	1815.728
Stddev	2.7677	24.97	76.899	1.0406	6.790
%RSD	.2773490	.0852364	1.354019	.1198421	.3739788
#1	1001.114	29272.00	5675.354	868.6589	1823.496
#2	996.296	29311.27	5758.071	869.1035	1812.762
#3	996.344	29318.37	5604.425	867.1205	1810.924

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165192BS Acquired: 12/02/2024 17:11:55 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS192 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0180696	.0518834	.0183390	.0704957	.1156455	.4550080
Stddev	.0041410	.0007944	.0029279	.0056290	.0009089	.0097859
%RSD	22.91711	1.531084	15.96548	7.984834	.7859292	2.150714
#1	.0171703	.0524643	.0167770	.0648648	.1148699	.4662203
#2	.0225865	.0522076	.0165232	.0761227	.1154210	.4506177
#3	.0144522	.0509781	.0217166	.0704996	.1166456	.4481861

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4468271	.0113676	.0111013	11.37721	.0241336	.1069328
Stddev	.0102743	.0002969	.0000943	.23476	.0003984	.0003393
%RSD	2.299384	2.612049	.8490430	2.063408	1.650596	.3173465
#1	.4489184	.0115374	.0110663	11.46164	.0236781	.1065678
#2	.4356681	.0110248	.0110296	11.11191	.0244169	.1069920
#3	.4558949	.0115407	.0112081	11.55807	.0243058	.1072387

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0548524	.2083280	.0376077	10.58329	.0922465	.0243493
Stddev	.0043644	.0154070	.0010861	.20373	.0005435	.0004150
%RSD	7.956553	7.395560	2.887862	1.925056	.5892417	1.704510
#1	.0563103	.2260886	.0381726	10.68333	.0928304	.0242595
#2	.0499457	.2003410	.0363556	10.34888	.0921537	.0248018
#3	.0583013	.1985545	.0382949	10.71767	.0917553	.0239864

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.96135	.1166096	.1406085	10.28401	.0220227	F -.003678
Stddev	.39834	.0071792	.0006075	.27932	.0022328	.001467
%RSD	3.634006	6.156631	.4320355	2.716017	10.13852	39.88207
#1	11.04323	.1129220	.1400081	10.39765	.0199221	-.002710
#2	10.52843	.1120235	.1405947	9.96578	.0217786	-.005365
#3	11.31238	.1248832	.1412228	10.48858	.0243676	-.002957

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165192BS Acquired: 12/02/2024 17:11:55 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS192 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0207890	.2108266	F .3239245	.0150474	.2154834	F .0089252
Stddev	.0003801	.0077360	.0081252	.0000438	.0045238	.0007174
%RSD	1.828540	3.669358	2.508376	.2909222	2.099359	8.037581
#1	.0205855	.2159933	.3262149	.0150762	.2165343	.0083719
#2	.0205540	.2019326	.3148999	.0149971	.2105267	.0086681
#3	.0212276	.2145541	.3306587	.0150690	.2193892	.0097357

Elem	Sr4077
Units	ppm
Avg	.2228182
Stddev	.0050402
%RSD	2.262036
#1	.2245636
#2	.2171373
#3	.2267538

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	988.0771	28940.50	5733.800	862.4367	1731.901
Stddev	.7844	36.99	106.670	.4796	.804
%RSD	.0793894	.1278303	1.860375	.0556126	.0464094
#1	988.9272	28952.84	5689.353	862.9731	1732.411
#2	987.9230	28898.92	5855.506	862.0492	1730.974
#3	987.3812	28969.75	5656.539	862.2877	1732.317

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165197BL Acquired: 12/02/2024 17:16:25 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS197 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0023906	-.002672	-.002546	-.002083	-.000125	-.006526
Stddev	.0034252	.004145	.002964	.000953	.002717	.013606
%RSD	143.2781	155.1498	116.4207	45.74168	2172.561	208.4835
#1	.0011683	-.007204	-.005293	-.001410	.001120	.006710
#2	-.000256	.000927	.000596	-.001666	.001747	-.005813
#3	.006259	-.001738	-.002941	-.003173	-.003242	-.020475

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000749	.0000717	-.000170	-.011532	.0003039	-.000405
Stddev	.000080	.0000662	.000153	.011082	.0011253	.000106
%RSD	10.68126	92.28830	90.02695	96.09670	370.2159	26.28820
#1	-.000719	.0000118	-.000318	-.024304	.0012377	-.000385
#2	-.000839	.0001427	-.000179	-.005837	.0006196	-.000520
#3	-.000688	.0000606	-.000013	-.004456	-.000945	-.000310

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009519	.0012891	-.000033	.0117593	.0004498	.0008537
Stddev	.0013539	.0128891	.000353	.0023371	.0001311	.0003028
%RSD	142.2351	999.8290	1071.161	19.87458	29.13910	35.47496
#1	.0025051	-.000342	-.000371	.0130658	.0005627	.0008744
#2	.0000216	.014916	.000334	.0131511	.0004806	.0011456
#3	.0003289	-.010707	-.000062	.0090611	.0003061	.0005410

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.228249	.0026153	-.000013	-.167517	-.001780	-.006379
Stddev	.127547	.0006313	.000449	.123012	.002339	.001135
%RSD	55.88085	24.13908	3574.449	73.43282	131.4136	17.79279
#1	-.241413	.0019589	-.000467	-.025480	-.000716	-.007680
#2	-.094629	.0032181	.000432	-.237483	-.004463	-.005866
#3	-.348703	.0026689	-.000003	-.239588	-.000162	-.005592

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165197BL Acquired: 12/02/2024 17:16:25 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS197 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000076	.0042259	-.000292	-.002109	-.000282	F -.023330
Stddev	.000389	.0038713	.000534	.001030	.001638	.002541
%RSD	514.7704	91.60940	182.7817	48.81996	580.0909	10.89237
#1	-.000481	.0016713	-.000867	-.002513	.001342	-.020783
#2	.000295	.0086801	.000187	-.002876	-.000256	-.023341
#3	-.000040	.0023263	-.000195	-.000939	-.001933	-.025866

Elem	Sr4077
Units	ppm
Avg	.0000320
Stddev	.0000790
%RSD	247.2192
#1	.0001081
#2	.0000375
#3	-.000050

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	983.5579	29230.89	5649.792	872.3685	1788.566
Stddev	13.2771	84.65	18.199	4.1910	21.641
%RSD	1.349903	.2896046	.3221255	.4804140	1.209992
#1	988.6772	29305.81	5635.368	871.0056	1793.052
#2	993.5132	29139.05	5643.768	869.0286	1807.612
#3	968.4833	29247.80	5670.239	877.0713	1765.033

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165197BS Acquired: 12/02/2024 17:20:58 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS197 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0238385	.0492082	.0197568	.0624055	.1113609	.3929549
Stddev	.0080681	.0028627	.0038980	.0057998	.0006888	.0169638
%RSD	33.84496	5.817568	19.72969	9.293681	.6185426	4.316982
#1	.0249712	.0462259	.0215109	.0681159	.1115418	.4082257
#2	.0152639	.0519341	.0152900	.0565203	.1119412	.3959438
#3	.0312804	.0494645	.0224696	.0625801	.1105997	.3746953

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4401961	.0113252	.0109451	11.28251	.0244882	.1039493
Stddev	.0004980	.0000992	.0000301	.02298	.0010803	.0006886
%RSD	.1131218	.8763039	.2753638	.2036989	4.411401	.6624633
#1	.4407043	.0112117	.0109107	11.26954	.0235729	.1046337
#2	.4397091	.0113678	.0109573	11.30904	.0256798	.1039576
#3	.4401747	.0113959	.0109672	11.26894	.0242120	.1032565

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0531357	.2138043	.0365650	10.55550	.0892056	.0247023
Stddev	.0043275	.0059740	.0005221	.06446	.0003484	.0008316
%RSD	8.144262	2.794132	1.427983	.6106399	.3906191	3.366429
#1	.0508206	.2080481	.0360390	10.49625	.0893001	.0251016
#2	.0581283	.2133902	.0365728	10.62414	.0894971	.0252590
#3	.0504582	.2199745	.0370832	10.54612	.0888197	.0237464

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.84292	.1157953	.1383680	10.23829	.0185172	F -.006219
Stddev	.06561	.0023192	.0007453	.08380	.0034704	.000467
%RSD	.6051349	2.002835	.5386500	.8184928	18.74144	7.509301
#1	10.77062	.1177666	.1390291	10.31047	.0189963	-.005978
#2	10.89868	.1163794	.1385146	10.25800	.0148321	-.006757
#3	10.85948	.1132399	.1375603	10.14639	.0217231	-.005921

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165197BS Acquired: 12/02/2024 17:20:58 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS197 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0202290	.2071631	F .3255031	.0136002	.2119524	F .0099767
Stddev	.0002816	.0019488	.0010919	.0006079	.0007704	.0005827
%RSD	1.391975	.9407052	.3354592	4.469518	.3634591	5.840854
#1	.0204939	.2055172	.3267592	.0129929	.2117091	.0103050
#2	.0199333	.2093150	.3247798	.0142086	.2128150	.0093039
#3	.0202599	.2066573	.3249704	.0135991	.2113330	.0103213

Elem	Sr4077
Units	ppm
Avg	.2192874
Stddev	.0004209
%RSD	.1919328
#1	.2189558
#2	.2191454
#3	.2197609

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	990.9017	29081.52	5623.234	866.4250	1743.732
Stddev	1.3133	80.67	9.294	3.9640	1.184
%RSD	.1325408	.2773911	.1652763	.4575162	.0679228
#1	990.1551	29085.20	5616.889	861.9771	1744.872
#2	990.1318	28999.07	5618.911	867.7131	1743.817
#3	992.4181	29160.29	5633.902	869.5847	1742.507

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165139BL Acquired: 12/02/2024 17:25:28 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS139 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0027954	-.003822	-.000376	-.000961	-.001002	-.013711
Stddev	.0034554	.000494	.001104	.003205	.002282	.009864
%RSD	123.6122	12.93550	293.3556	333.5758	227.8147	71.94017
#1	-.000851	-.003634	-.001476	.001456	-.003081	-.003235
#2	.006022	-.004383	.000733	.000258	-.001363	-.022819
#3	.003215	-.003450	-.000386	-.004596	.001439	-.015079

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003372	-.000014	-.000083	.0010638	.0001712	-.000111
Stddev	.0010876	.000110	.000031	.0082793	.0005556	.000498
%RSD	322.5372	772.3389	36.82783	778.2862	324.5840	448.4159
#1	-.000901	.000080	-.000069	-.003350	-.000097	-.000484
#2	.001137	.000012	-.000062	.010615	.000810	.000454
#3	.000775	-.000135	-.000119	-.004073	-.000199	-.000302

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0025538	-.014005	-.000101	-.001818	.0002391	.0009273
Stddev	.0034512	.005380	.000471	.013000	.0007771	.0001959
%RSD	135.1418	38.41736	466.4985	715.1351	324.9566	21.12767
#1	.0064861	-.012095	-.000463	-.016228	.0002122	.0010351
#2	.0011473	-.009841	.000432	.009027	.0010294	.0007012
#3	.0000279	-.020080	-.000272	.001747	-.000524	.0010457

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3525470	-.003195	-.000195	-.118886	.0026051	-.007035
Stddev	.4116900	.004937	.000074	.051776	.0007756	.002261
%RSD	116.7760	154.4972	38.17865	43.55072	29.77321	32.13637
#1	.4892304	-.002189	-.000278	-.149544	.0020839	-.004561
#2	.6785108	.001161	-.000172	-.059107	.0022349	-.008993
#3	-.110100	-.008558	-.000135	-.148008	.0034965	-.007552

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165139BL Acquired: 12/02/2024 17:25:28 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS139 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000040	-.000423	-.000349	-.002433	.0005227	F -.021531
Stddev	.000526	.004985	.000162	.001002	.0014779	.001146
%RSD	1323.112	1179.743	46.53510	41.18222	282.7131	5.322102
#1	-.000258	-.005793	-.000512	-.001856	.0003583	-.022153
#2	-.000421	.000466	-.000348	-.003590	-.000866	-.022231
#3	.000560	.004059	-.000187	-.001852	.002076	-.020209

Elem	Sr4077
Units	ppm
Avg	.0000459
Stddev	.0001363
%RSD	296.7404
#1	.0001507
#2	-.000108
#3	.000095

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1004.721	29587.94	5616.494	883.3181	1850.180
Stddev	1.341	51.78	24.940	4.4303	1.263
%RSD	.1334533	.1749952	.4440460	.5015519	.0682895
#1	1004.633	29528.43	5639.050	880.4912	1849.234
#2	1006.104	29612.74	5620.721	888.4240	1851.615
#3	1003.427	29622.65	5589.711	881.0391	1849.691

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165139BS Acquired: 12/02/2024 17:30:01 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS139 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0217954	.0567151	.0185220	.0687504	.1131483	.4077386
Stddev	.0062617	.0016209	.0026793	.0070973	.0015613	.0111036
%RSD	28.72946	2.857929	14.46543	10.32336	1.379862	2.723219
#1	.0154325	.0553623	.0196026	.0735766	.1124462	.4108784
#2	.0279507	.0585117	.0154711	.0606011	.1149373	.3954032
#3	.0220030	.0562714	.0204922	.0720734	.1120613	.4169343

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4425886	.0116641	.0108942	11.33852	.0239897	.1052647
Stddev	.0004562	.0000229	.0001036	.01793	.0000827	.0007149
%RSD	.1030693	.1965647	.9512063	.1581143	.3448254	.6791239
#1	.4423503	.0116557	.0108427	11.35510	.0239468	.1052191
#2	.4423011	.0116466	.0110134	11.34095	.0239373	.1060012
#3	.4431146	.0116901	.0108263	11.31949	.0240851	.1045736

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0561789	.2216403	.0365663	10.79642	.0904701	.0240495
Stddev	.0019932	.0062471	.0005868	.11997	.0005678	.0001083
%RSD	3.547894	2.818576	1.604811	1.111172	.6276207	.4502489
#1	.0560620	.2286965	.0359608	10.66174	.0905728	.0241730
#2	.0582279	.2194102	.0366057	10.83569	.0909796	.0240051
#3	.0542467	.2168143	.0371324	10.89183	.0898580	.0239705

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.91122	.1200931	.1391187	10.21401	.0194536	F -.004456
Stddev	.47005	.0057215	.0002932	.15217	.0017818	.001144
%RSD	4.307943	4.764189	.2107459	1.489803	9.159274	25.66362
#1	11.01494	.1152727	.1393288	10.04591	.0204939	-.003647
#2	10.39797	.1185907	.1392434	10.34236	.0173962	-.003957
#3	11.32075	.1264159	.1387837	10.25375	.0204707	-.005764

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165139BS Acquired: 12/02/2024 17:30:01 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS139 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0205766	.2008947	F .3326834	.0132661	.2170062	F .0091482
Stddev	.0008079	.0078086	.0005128	.0011016	.0017071	.0010311
%RSD	3.926234	3.886926	.1541461	8.303719	.7866416	11.27107
#1	.0207657	.1921665	.3331071	.0135724	.2151310	.0087948
#2	.0212733	.2032993	.3328297	.0120437	.2174177	.0103096
#3	.0196910	.2072182	.3321133	.0141820	.2184699	.0083403

Elem	Sr4077
Units	ppm
Avg	.2227012
Stddev	.0005736
%RSD	.2575893
#1	.2220452
#2	.2231088
#3	.2229495

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	988.3481	29223.10	5642.005	873.5442	1757.736
Stddev	1.5257	18.96	31.392	1.3684	4.938
%RSD	.1543678	.0648878	.5563894	.1566503	.2809344
#1	988.0264	29201.21	5665.004	874.8257	1754.374
#2	987.0089	29234.69	5606.242	872.1029	1755.429
#3	990.0090	29233.39	5654.769	873.7039	1763.406

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165171BL Acquired: 12/02/2024 17:34:31 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS171 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0054415	.0031272	-.003665	.0024195	.0029007	.0049160
Stddev	.0030562	.0064586	.003915	.0090714	.0012812	.0049216
%RSD	56.16364	206.5306	106.8197	374.9265	44.16766	100.1132
#1	.0087347	-.002611	-.008185	-.007348	.0043535	.0010351
#2	.0048932	.010122	-.001378	.004028	.0019330	.0104517
#3	.0026966	.001871	-.001431	.010579	.0024154	.0032612

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000816	.0000961	-.000108	-.008669	.0004789	.0002330
Stddev	.000232	.0000583	.000089	.003223	.0009982	.0003383
%RSD	28.44045	60.70106	82.37820	37.17697	208.4210	145.2221
#1	-.000812	.0001248	-.000209	-.011552	.0010329	.0000724
#2	-.000586	.0001346	-.000050	-.009266	.0010773	.0006216
#3	-.001049	.0000290	-.000063	-.005190	-.000673	.0000048

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016689	-.003550	.0001872	-.005357	.0002780	.0006727
Stddev	.0010501	.006398	.0006462	.025546	.0005629	.0004203
%RSD	62.91906	180.2086	345.1247	476.9015	202.5187	62.47612
#1	.0011421	-.009171	-.000133	-.034784	.0002829	.0008994
#2	.0028781	.003411	.000931	.007581	.0008384	.0009310
#3	.0009865	-.004890	-.000236	.011133	-.000287	.0001878

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3248434	-.002231	-.000510	-.273427	-.001093	-.006612
Stddev	.2118105	.001851	.000750	.220327	.008007	.002038
%RSD	65.20387	82.95650	147.2613	80.57987	732.8294	30.81663
#1	.5448988	-.000790	-.001322	-.051171	.007927	-.005711
#2	.3072572	-.004319	-.000365	-.491774	-.007364	-.008945
#3	.1223743	-.001586	.000158	-.277337	-.003841	-.005181

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165171BL Acquired: 12/02/2024 17:34:31 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS171 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000022	.0033584	-.000469	-.001416	.0018288	F -.024054
Stddev	.000197	.0044150	.000498	.000958	.0006088	.001638
%RSD	914.0132	131.4631	106.2583	67.62060	33.29017	6.810502
#1	-.000154	-.000224	-.000002	-.002378	.0021279	-.022591
#2	.000205	.002008	-.000411	-.001408	.0022301	-.025824
#3	-.000116	.008291	-.000994	-.000463	.0011283	-.023746

Elem	Sr4077
Units	ppm
Avg	.0000040
Stddev	.0001050
%RSD	2607.097
#1	-.000115
#2	.000085
#3	.000042

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	985.1256	29349.16	5644.477	877.0609	1814.617
Stddev	13.3330	134.92	230.751	3.3298	24.126
%RSD	1.353435	.4597088	4.088083	.3796597	1.329534
#1	977.6606	29237.26	5541.457	878.3380	1801.481
#2	1000.519	29311.22	5908.793	873.2815	1842.460
#3	977.197	29498.98	5483.182	879.5631	1799.909

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165171BS Acquired: 12/02/2024 17:39:03 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS171 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0211864	.0542454	.0192693	.0666004	.1135897	.4466405
Stddev	.0021896	.0027329	.0037498	.0059005	.0028777	.0100191
%RSD	10.33490	5.037952	19.46009	8.859608	2.533406	2.243203
#1	.0235501	.0571293	.0235314	.0598095	.1155816	.4481775
#2	.0207814	.0539130	.0177993	.0704740	.1148969	.4359417
#3	.0192275	.0516940	.0164772	.0695177	.1102904	.4558022

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4392742	.0114972	.0110250	11.20980	.0247792	.1049058
Stddev	.0020036	.0001286	.0000266	.04195	.0011067	.0005505
%RSD	.4561050	1.118307	.2409583	.3742665	4.466405	.5247524
#1	.4370885	.0114189	.0110395	11.16336	.0239690	.1048995
#2	.4410237	.0116456	.0109943	11.24498	.0243284	.1043585
#3	.4397103	.0114272	.0110411	11.22106	.0260402	.1054594

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0548666	.2280424	.0361201	10.85195	.0899464	.0225484
Stddev	.0013506	.0028597	.0005242	.05615	.0008023	.0003692
%RSD	2.461537	1.254041	1.451129	.5173866	.8919759	1.637208
#1	.0560698	.2304328	.0355761	10.91152	.0906271	.0221376
#2	.0551244	.2288201	.0366218	10.84431	.0890618	.0226550
#3	.0534058	.2248742	.0361623	10.80001	.0901504	.0228525

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.97970	.1164797	.1386884	10.16643	.0184624	F -.006357
Stddev	.09972	.0057412	.0009754	.12894	.0020154	.000752
%RSD	.9081787	4.928927	.7032852	1.268319	10.91634	11.83696
#1	10.87626	.1100504	.1395142	10.05812	.0172891	-.005525
#2	10.98761	.1182945	.1376123	10.30906	.0207896	-.006989
#3	11.07522	.1210942	.1389386	10.13210	.0173085	-.006558

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165171BS Acquired: 12/02/2024 17:39:03 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS171 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0207135	.1985455	F .3346622	.0146301	.2202205	F .0065621
Stddev	.0004774	.0032070	.0007061	.0007466	.0013467	.0012117
%RSD	2.304665	1.615243	.2109769	5.103102	.6115398	18.46522
#1	.0207618	.2007191	.3338474	.0154915	.2205655	.0058888
#2	.0202137	.1948623	.3350456	.0142286	.2213612	.0058366
#3	.0211648	.2000551	.3350937	.0141701	.2187348	.0079610

Elem	Sr4077
Units	ppm
Avg	.2223722
Stddev	.0008383
%RSD	.3769925
#1	.2216258
#2	.2232792
#3	.2222117

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	989.0927	29445.86	5662.147	883.3980	1757.191
Stddev	5.6596	23.16	24.119	4.2285	11.875
%RSD	.5722024	.0786414	.4259696	.4786590	.6757821
#1	982.6290	29423.36	5680.674	878.5679	1744.647
#2	993.1590	29444.60	5634.875	886.4316	1768.259
#3	991.4902	29469.62	5670.891	885.1944	1758.666

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165167BL Acquired: 12/02/2024 17:43:33 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS167 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0044237	.0021160	-.001718	.0014755	-.002671	-.009664
Stddev	.0027810	.0020242	.000907	.0054469	.001798	.002116
%RSD	62.86503	95.66358	52.80989	369.1643	67.31363	21.89546
#1	.0013919	.0033724	-.000948	.0075748	-.003991	-.012011
#2	.0068560	-.000219	-.002718	-.002904	-.000623	-.007901
#3	.0050233	.003195	-.001487	-.000245	-.003398	-.009082

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001660	.0000148	-.000147	-.005937	.0000595	.0002363
Stddev	.000278	.0000641	.000041	.005097	.0007591	.0003830
%RSD	16.78174	432.7137	27.83347	85.86015	1274.961	162.0603
#1	-.001960	-.000052	-.000173	-.009521	-.000794	-.000132
#2	-.001607	.000076	-.000167	-.008189	.000657	.000208
#3	-.001411	.000021	-.000100	-.000101	.000316	.000633

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0005556	-.012157	.0005101	-.020937	.0005092	.0003684
Stddev	.0011483	.012942	.0003218	.007116	.0002359	.0002295
%RSD	206.6906	106.4557	63.08405	33.98626	46.33053	62.29674
#1	.0006429	.002577	.0008714	-.013204	.0006703	.0006099
#2	-.000634	-.021684	.0002542	-.027209	.0006189	.0001530
#3	.001658	-.017364	.0004047	-.022397	.0002384	.0003425

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3618545	.0006343	-.000486	-.253192	.0015117	-.006075
Stddev	.2226119	.0042218	.000622	.071512	.0023586	.001534
%RSD	61.51973	665.6391	127.8893	28.24404	156.0198	25.24685
#1	.4439109	.0049228	-.000328	-.282167	.0017970	-.007846
#2	.1098616	-.003517	.000041	-.305669	-.000977	-.005159
#3	.5317910	.000497	-.001172	-.171740	.003715	-.005220

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165167BL Acquired: 12/02/2024 17:43:33 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS167 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000260	.0066258	.0002346	-.001458	.0012408	F -.025309
Stddev	.000179	.0065934	.0002681	.000285	.0007309	.000530
%RSD	68.89524	99.51071	114.2776	19.51360	58.90824	2.095034
#1	-.000135	.0142128	-.000052	-.001618	.0004035	-.025191
#2	-.000465	.0022836	.000276	-.001130	.0017512	-.024848
#3	-.000180	.0033810	.000480	-.001627	.0015678	-.025889

Elem	Sr4077
Units	ppm
Avg	-.000062
Stddev	.000154
%RSD	248.7795
#1	.000096
#2	-.000212
#3	-.000070

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	998.3797	29565.69	5653.176	880.8740	1831.807
Stddev	4.5234	119.14	11.431	7.3015	3.168
%RSD	.4530709	.4029754	.2022039	.8288912	.1729696
#1	994.7045	29433.22	5644.661	872.9570	1829.711
#2	997.0033	29599.78	5648.700	887.3429	1830.258
#3	1003.431	29664.08	5666.168	882.3221	1835.452

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165167BS Acquired: 12/02/2024 17:48:05 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS167 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0256142	.0507393	.0187383	.0669316	.1150869	.3972109
Stddev	.0068714	.0028205	.0014656	.0105400	.0012125	.0078688
%RSD	26.82645	5.558847	7.821536	15.74742	1.053581	1.981007
#1	.0278669	.0495759	.0187251	.0644404	.1164818	.3914906
#2	.0178992	.0539555	.0202105	.0578603	.1144938	.3939575
#3	.0310764	.0486866	.0172793	.0784940	.1142851	.4061847

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4476521	.0115618	.0111267	11.48568	.0242909	.1068403
Stddev	.0077241	.0001438	.0002128	.18920	.0008169	.0002042
%RSD	1.725469	1.243658	1.912461	1.647302	3.362812	.1911463
#1	.4490661	.0116099	.0108840	11.54382	.0239234	.1069934
#2	.4393186	.0114002	.0112813	11.27423	.0252269	.1069192
#3	.4545715	.0116755	.0112149	11.63899	.0237222	.1066085

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0575504	.2222316	.0376266	10.91263	.0911214	.0229991
Stddev	.0008170	.0136003	.0008683	.16411	.0004959	.0010452
%RSD	1.419577	6.119876	2.307646	1.503853	.5442602	4.544707
#1	.0575471	.2211342	.0378973	10.97440	.0916926	.0219649
#2	.0567351	.2092133	.0366552	10.72660	.0908010	.0229775
#3	.0583690	.2363474	.0383273	11.03690	.0908704	.0240550

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.40736	.1228034	.1405954	10.36051	.0182698	F -.005974
Stddev	.43264	.0010072	.0009448	.29685	.0028696	.001880
%RSD	3.792654	.8202127	.6719914	2.865236	15.70698	31.46162
#1	11.86696	.1239213	.1396921	10.52970	.0196337	-.005750
#2	11.00799	.1225225	.1415769	10.01774	.0202031	-.007955
#3	11.34712	.1219664	.1405171	10.53409	.0149726	-.004216

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165167BS Acquired: 12/02/2024 17:48:05 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS167 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0207674	.2118097	F .3356850	.0127808	.2204205	F .0051323
Stddev	.0005855	.0059556	.0058537	.0021735	.0049408	.0014860
%RSD	2.819425	2.811750	1.743798	17.00639	2.241539	28.95409
#1	.0211276	.2175255	.3370104	.0151803	.2211159	.0034484
#2	.0210829	.2122632	.3292823	.0109438	.2151688	.0056886
#3	.0200918	.2056403	.3407623	.0122182	.2249768	.0062598

Elem	Sr4077
Units	ppm
Avg	.2259732
Stddev	.0037015
%RSD	1.638022
#1	.2266133
#2	.2219935
#3	.2293129

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	994.2871	29427.80	5712.508	880.9428	1758.283
Stddev	2.5555	41.56	71.076	.8493	3.023
%RSD	.2570188	.1412151	1.244215	.0964108	.1719048
#1	991.8963	29474.01	5689.373	881.6235	1754.832
#2	993.9846	29393.50	5792.269	879.9910	1760.458
#3	996.9804	29415.90	5655.882	881.2138	1759.559

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165169BL Acquired: 12/02/2024 17:52:35 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS169 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0058743	-.002530	-.003280	-.001607	-.001632	.0035061
Stddev	.0024653	.001498	.002465	.006197	.000602	.0121858
%RSD	41.96758	59.21806	75.13471	385.6012	36.87527	347.5576
#1	.0060669	-.001289	-.000493	.004323	-.002142	-.010558
#2	.0033184	-.004195	-.004175	-.008040	-.001787	.010918
#3	.0082377	-.002107	-.005172	-.001105	-.000968	.010159

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000773	.0000845	-.000099	-.009496	-.000699	-.000242
Stddev	.000317	.0000813	.000121	.004258	.000146	.000244
%RSD	41.04567	96.25279	122.3007	44.84068	20.91287	100.7641
#1	-.001014	.0001558	.000026	-.006477	-.000841	-.000012
#2	-.000413	-.000004	-.000107	-.014367	-.000549	-.000498
#3	-.000890	.000102	-.000217	-.007645	-.000708	-.000217

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0018422	-.012077	.0003111	.0067147	.0002069	.0004842
Stddev	.0014066	.015484	.0003406	.0375820	.0003901	.0003856
%RSD	76.35334	128.2033	109.4717	559.7015	188.5127	79.63440
#1	.0033427	.003817	.0002692	.0095439	.0005308	.0000947
#2	.0016303	-.027115	.0006707	.0428020	.0003160	.0008657
#3	.0005536	-.012934	-.000007	-.032202	-.000226	.0004921

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4104366	-.006135	-.000122	-.353905	-.000206	-.008321
Stddev	.1383811	.002327	.000671	.076901	.001393	.002958
%RSD	33.71558	37.92983	550.5333	21.72929	675.0743	35.54638
#1	.2798527	-.003777	-.000142	-.431407	.001029	-.005045
#2	.3959778	-.008430	-.000782	-.277619	-.001715	-.010795
#3	.5554795	-.006197	.000559	-.352689	.000067	-.009123

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165169BL Acquired: 12/02/2024 17:52:35 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS169 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000016	.0045933	.0000744	-.001554	-.000395	F -.027467
Stddev	.000461	.0043374	.0001986	.002776	.000874	.000813
%RSD	2862.085	94.43032	266.8248	178.5547	221.3844	2.959781
#1	.000474	.0001071	-.000064	-.004646	-.000966	-.026736
#2	-.000081	.0049079	.000302	-.000741	.000611	-.028343
#3	-.000441	.0087648	-.000014	.000724	-.000830	-.027324

Elem	Sr4077
Units	ppm
Avg	.0000837
Stddev	.0000600
%RSD	71.67258
#1	.0000670
#2	.0001503
#3	.0000339

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	997.3002	29556.31	5648.746	878.6168	1821.374
Stddev	4.7903	73.56	23.812	3.7330	11.363
%RSD	.4803250	.2488679	.4215511	.4248719	.6238674
#1	998.2578	29565.49	5622.371	874.6014	1825.931
#2	1001.539	29478.59	5668.664	881.9819	1829.750
#3	992.103	29624.84	5655.204	879.2673	1808.440

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165169BSRE Acquired: 12/02/2024 17:57:06 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS169 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0211086	.0584183	.0201127	.0729307	.1166110	.4182289
Stddev	.0041474	.0038665	.0027717	.0047802	.0020027	.0183254
%RSD	19.64796	6.618713	13.78072	6.554508	1.717452	4.381668
#1	.0170534	.0539904	.0220703	.0753123	.1188431	.4143527
#2	.0209299	.0601368	.0169412	.0760523	.1160186	.4021516
#3	.0253424	.0611278	.0213265	.0674275	.1149712	.4381823

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4481122	.0115350	.0112846	11.44014	.0240765	.1076290
Stddev	.0078275	.0002505	.0000883	.16989	.0007836	.0009191
%RSD	1.746769	2.171329	.7824100	1.485034	3.254426	.8539696
#1	.4530660	.0117593	.0112397	11.52373	.0238732	.1073627
#2	.4390883	.0112648	.0113863	11.24465	.0234147	.1086518
#3	.4521825	.0115809	.0112277	11.55205	.0249417	.1068724

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0547808	.2192352	.0377897	10.79265	.0921635	.0240816
Stddev	.0017308	.0131813	.0000833	.20397	.0006651	.0006332
%RSD	3.159423	6.012405	.2205182	1.889939	.7216091	2.629272
#1	.0534536	.2134139	.0377863	10.83442	.0929254	.0243419
#2	.0541503	.2099667	.0377081	10.57102	.0916993	.0233597
#3	.0567384	.2343250	.0378747	10.97251	.0918658	.0245431

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.23749	.1182244	F .1704911	10.36178	.0200717	F -.006290
Stddev	.05399	.0012349	.0018799	.33776	.0057906	.000393
%RSD	.4804753	1.044511	1.102620	3.259626	28.84964	6.249230
#1	11.29166	.1168135	.1716284	10.63403	.0158040	-.006726
#2	11.23713	.1187507	.1715236	9.98381	.0177478	-.006182
#3	11.18367	.1191089	.1683212	10.46750	.0266632	-.005963

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165169BSRE Acquired: 12/02/2024 17:57:06 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS169 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0212608	.2094811	F .3334768	.0146033	.2196613	F .0042850
Stddev	.0000594	.0091429	.0019818	.0014045	.0038931	.0008957
%RSD	.2794493	4.364547	.5942738	9.617703	1.772331	20.90300
#1	.0212796	.2168119	.3330360	.0130138	.2211456	.0053156
#2	.0213085	.2123949	.3317525	.0151193	.2152444	.0036945
#3	.0211943	.1992364	.3356419	.0156768	.2225939	.0038449

Elem	Sr4077
Units	ppm
Avg	.2241874
Stddev	.0039619
%RSD	1.767209
#1	.2260374
#2	.2196389
#3	.2268859

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	990.6531	29224.00	5713.854	875.4792	1741.788
Stddev	3.1406	39.36	59.493	3.7308	5.949
%RSD	.3170212	.1346681	1.041198	.4261479	.3415425
#1	987.3017	29183.76	5679.366	876.0956	1736.462
#2	991.1293	29225.82	5782.550	871.4785	1740.694
#3	993.5285	29262.41	5679.646	878.8634	1748.208

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4939-10 Acquired: 12/02/2024 18:01:37 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHHW8 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1422919	-.012503	3.836556	-.014117	.0010922	70.53333	1.178644
Stddev	.0042168	.001373	.025553	.004493	.0012210	.13854	.002744
%RSD	2.963489	10.97814	.6660358	31.82306	111.7942	.1964184	.2328191
#1	.1445857	-.012967	3.856344	-.010160	.0024408	70.46346	1.177521
#2	.1374254	-.010959	3.845617	-.013190	.0000619	70.69289	1.181771
#3	.1448645	-.013584	3.807708	-.019001	.0007738	70.44364	1.176639

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0053365	.0197185	278.2339	.1349042	.1378730	.4866050	192.8133
Stddev	.0000970	.0001323	.5521	.0008755	.0012681	.0005554	.1305
%RSD	1.816939	.6709624	.1984339	.6490029	.9197751	.1141477	.0676727
#1	.0054471	.0198712	277.7466	.1341308	.1393343	.4861154	192.8042
#2	.0052663	.0196468	278.8335	.1358548	.1370621	.4864910	192.9481
#3	.0052959	.0196376	278.1216	.1347270	.1372224	.4872087	192.6876

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.60659	61.19184	.2493655	-.013322	1.992900	.1862987	1.594932
Stddev	.02723	.18612	.0025000	.000192	.080700	.0030328	.003345
%RSD	.2567134	.3041639	1.002539	1.444918	4.049395	1.627932	.2097179
#1	10.58362	61.22535	.2515420	-.013479	2.072380	.1831972	1.598003
#2	10.63667	61.35893	.2499196	-.013380	1.911032	.1892578	1.595425
#3	10.59947	60.99124	.2466350	-.013108	1.995289	.1864412	1.591368

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.995729	8.778076	.0351553	.0028108	2.956060	5.438023	.3456239
Stddev	.018559	.050727	.0035459	.0002503	.001242	.019672	.0045546
%RSD	.2321115	.5778875	10.08636	8.904200	.0420200	.3617576	1.317799
#1	8.005731	8.805028	.0374917	.0030560	2.955998	5.433112	.3494731
#2	8.007142	8.809638	.0368990	.0025557	2.957333	5.459686	.3468028
#3	7.974315	8.719561	.0310752	.0028207	2.954851	5.421272	.3405957

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4939-10 Acquired: 12/02/2024 18:01:37 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHHW8 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.277082	.0768879	.3726768
Stddev	.002441	.0003731	.0007623
%RSD	.1911658	.4853032	.2045372
#1	1.275865	.0773184	.3724615
#2	1.279893	.0766864	.3735236
#3	1.275488	.0766588	.3720454

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1112.184	33468.24	6790.095	978.4989	1523.236
Stddev	6.124	60.06	25.740	2.2911	9.707
%RSD	.5506235	.1794644	.3790783	.2341451	.6372318
#1	1107.055	33534.77	6804.361	978.3313	1516.545
#2	1110.533	33418.02	6760.381	976.2961	1518.793
#3	1118.964	33451.92	6805.543	980.8691	1534.368

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4939-11 Acquired: 12/02/2024 18:18:40 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHHW8D Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1428243	-.010869	3.825120	-.020292	.0017331	70.59770	1.186672
Stddev	.0129576	.006718	.069442	.001384	.0033977	.10717	.005133
%RSD	9.072424	61.80702	1.815425	6.818931	196.0402	.1518085	.4325615
#1	.1404540	-.005887	3.745270	-.021397	-.000397	70.71413	1.191462
#2	.1568034	-.008211	3.871382	-.018740	.005651	70.50316	1.181254
#3	.1312154	-.018509	3.858710	-.020739	-.000055	70.57582	1.187299

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0053538	.0196413	279.0816	.1349029	.1376909	.4859157	192.0791
Stddev	.0001247	.0006499	1.1691	.0007473	.0023666	.0018262	.1882
%RSD	2.328827	3.308835	.4189131	.5539457	1.718753	.3758191	.0979992
#1	.0054975	.0188932	279.3152	.1354871	.1351060	.4869547	192.2927
#2	.0052897	.0199639	277.8134	.1340608	.1397509	.4838071	191.9376
#3	.0052742	.0200667	280.1164	.1351607	.1382160	.4869852	192.0071

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.65840	60.89189	.2501317	-.012923	2.005563	.1926933	1.584304
Stddev	.04858	.16022	.0044812	.000239	.113005	.0029199	.007768
%RSD	.4558251	.2631302	1.791553	1.853036	5.634581	1.515317	.4902811
#1	10.66117	61.06975	.2449869	-.012728	2.073888	.1931672	1.581121
#2	10.60849	60.84709	.2522253	-.012850	1.875125	.1895655	1.593157
#3	10.70554	60.75884	.2531830	-.013190	2.067675	.1953474	1.578634

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.147773	8.744520	.0378610	.0029439	2.968259	5.379787	.3485247
Stddev	.059064	.163552	.0013875	.0002806	.063199	.025323	.0063843
%RSD	.7249127	1.870336	3.664801	9.532734	2.129149	.4707096	1.831803
#1	8.212836	8.556397	.0364483	.0029970	2.897015	5.364457	.3422216
#2	8.097530	8.852957	.0392219	.0031943	2.990198	5.365889	.3549872
#3	8.132954	8.824205	.0379127	.0026406	3.017565	5.409016	.3483653

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4939-11 Acquired: 12/02/2024 18:18:40 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHHW8D Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.272213	.0852041	.3732008
Stddev	.004613	.0003271	.0009688
%RSD	.3625789	.3838691	.2595948
#1	1.277395	.0854078	.3742694
#2	1.268555	.0848268	.3723798
#3	1.270688	.0853775	.3729533

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1113.187	33246.10	6800.995	980.4138	1522.539
Stddev	8.595	66.98	27.132	3.2230	22.655
%RSD	.7721000	.2014612	.3989356	.3287370	1.487974
#1	1123.073	33182.48	6814.867	979.6778	1548.577
#2	1109.001	33239.85	6818.385	977.6224	1507.338
#3	1107.487	33315.99	6769.732	983.9411	1511.703

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4939-10LX5 Acquired: 12/02/2024 18:23:03 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHHW8L Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0308194	.0018742	.8017881	-.005384	.0015090	16.42751	.2788744
Stddev	.0029609	.0027305	.0018735	.011671	.0012539	.04336	.0009246
%RSD	9.607316	145.6875	.2336636	216.7774	83.09573	.2639529	.3315602
#1	.0342377	-.000398	.8033258	.007989	.0014160	16.46770	.2799011
#2	.0290491	.001118	.7997015	-.013511	.0003042	16.43326	.2786148
#3	.0291715	.004903	.8023372	-.010629	.0028068	16.38155	.2781074

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0013078	.0035093	66.74340	.0323738	.0264185	.1123997	46.53984
Stddev	.0000518	.0001244	.06935	.0005361	.0006469	.0023298	.15712
%RSD	3.957614	3.545545	.1038997	1.656056	2.448602	2.072756	.3375928
#1	.0013060	.0033707	66.82050	.0321665	.0262557	.1097110	46.68290
#2	.0013605	.0036114	66.72358	.0319723	.0271313	.1136669	46.37169
#3	.0012570	.0035457	66.68612	.0329827	.0258687	.1138213	46.56491

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.607237	14.39973	.0517273	-.001290	.6090465	.0503048	.3858296
Stddev	.001558	.08708	.0012262	.000480	.4476351	.0070680	.0035614
%RSD	.0597377	.6047318	2.370519	37.20475	73.49769	14.05034	.9230620
#1	2.608929	14.48979	.0504780	-.000773	1.102534	.0427163	.3894323
#2	2.606917	14.39343	.0529290	-.001722	.229149	.0567005	.3857458
#3	2.605863	14.31597	.0517748	-.001376	.495457	.0514977	.3823108

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.752018	1.741244	.0052284	.0001367	.5912869	1.331744	.0688464
Stddev	.002711	.014479	.0003420	.0005860	.0095567	.002902	.0029785
%RSD	.1547585	.8315429	6.541897	428.6602	1.616259	.2179152	4.326268
#1	1.749225	1.728097	.0049115	-.000215	.5803614	1.330179	.0667804
#2	1.754640	1.756762	.0055910	.000813	.5980932	1.335093	.0722606
#3	1.752188	1.738872	.0051827	-.000189	.5954063	1.329960	.0674982

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4939-10LX5 Acquired: 12/02/2024 18:23:03 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHHW8L Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.3019905	.0029708	.0884407
Stddev	.0009376	.0002147	.0002698
%RSD	.3104715	7.227399	.3050210
#1	.3025835	.0027579	.0887466
#2	.3024783	.0029673	.0882369
#3	.3009095	.0031873	.0883386

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1023.277	30254.36	5933.959	895.7901	1684.584
Stddev	5.746	98.90	26.656	7.6014	11.270
%RSD	.5615001	.3269089	.4492194	.8485706	.6690074
#1	1027.509	30142.16	5908.782	887.5350	1693.914
#2	1016.736	30328.88	5931.214	897.3348	1672.062
#3	1025.588	30292.06	5961.882	902.5005	1687.775

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4939-12 Acquired: 12/02/2024 18:27:30 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHHW8S Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2233597	.0785530	3.910703	.1396785	.1580005	72.15838	4.651782
Stddev	.0069856	.0013992	.061919	.0019880	.0061101	2.02698	.131922
%RSD	3.127487	1.781204	1.583333	1.423242	3.867141	2.809078	2.835937
#1	.2186997	.0801627	3.839964	.1419280	.1516694	73.24886	4.718648
#2	.2313916	.0778672	3.955071	.1381576	.1638626	73.40669	4.736881
#3	.2199879	.0776289	3.937075	.1389500	.1584695	69.81959	4.499816

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0871852	.1229883	272.2556	.5011211	1.169065	.8727647	188.9566
Stddev	.0017205	.0020562	7.3603	.0019448	.020955	.0276297	4.9263
%RSD	1.973368	1.671828	2.703441	.3880995	1.792482	3.165770	2.607097
#1	.0880329	.1206387	275.8234	.5033011	1.145522	.8847045	191.5479
#2	.0883174	.1244583	277.1520	.4995639	1.185675	.8924167	192.0464
#3	.0852054	.1238681	263.7913	.5004982	1.175998	.8411729	183.2755

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.26077	59.28739	1.286953	.0710137	1.909745	1.070106	2.306292
Stddev	.30657	1.59508	.019630	.0005413	.253583	.022111	.013354
%RSD	2.722443	2.690428	1.525278	.7622268	13.27839	2.066207	.5790277
#1	11.41184	60.20378	1.265733	.0713029	2.018020	1.082597	2.315442
#2	11.46249	60.21283	1.304464	.0703893	2.091217	1.083144	2.312466
#3	10.90799	57.44555	1.290661	.0713491	1.619998	1.044577	2.290968

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.835525	8.859688	.0303806	.0017293	3.027680	5.350905	.3497913
Stddev	.301948	.140257	.0053736	.0005025	.053515	.090990	.0064196
%RSD	3.853580	1.583090	17.68768	29.05986	1.767531	1.700455	1.835268
#1	7.978071	8.701339	.0319080	.0022967	2.969566	5.406866	.3427062
#2	8.039812	8.968294	.0348253	.0015512	3.074929	5.399935	.3552213
#3	7.488692	8.909430	.0244087	.0013402	3.038543	5.245916	.3514465

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4939-12 Acquired: 12/02/2024 18:27:30 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHHW8S Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.246210	.0779980	.3648605
Stddev	.031877	.0032939	.0102466
%RSD	2.557945	4.223101	2.808357
#1	1.259328	.0794496	.3701763
#2	1.269435	.0803168	.3713567
#3	1.209866	.0742276	.3530484

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1098.002	33203.84	6859.127	971.0600	1493.946
Stddev	10.197	159.91	132.752	8.5038	19.948
%RSD	.9286787	.4815861	1.935407	.8757187	1.335244
#1	1108.415	33031.76	6785.914	968.0128	1515.635
#2	1088.035	33231.93	6779.101	964.4997	1476.386
#3	1097.556	33347.85	7012.365	980.6675	1489.816

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4933-20 Acquired: 12/02/2024 18:31:48 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHHX4 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1596951	-.003667	8.229097	-.004280	.0073362	62.10957
Stddev	.0034412	.003469	.074784	.010453	.0024940	.46208
%RSD	2.154841	94.59815	.9087750	244.2241	33.99545	.7439778
#1	.1591294	.000307	8.244396	-.012064	.0075635	62.37434
#2	.1633840	-.005222	8.295049	.007601	.0047364	62.37835
#3	.1565718	-.006086	8.147847	-.008378	.0097088	61.57601

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.192766	.0048372	.0169028	38.24252	.2051198	.1084252
Stddev	.017522	.0002105	.0002737	.24458	.0007481	.0012044
%RSD	.7990858	4.352480	1.619415	.6395541	.3647351	1.110827
#1	2.201420	.0048762	.0165970	38.37570	.2058379	.1094200
#2	2.204277	.0050254	.0171250	38.39162	.2043448	.1087695
#3	2.172600	.0046098	.0169863	37.96025	.2051768	.1070861

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5867728	160.0677	14.10635	14.53730	.2276946	-.008972
Stddev	.0034699	1.2538	.10788	.07606	.0025116	.000230
%RSD	.5913523	.7832790	.7647302	.5232213	1.103068	2.567220
#1	.5871634	160.7762	14.16091	14.55482	.2280201	-.009181
#2	.5900309	160.8067	14.17604	14.60307	.2300276	-.009011
#3	.5831241	158.6200	13.98209	14.45401	.2250360	-.008725

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.517484	.1867080	2.353887	7.490690	F 14.68206	.0258278
Stddev	.028487	.0003021	.015842	.095303	.11798	.0027323
%RSD	1.877227	.1617874	.6730315	1.272289	.8035508	10.57893
#1	1.487446	.1870416	2.371516	7.382916	14.68092	.0281639
#2	1.520894	.1864530	2.349299	7.563848	14.80060	.0264963
#3	1.544112	.1866295	2.340844	7.525306	14.56465	.0228233

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4933-20 Acquired: 12/02/2024 18:31:48 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MBHHX4 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0125623	3.604401	5.874896	.3664152	1.320512	.0451842
Stddev	.0006501	.029211	.020732	.0024357	.010257	.0019075
%RSD	5.174712	.8104239	.3528983	.6647378	.7767374	4.221493
#1	.0118136	3.604280	5.878435	.3656994	1.323459	.0452823
#2	.0129836	3.633673	5.893630	.3691285	1.328973	.0470407
#3	.0128895	3.575251	5.852621	.3644175	1.309104	.0432296

Elem	Sr4077
Units	ppm
Avg	.1613661
Stddev	.0012287
%RSD	.7614497
#1	.1619674
#2	.1621783
#3	.1599525

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1149.022	34351.92	6797.194	1002.869	1667.829
Stddev	6.136	106.22	28.860	8.305	12.343
%RSD	.5340556	.3092226	.4245825	.8281224	.7400685
#1	1146.848	34231.27	6767.754	993.379	1665.274
#2	1144.269	34431.40	6798.392	1006.419	1656.964
#3	1155.950	34393.07	6825.436	1008.809	1681.250

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: CCV072 Acquired: 12/02/2024 18:40:49 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV072 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.428099	4.880174	24.91362	4.785274	4.642085	390.7166
Stddev	.053436	.033449	.15928	.025232	.028990	2.0354
%RSD	.9844321	.6853995	.6393165	.5272897	.6245041	.5209350
#1	5.489714	4.917835	25.09002	4.801609	4.643459	388.4346
#2	5.394459	4.853926	24.78034	4.756213	4.612432	391.3708
#3	5.400123	4.868760	24.87049	4.798001	4.670364	392.3444

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.02008	.4876336	2.639594	401.3631	15.08986	2.503323
Stddev	.10172	.0034860	.018717	2.4605	.54905	.015770
%RSD	1.015195	.7148802	.7090854	.6130368	3.638565	.6299810
#1	10.13040	.4899432	2.658147	404.1811	14.85626	2.516287
#2	9.99986	.4893338	2.620718	400.2674	15.71708	2.485766
#3	9.92999	.4836237	2.639918	399.6407	14.69623	2.507917

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.53854	396.7179	14.69380	410.5356	2.484223	1.251352
Stddev	.08574	2.8293	.08042	2.1386	.015094	.048974
%RSD	.5897298	.7131669	.5472972	.5209373	.6075774	3.913701
#1	14.63497	399.9354	14.78620	412.9889	2.498273	1.229135
#2	14.50978	395.5994	14.65560	409.5535	2.468267	1.307497
#3	14.47089	394.6189	14.63960	409.0645	2.486130	1.217424

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	391.9384	2.442577	14.08142	150.3260	4.747622	F 3.958282
Stddev	2.7169	.015155	.62266	.9640	.030032	.028767
%RSD	.6931875	.6204518	4.421848	.6412977	.6325615	.7267627
#1	395.0543	2.458693	13.77317	151.4302	4.778255	3.984359
#2	390.6966	2.428613	14.79807	149.8962	4.718230	3.963065
#3	390.0644	2.440425	13.67301	149.6516	4.746379	3.927423

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: CCV072 Acquired: 12/02/2024 18:40:49 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV072 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.702079	4.939255	F 3.317957	5.012079	4.888440	4.800623
Stddev	.033613	.024726	.015895	.028178	.029870	.024200
%RSD	.7148638	.5006054	.4790466	.5621993	.6110283	.5041011
#1	4.719068	4.961710	3.325812	5.041567	4.921675	4.827770
#2	4.663362	4.912756	3.328396	4.985425	4.879808	4.792787
#3	4.723807	4.943299	3.299665	5.009247	4.863836	4.781313

Elem	Sr4077
Units	ppm
Avg	4.934318
Stddev	.018899
%RSD	.3830070
#1	4.951896
#2	4.936729
#3	4.914330

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	808.9219	25967.47	5414.979	672.9847	1306.044
Stddev	3.5577	845.03	17.725	27.1402	7.617
%RSD	.4398071	3.254184	.3273300	4.032810	.5831996
#1	806.0960	26342.02	5394.516	685.7292	1297.563
#2	812.9171	24999.90	5424.890	641.8178	1312.302
#3	807.7526	26560.48	5425.532	691.4070	1308.265

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: CCB072 Acquired: 12/02/2024 18:45:28 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB072 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0037454	.0021896	-.002656	.0019967	.0029620	.1040408	.0007174
Stddev	.0070212	.0024775	.004856	.0008079	.0016866	.0164480	.0003640
%RSD	187.4633	113.1462	182.8159	40.46083	56.94117	15.80922	50.74314
#1	.0117929	-.000648	-.001668	.0023924	.0044578	.0851914	.0011038
#2	-.001130	.003925	-.007930	.0010673	.0032942	.1114497	.0003809
#3	.000573	.003291	.001629	.0025304	.0011340	.1154812	.0006674

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000091	-.000111	-.003254	-.000238	-.000009	.0022855	-.000111
Stddev	.000058	.000098	.010513	.001059	.000540	.0007945	.013020
%RSD	63.92353	88.86303	323.0267	445.8044	5839.859	34.76179	11767.99
#1	-.000141	-.000128	-.014086	-.000670	.000490	.0028189	-.010309
#2	-.000104	-.000005	-.002583	.000969	-.000582	.0013724	-.004578
#3	-.000027	-.000199	.006907	-.001012	.000064	.0026650	.014555

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0011243	-.007415	.0006571	.0009063	.2811537	-.002165	.0010026
Stddev	.0006585	.000382	.0006855	.0012709	.3832059	.003318	.0002551
%RSD	58.56655	5.150665	104.3210	140.2380	136.2976	153.2925	25.44424
#1	.0013218	-.007273	.0002436	.0012986	-.047380	-.005950	.0008993
#2	.0016615	-.007848	.0002793	-.000515	.188718	.000242	.0008154
#3	.0003897	-.007125	.0014483	.001935	.702123	-.000786	.0012932

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1069722	.0020827	.0024745	-.000121	.0017032	.0004412	-.000791
Stddev	.1524184	.0040691	.0005319	.000692	.0011013	.0004643	.001737
%RSD	142.4841	195.3785	21.49672	574.4482	64.66024	105.2362	219.5619
#1	-.062030	.0059087	.0030791	-.000303	.0025360	-.000082	.001112
#2	.234019	-.002192	.0020786	.000645	.0004545	.000803	-.001195
#3	.148928	.002532	.0022657	-.000703	.0021190	.000604	-.002291

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: CCB072 Acquired: 12/02/2024 18:45:28 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB072 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000372	-.000660	.0001229
Stddev	.000852	.000835	.0000430
%RSD	228.6558	126.4333	34.96648
#1	-.000676	-.000701	.0001164
#2	.000589	.000194	.0000835
#3	-.001031	-.001474	.0001687

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1002.890	29646.22	5478.954	880.6765	1840.370
Stddev	2.835	519.65	88.840	10.5927	5.256
%RSD	.2827271	1.752837	1.621474	1.202794	.2856058
#1	1003.970	29488.84	5508.507	874.2760	1842.638
#2	1005.028	30226.37	5379.104	892.9035	1844.111
#3	999.674	29223.45	5549.250	874.8501	1834.360

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4917-03 Acquired: 12/02/2024 18:50:00 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MX1009 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6175292	.6292024	.5620538	.3121504	.2218987	2.403097	.8517112
Stddev	.0081004	.0087748	.0028592	.0050339	.0040938	.011753	.0048622
%RSD	1.311744	1.394588	.5087144	1.612661	1.844876	.4890860	.5708705
#1	.6268223	.6381347	.5589071	.3070213	.2198839	2.411833	.8548314
#2	.6119633	.6288785	.5627618	.3123465	.2192029	2.389734	.8461089
#3	.6138020	.6205941	.5644925	.3170834	.2266094	2.407723	.8541933

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4164189	.2537214	-.002901	.3709745	.1164784	.1605269	.7898155
Stddev	.0017269	.0005841	.014722	.0050409	.0004014	.0016407	.0269659
%RSD	.4147032	.2302013	507.5755	1.358836	.3445776	1.022072	3.414201
#1	.4172663	.2541587	.013185	.3745468	.1169057	.1609978	.7591329
#2	.4175584	.2530581	-.015706	.3731683	.1161094	.1587022	.8097494
#3	.4144320	.2539474	-.006181	.3652084	.1164201	.1618807	.8005642

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4236234	-.008786	1.534871	.6131900	.4443254	.4112683	.3435506
Stddev	.0012618	.041542	.002593	.0104627	.1215734	.0023839	.0068304
%RSD	.2978497	472.8367	.1689159	1.706269	27.36135	.5796556	1.988169
#1	.4240616	-.055502	1.536946	.6174757	.4730424	.4129216	.3445634
#2	.4222010	.024005	1.531965	.6208293	.3109644	.4085355	.3498180
#3	.4246076	.005140	1.535704	.6012649	.5489694	.4123476	.3362704

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.627612	-.000356	1.618613	.4723189	.0061240	.0470853	.0001217
Stddev	.099546	.004495	.014175	.0005196	.0030961	.0004806	.0021674
%RSD	15.86102	1262.347	.8757495	.1100097	50.55630	1.020688	1780.924
#1	-.589728	.004542	1.627518	.4724583	.0067497	.0473591	-.001740
#2	-.552570	-.001320	1.626053	.4717438	.0088594	.0473663	-.000397
#3	-.740537	-.004291	1.602267	.4727546	.0027629	.0465303	.002501

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4917-03 Acquired: 12/02/2024 18:50:00 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MX1009 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0006295	-.018866	.3836942
Stddev	.0020117	.000610	.0015912
%RSD	319.5583	3.235812	.4147073
#1	.0029439	-.018825	.3851891
#2	-.000699	-.018277	.3820216
#3	-.000356	-.019496	.3838720

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1015.065	30323.03	5724.379	900.3319	1857.416
Stddev	2.220	390.32	11.293	11.2692	4.544
%RSD	.2187300	1.287193	.1972819	1.251675	.2446663
#1	1013.514	30126.36	5711.958	897.6114	1854.538
#2	1017.608	30070.17	5734.027	890.6719	1862.655
#3	1014.072	30772.56	5727.153	912.7123	1855.055

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4917-01 Acquired: 12/02/2024 18:54:25 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MX1007 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.272203	2.335626	1.974357	1.051109	.6306557	73.67065
Stddev	.021038	.017541	.004729	.006099	.0034288	.05688
%RSD	.9259072	.7510181	.2395010	.5802072	.5436925	.0772047
#1	2.249044	2.337275	1.976024	1.048776	.6305205	73.69013
#2	2.277428	2.317319	1.969020	1.058030	.6341501	73.71523
#3	2.290135	2.352284	1.978026	1.046522	.6272964	73.60659

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.497357	F 1.983624	1.430332	66.33510	3.139273	2.269584
Stddev	.016471	.004856	.003517	.20771	.002364	.004432
%RSD	.3662414	.2448062	.2458757	.3131258	.0752892	.1952594
#1	4.506271	1.981064	1.428538	66.51964	3.141802	2.265581
#2	4.507450	1.980583	1.428074	66.37551	3.137119	2.268826
#3	4.478350	1.989224	1.434384	66.11015	3.138899	2.274346

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.434984	93.53656	5.201417	21.19554	1.492100	.5740294
Stddev	.001737	.17338	.020216	.11313	.003008	.0010559
%RSD	.1210768	.1853637	.3886611	.5337464	.2015634	.1839510
#1	1.435979	93.45092	5.219368	21.21470	1.488894	.5751713
#2	1.432978	93.73610	5.205366	21.29787	1.492545	.5738289
#3	1.435995	93.42266	5.179519	21.07406	1.494860	.5730882

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.170765	1.496944	4.070393	13.45916	2.712170	2.407167
Stddev	.314631	.010753	.016811	.09454	.007327	.003041
%RSD	5.098729	.7182999	.4130029	.7024334	.2701549	.1263418
#1	5.962326	1.497143	4.076061	13.49452	2.708837	2.409342
#2	6.017288	1.486093	4.083638	13.53093	2.707102	2.408468
#3	6.532681	1.507595	4.051481	13.35204	2.720571	2.403692

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4917-01 Acquired: 12/02/2024 18:54:25 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MX1007 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5387031	.7614920	8.157178	1.247967	3.031570	1.350209
Stddev	.0012877	.0203427	.028048	.006637	.002781	.004455
%RSD	.2390301	2.671420	.3438392	.5317908	.0917341	.3299764
#1	.5385352	.7556902	8.137508	1.252955	3.032394	1.352113
#2	.5375076	.7841052	8.144731	1.240435	3.028470	1.353396
#3	.5400664	.7446805	8.189295	1.250511	3.033846	1.345118

Elem	Sr4077
Units	ppm
Avg	2.759011
Stddev	.008094
%RSD	.2933814
#1	2.763727
#2	2.763642
#3	2.749665

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1089.038	32630.94	6416.614	952.2724	1688.163
Stddev	3.414	24.18	13.656	3.5087	4.707
%RSD	.3135185	.0740897	.2128232	.3684594	.2788454
#1	1092.209	32605.05	6415.231	950.2994	1691.853
#2	1089.483	32652.92	6430.908	950.1943	1689.774
#3	1085.424	32634.83	6403.701	956.3235	1682.861

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4917-01DLX2 Acquired: 12/02/2024 19:02:53 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MX1007 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.129291	1.215542	1.006422	.5697760	.3352305	38.92993
Stddev	.007874	.008045	.006629	.0082797	.0039255	.05877
%RSD	.6972810	.6618046	.6586907	1.453145	1.170975	.1509713
#1	1.124323	1.208894	.998911	.5793244	.3307516	38.86676
#2	1.125180	1.213247	1.008898	.5654191	.3368671	38.98299
#3	1.138370	1.224485	1.011457	.5645845	.3380729	38.94004

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.400495	F 1.046801	.7244951	35.45796	1.668734	1.143888
Stddev	.003353	.001210	.0028895	.09860	.045054	.006342
%RSD	.1396607	.1155671	.3988305	.2780824	2.699885	.5544217
#1	2.402204	1.046612	.7213799	35.56838	1.680922	1.136614
#2	2.402649	1.045698	.7250178	35.42680	1.618840	1.146795
#3	2.396633	1.048095	.7270876	35.37870	1.706440	1.148255

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7717054	50.33989	2.786441	11.27113	.7558171	.3003422
Stddev	.0035955	.14412	.006375	.09172	.0027570	.0095616
%RSD	.4659140	.2862993	.2288004	.8137826	.3647751	3.183553
#1	.7758020	50.19179	2.793257	11.16572	.7530533	.3036621
#2	.7690732	50.47967	2.780625	11.33281	.7558307	.2895632
#3	.7702409	50.34820	2.785440	11.31484	.7585673	.3078013

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.291297	.8001739	2.149449	6.827152	1.352504	1.302978
Stddev	.396964	.0024148	.043371	.019450	.002122	.007168
%RSD	12.06102	.3017885	2.017761	.2848956	.1569067	.5500920
#1	3.475708	.8029579	2.158708	6.804715	1.350865	1.297973
#2	2.835671	.7986469	2.102197	6.839236	1.351746	1.299773
#3	3.562513	.7989168	2.187443	6.837505	1.354901	1.311189

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4917-01DLX2 Acquired: 12/02/2024 19:02:53 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MX1007 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2864210	.3727935	4.355040	.6271899	1.628075	.7117451
Stddev	.0009725	.0080341	.003278	.0032425	.002920	.0013296
%RSD	.3395284	2.155097	.0752802	.5169833	.1793300	.1868042
#1	.2857151	.3635975	4.352337	.6309257	1.624901	.7108797
#2	.2860175	.3784507	4.358687	.6255376	1.630646	.7132760
#3	.2875302	.3763323	4.354097	.6251064	1.628679	.7110796

Elem	Sr4077
Units	ppm
Avg	1.468516
Stddev	.000581
%RSD	.0395449
#1	1.468486
#2	1.469111
#3	1.467951

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1043.283	31357.90	6064.336	923.1376	1719.780
Stddev	2.852	703.47	13.446	16.1924	7.192
%RSD	.2734133	2.243351	.2217185	1.754056	.4181795
#1	1044.974	31213.35	6071.756	922.0873	1727.089
#2	1044.886	32122.42	6048.815	939.8296	1719.539
#3	1039.990	30737.94	6072.436	907.4960	1712.712

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4917-01DL2X5 Acquired: 12/02/2024 19:16:26 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MX1007 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4536769	.4988882	.3994547	.2435320	.1358078	16.20456	.9813542
Stddev	.0139113	.0041876	.0033487	.0024949	.0020471	.01215	.0012496
%RSD	3.066335	.8393845	.8383176	1.024451	1.507323	.0750029	.1273381
#1	.4694441	.5014100	.4018298	.2459428	.1342928	16.21827	.9800861
#2	.4431345	.5012004	.3956246	.2409608	.1381367	16.19511	.9825845
#3	.4484522	.4940543	.4009097	.2436923	.1349941	16.20028	.9813919

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4311247	.2901586	14.83639	.7037773	.4587056	.3178790	20.90361
Stddev	.0021166	.0007340	.02384	.0025322	.0013960	.0021664	.03819
%RSD	.4909495	.2529750	.1606909	.3598009	.3043280	.6815204	.1827107
#1	.4313745	.2893111	14.80943	.7018822	.4582397	.3195423	20.93461
#2	.4288943	.2905959	14.84506	.7066532	.4576021	.3186656	20.86095
#3	.4331054	.2905687	14.85468	.7027965	.4602749	.3154292	20.91528

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.184484	4.695275	.3065797	.1257390	1.561127	.3383232	.8947657
Stddev	.002470	.044355	.0007201	.0005035	.332180	.0060891	.0031798
%RSD	.2085047	.9446803	.2348901	.4003932	21.27822	1.799801	.3553820
#1	1.183243	4.657188	.3059343	.1251791	1.819249	.3344801	.8917200
#2	1.187329	4.743973	.3064484	.1258835	1.677776	.3453438	.8945124
#3	1.182882	4.684664	.3073565	.1261544	1.186356	.3351457	.8980646

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.390023	.5380841	.5353943	.1177084	.1381073	1.710085	.2503677
Stddev	.060225	.0034675	.0075752	.0003782	.0009243	.010601	.0005691
%RSD	2.519852	.6444108	1.414888	.3213312	.6692940	.6198946	.2272978
#1	2.434268	.5377202	.5365908	.1178127	.1391105	1.717963	.2498496
#2	2.414364	.5417192	.5272920	.1172889	.1372901	1.698033	.2502769
#3	2.321437	.5348130	.5423001	.1180235	.1379212	1.714261	.2509768

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: P4917-01DL2X5 Acquired: 12/02/2024 19:16:26 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: MX1007 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.6710937	.2812759	.6122179
Stddev	.0020637	.0003544	.0009373
%RSD	.3075169	.1260113	.1530962
#1	.6731114	.2815075	.6129411
#2	.6689868	.2814524	.6111590
#3	.6711829	.2808679	.6125537

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1023.338	30410.35	5873.889	905.8962	1766.573
Stddev	2.276	77.10	10.493	1.8816	1.801
%RSD	.2223911	.2535285	.1786308	.2077021	.1019399
#1	1022.104	30430.74	5863.380	907.6781	1766.239
#2	1025.965	30325.11	5884.365	906.0816	1768.517
#3	1021.947	30475.20	5873.922	903.9287	1764.962

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165240BL Acquired: 12/02/2024 19:25:07 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBW240 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0053087	.0013031	-.004589	-.001241	.0008882	-.008864
Stddev	.0043290	.0057986	.002928	.002339	.0027248	.008132
%RSD	81.54633	444.9694	63.80015	188.4535	306.7618	91.74626
#1	.0061099	.0063052	-.004245	-.003061	.0037320	-.010379
#2	.0091811	-.005052	-.007674	.001397	-.001699	-.000081
#3	.0006350	.002657	-.001848	-.002060	.000632	-.016132

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000994	.0000366	-.000057	-.017415	-.000149	.0003160
Stddev	.000606	.0001688	.000023	.007033	.000629	.0002407
%RSD	60.94873	460.7772	39.78690	40.38446	422.2688	76.18125
#1	-.000362	-.000157	-.000031	-.012738	.000562	.0002244
#2	-.001570	.000150	-.000068	-.025503	-.000373	.0005890
#3	-.001050	.000118	-.000073	-.014004	-.000636	.0001345

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009900	-.003868	.0000115	-.024718	.0003305	.0000948
Stddev	.0014176	.002643	.0004468	.019830	.0001787	.0001990
%RSD	143.1852	68.34611	3871.209	80.22350	54.06875	210.0351
#1	.0026269	-.003716	-.000485	-.044233	.0005355	-.000087
#2	.0001629	-.001304	.000381	-.004587	.0002479	.000307
#3	.0001803	-.006584	.000139	-.025335	.0002080	.000064

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.087027	-.003111	-.000687	-.547217	-.000215	-.003265
Stddev	.108698	.003269	.000361	.015514	.001506	.001014
%RSD	124.9014	105.0462	52.57211	2.835095	700.7799	31.05794
#1	-.113247	-.002100	-.000686	-.562991	.001007	-.003635
#2	.032383	-.006766	-.000327	-.531976	.000246	-.002118
#3	-.180216	-.000469	-.001050	-.546685	-.001898	-.004042

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165240BL Acquired: 12/02/2024 19:25:07 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBW240 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000940	.0045346	-.000684	.0002537	.0000328	F -.024120
Stddev	.0004842	.0064927	.000151	.0020621	.0006544	.001304
%RSD	514.8820	143.1814	22.06238	812.8899	1992.537	5.406921
#1	-.000370	.0057209	-.000536	.0026168	.0007690	-.022627
#2	.000056	-.002469	-.000679	-.000675	-.000188	-.025039
#3	.000596	.010352	-.000837	-.001181	-.000483	-.024694

Elem	Sr4077
Units	ppm
Avg	-.000028
Stddev	.000096
%RSD	346.6817
#1	.000074
#2	-.000117
#3	-.000040

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1004.974	29771.63	5665.195	889.2543	1841.118
Stddev	1.937	27.47	31.047	2.5449	5.125
%RSD	.1927640	.0922829	.5480237	.2861864	.2783636
#1	1004.295	29762.90	5631.011	886.4089	1836.849
#2	1007.160	29802.41	5691.639	891.3130	1846.802
#3	1003.468	29749.59	5672.936	890.0410	1839.703

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165240BS Acquired: 12/02/2024 19:29:39 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS240 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0183126	.0556665	.0180074	.0693346	.1130064	.4017392
Stddev	.0039433	.0050535	.0020081	.0061404	.0028960	.0131851
%RSD	21.53313	9.078147	11.15161	8.856230	2.562688	3.281996
#1	.0144621	.0501954	.0176203	.0712278	.1135663	.3913328
#2	.0223425	.0566447	.0201808	.0743054	.1098714	.4165667
#3	.0181333	.0601593	.0162210	.0624705	.1155816	.3973182

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4402716	.0115325	.0109151	11.31126	.0230348	.1039109
Stddev	.0008609	.0000926	.0000913	.04261	.0007894	.0003657
%RSD	.1955488	.8026600	.8365012	.3767123	3.427123	.3519363
#1	.4412436	.0116391	.0110156	11.34431	.0223462	.1038039
#2	.4399664	.0114731	.0108372	11.32630	.0228619	.1043181
#3	.4396049	.0114852	.0108926	11.26317	.0238964	.1036106

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0532436	.2140007	.0369071	10.64044	.0893833	.0232287
Stddev	.0016348	.0096490	.0002742	.00450	.0006867	.0003541
%RSD	3.070380	4.508846	.7428320	.0422864	.7682398	1.524423
#1	.0513564	.2246059	.0371286	10.64452	.0894931	.0235357
#2	.0542233	.2057400	.0366005	10.64118	.0886483	.0228413
#3	.0541511	.2116562	.0369921	10.63562	.0900085	.0233091

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.74354	.1162938	.1402736	9.912490	.0161917	F -.003679
Stddev	.19959	.0012494	.0016707	.110000	.0025084	.001146
%RSD	1.857807	1.074327	1.191021	1.109707	15.49174	31.13442
#1	10.94238	.1177327	.1408691	9.968098	.0155238	-.003818
#2	10.54320	.1154843	.1415650	9.785789	.0189664	-.004749
#3	10.74505	.1156644	.1383868	9.983584	.0140848	-.002471

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165240BS Acquired: 12/02/2024 19:29:39 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS240 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0203585	.2019134	F .3278068	.0134092	.2162400	F .0064288
Stddev	.0007070	.0101928	.0017941	.0003750	.0013700	.0006827
%RSD	3.473008	5.048122	.5472953	2.796624	.6335649	10.61890
#1	.0195424	.2034064	.3298688	.0137676	.2178051	.0062981
#2	.0207856	.2112774	.3269481	.0134404	.2152577	.0058209
#3	.0207475	.1910564	.3266035	.0130195	.2156572	.0071674

Elem	Sr4077
Units	ppm
Avg	.2208098
Stddev	.0004786
%RSD	.2167337
#1	.2212771
#2	.2208316
#3	.2203207

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1000.834	29445.80	5683.845	877.0897	1766.108
Stddev	1.736	104.45	13.869	2.9707	.288
%RSD	.1734764	.3547116	.2440023	.3387022	.0163056
#1	1002.789	29326.07	5668.870	875.3249	1766.425
#2	999.470	29518.22	5686.419	875.4247	1766.035
#3	1000.244	29493.12	5696.247	880.5195	1765.863

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165239BL Acquired: 12/02/2024 19:34:08 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS239 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0031245	.0006855	-.002948	-.000893	-.000538	-.010957
Stddev	.0044469	.0016375	.000559	.005431	.003860	.004369
%RSD	142.3250	238.8929	18.95813	608.1219	717.4731	39.87008
#1	.0008854	-.001053	-.003429	.003390	-.004782	-.015899
#2	.0002422	.002199	-.003082	-.007002	.000403	-.009363
#3	.0082460	.000911	-.002335	.000933	.002765	-.007609

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000629	.0000370	-.000098	-.012749	.0001259	-.000244
Stddev	.000895	.0001224	.000147	.002383	.0005066	.000173
%RSD	142.3027	331.0016	150.1503	18.69256	402.5461	70.74009
#1	.000404	-.000067	-.000257	-.015435	-.000208	-.000145
#2	-.001150	.000006	-.000071	-.010891	-.000124	-.000144
#3	-.001140	.000172	.000034	-.011920	.000709	-.000443

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0008385	-.006291	.0001698	-.037296	.0004007	.0005819
Stddev	.0008323	.003373	.0003119	.018653	.0009278	.0003837
%RSD	99.25578	53.61667	183.6794	50.01320	231.5368	65.93672
#1	.0011663	-.009201	-.000154	-.017568	.0009487	.0010235
#2	-.000108	-.002594	.000468	-.054646	-.000671	.0003298
#3	.001457	-.007078	.000195	-.039674	.000924	.0003924

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0052136	.0021078	-.001061	-.593922	-.000153	-.005615
Stddev	.0968514	.0051622	.000924	.072947	.003302	.001528
%RSD	1857.659	244.9106	87.01581	12.28228	2164.569	27.22344
#1	.1090906	.0041100	-.000269	-.623460	-.003683	-.003995
#2	-.010845	-.003756	-.000839	-.647469	.002859	-.007031
#3	-.082605	.005969	-.002076	-.510838	.000366	-.005818

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165239BL Acquired: 12/02/2024 19:34:08 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: PBS239 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000115	.0021165	-.000563	-.001549	.0004277	F -.026494
Stddev	.000509	.0030994	.000541	.001531	.0007722	.001717
%RSD	443.2313	146.4400	96.03107	98.85267	180.5616	6.479873
#1	.000214	-.001096	-.000279	-.002191	-.000443	-.027645
#2	.000143	.002357	-.000224	-.002654	.001029	-.024521
#3	-.000701	.005089	-.001187	.000199	.000698	-.027316

Elem	Sr4077
Units	ppm
Avg	.0000205
Stddev	.0000283
%RSD	137.9715
#1	-.000012
#2	.000036
#3	.000037

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1000.578	29606.59	5662.143	880.8022	1831.086
Stddev	4.540	67.31	6.382	6.5456	10.355
%RSD	.4536907	.2273636	.1127142	.7431446	.5655112
#1	995.390	29573.05	5660.500	875.9219	1819.456
#2	1003.820	29562.63	5656.743	888.2406	1839.308
#3	1002.525	29684.08	5669.186	878.2442	1834.494

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165239BS Acquired: 12/02/2024 19:38:41 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS239 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0254038	.0526820	.0184004	.0679765	.1182174	.3989846
Stddev	.0026021	.0014078	.0001809	.0031255	.0016085	.0043408
%RSD	10.24300	2.672329	.9829641	4.597979	1.360637	1.087956
#1	.0238892	.0516503	.0185138	.0678590	.1197646	.4039631
#2	.0284084	.0542858	.0181918	.0711591	.1165539	.3969986
#3	.0239139	.0521098	.0184956	.0649114	.1183339	.3959921

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4473832	.0115407	.0112706	11.49918	.0242092	.1069216
Stddev	.0008922	.0000712	.0000941	.03473	.0006934	.0008205
%RSD	.1994185	.6166335	.8351333	.3020206	2.864165	.7673966
#1	.4464671	.0116227	.0113264	11.46794	.0241250	.1074218
#2	.4474331	.0114949	.0111619	11.49303	.0235617	.1059747
#3	.4482493	.0115046	.0113234	11.53658	.0249409	.1073684

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0547073	.2211252	.0380759	10.73808	.0924535	.0245862
Stddev	.0036957	.0089202	.0002716	.01172	.0005732	.0018047
%RSD	6.755379	4.033981	.7134104	.1091365	.6199677	7.340392
#1	.0534456	.2294123	.0377624	10.72646	.0929947	.0227360
#2	.0518077	.2222789	.0382399	10.74990	.0918530	.0263418
#3	.0588686	.2116843	.0382255	10.73787	.0925129	.0246809

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	11.18817	.1193874	.1414336	10.04182	.0196248	F -.006594
Stddev	.34115	.0065260	.0026888	.09439	.0031996	.000743
%RSD	3.049199	5.466243	1.901081	.9399613	16.30382	11.27504
#1	11.34904	.1262502	.1384015	10.03267	.0228565	-.006259
#2	10.79633	.1186514	.1435277	10.14046	.0195598	-.007446
#3	11.41914	.1132606	.1423716	9.95235	.0164583	-.006077

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165239BS Acquired: 12/02/2024 19:38:41 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS239 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0204186	.2036408	F .3326297	.0138267	.2164898	F .0062765
Stddev	.0001216	.0126714	.0023871	.0022497	.0006509	.0002369
%RSD	.5955518	6.222410	.7176504	16.27098	.3006408	3.774825
#1	.0205516	.2084473	.3308427	.0115596	.2158303	.0060448
#2	.0203912	.1892694	.3317057	.0138618	.2171316	.0062662
#3	.0203131	.2132057	.3353407	.0160587	.2165075	.0065183

Elem	Sr4077
Units	ppm
Avg	.2238466
Stddev	.0002466
%RSD	.1101690
#1	.2237009
#2	.2237076
#3	.2241313

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	990.4552	29208.80	5662.656	874.6426	1749.526
Stddev	2.7237	542.82	24.280	12.1320	3.771
%RSD	.2749910	1.858426	.4287726	1.387079	.2155476
#1	991.9311	29755.23	5660.376	887.8244	1751.726
#2	992.1225	28669.65	5687.996	863.9449	1751.681
#3	987.3122	29201.53	5639.597	872.1585	1745.172

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165169BS Acquired: 12/02/2024 19:43:11 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS169 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0247985	.0557050	.0224028	.0701449	.1165360	.3897736
Stddev	.0017369	.0061309	.0008509	.0065150	.0017604	.0030888
%RSD	7.004216	11.00604	3.798086	9.287948	1.510633	.7924601
#1	.0236731	.0545585	.0227629	.0732790	.1157084	.3864296
#2	.0267989	.0623283	.0214311	.0626551	.1185577	.3903715
#3	.0239235	.0502283	.0230145	.0745005	.1153418	.3925198

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4414468	.0115342	.0111389	11.35282	.0237249	.1052923
Stddev	.0013482	.0002194	.0000581	.00959	.0007540	.0012466
%RSD	.3054086	1.901873	.5216113	.0844596	3.178215	1.183930
#1	.4428847	.0116140	.0110726	11.35599	.0232788	.1041269
#2	.4402112	.0117024	.0111810	11.34205	.0245955	.1051434
#3	.4412444	.0112861	.0111630	11.36042	.0233005	.1066067

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0572574	.2216688	.0373624	10.65130	.0909398	.0239134
Stddev	.0006469	.0069465	.0007227	.10996	.0012712	.0003640
%RSD	1.129829	3.133712	1.934158	1.032340	1.397793	1.522137
#1	.0573340	.2288470	.0370048	10.75853	.0896891	.0237665
#2	.0578625	.2149800	.0368883	10.65657	.0908998	.0243280
#3	.0565755	.2211793	.0381942	10.53881	.0922305	.0236459

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.90226	.1152517	.1386116	9.826325	.0203438	F -.006446
Stddev	.27826	.0066502	.0003859	.104603	.0007689	.000879
%RSD	2.552297	5.770123	.2783989	1.064517	3.779604	13.63242
#1	10.65547	.1222584	.1386004	9.936544	.0211427	-.005467
#2	11.20384	.1144692	.1390030	9.728429	.0196088	-.007167
#3	10.84748	.1090273	.1382314	9.814003	.0202800	-.006703

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: PB165169BS Acquired: 12/02/2024 19:43:11 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LCS169 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0208648	.2036441	F .3272224	.0128084	.2162818	F .0057390
Stddev	.0007498	.0047315	.0012357	.0010380	.0018412	.0005148
%RSD	3.593443	2.323418	.3776204	8.103987	.8512891	8.969630
#1	.0216698	.1986599	.3286142	.0122941	.2159728	.0052932
#2	.0207382	.2080741	.3262546	.0140031	.2182580	.0056215
#3	.0201864	.2041985	.3267983	.0121280	.2146147	.0063024

Elem	Sr4077
Units	ppm
Avg	.2207978
Stddev	.0009554
%RSD	.4326889
#1	.2218903
#2	.2201190
#3	.2203841

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	994.4444	29371.20	5700.827	881.8103	1757.420
Stddev	5.7252	56.97	28.942	5.0268	11.520
%RSD	.5757171	.1939555	.5076828	.5700508	.6554916
#1	996.1239	29368.22	5667.488	876.3224	1763.945
#2	999.1420	29315.78	5719.511	882.9171	1764.197
#3	988.0673	29429.60	5715.480	886.1914	1744.119

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: CCV073 Acquired: 12/02/2024 19:47:41 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV073 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.408668	4.961160	24.78972	4.853045	4.661065	396.7876
Stddev	.110957	.081048	.47496	.119902	.104092	4.3635
%RSD	2.051457	1.633660	1.915938	2.470657	2.233229	1.099718
#1	5.505114	5.035236	25.21745	4.944312	4.757624	395.4700
#2	5.433487	4.973653	24.87312	4.897573	4.674773	401.6581
#3	5.287405	4.874590	24.27859	4.717249	4.550798	393.2347

Elem	Ba4934	Be2348	Cd2144	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.975039	.4961033	2.622154	402.9302	15.29084	2.492788
Stddev	.180904	.0057322	.051712	4.9008	.12306	.049844
%RSD	1.813571	1.155438	1.972128	1.216300	.8047723	1.999528
#1	10.11815	.4977099	2.668291	403.2279	15.39942	2.534743
#2	10.03526	.5008607	2.631915	407.6754	15.15718	2.505931
#3	9.77170	.4897392	2.566257	397.8873	15.31593	2.437690

Elem	Cu3247	Fe2598	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	14.76213	402.6171	14.73170	417.2572	2.471713	1.262406
Stddev	.16529	5.2371	.16522	5.0625	.049670	.009239
%RSD	1.119711	1.300754	1.121557	1.213289	2.009554	.7318194
#1	14.80171	403.6935	14.73941	418.4397	2.517594	1.269577
#2	14.90404	407.2323	14.89293	421.6239	2.478577	1.251981
#3	14.58064	396.9255	14.56275	411.7081	2.418967	1.265659

Elem	Na8183	V_2924	Zn2138	K_7698	P_1774	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	398.7468	2.484295	14.27130	151.9522	4.864060	F 4.117855
Stddev	4.7834	.026703	.13857	1.9901	.103526	.063832
%RSD	1.199596	1.074875	.9709508	1.309710	2.128393	1.550133
#1	400.4214	2.494693	14.40406	152.0789	4.951330	4.096834
#2	402.4678	2.504235	14.12758	153.8759	4.891176	4.189547
#3	393.3513	2.453957	14.28227	149.9017	4.749675	4.067185

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: CCV073 Acquired: 12/02/2024 19:47:41 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV073 Custom ID2: Custom ID3:
Comment:

Elem	Mo2020	S_1820	Si2516	Sn1899	Ti3361	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.710976	4.960963	F 3.362017	4.986380	4.977685	4.834135
Stddev	.113329	.088577	.045325	.108495	.064824	.055326
%RSD	2.405630	1.785489	1.348149	2.175827	1.302284	1.144487
#1	4.812092	5.029863	3.360038	5.068961	5.001564	4.849759
#2	4.732356	4.991977	3.408298	5.026678	5.027182	4.879968
#3	4.588481	4.861049	3.317713	4.863502	4.904309	4.772676

Elem	Sr4077
Units	ppm
Avg	4.940190
Stddev	.047779
%RSD	.9671433
#1	4.927617
#2	4.992998
#3	4.899956

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	815.8334	25784.12	5439.880	670.2565	1322.447
Stddev	17.9266	187.78	59.871	5.6086	23.841
%RSD	2.197333	.7282800	1.100599	.8367781	1.802815
#1	799.7731	25664.80	5448.241	665.5277	1301.622
#2	812.5538	26000.57	5376.267	676.4530	1317.267
#3	835.1734	25686.98	5495.131	668.7887	1348.453

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: CCB073 Acquired: 12/02/2024 19:52:18 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB073 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0086687	.0017603	-.001731	.0016634	.0017268	.0453551	-.000733
Stddev	.0036245	.0047812	.000953	.0032519	.0016998	.0054672	.000598
%RSD	41.81187	271.6131	55.06653	195.5044	98.43926	12.05424	81.50740
#1	.0127695	.0012178	-.000802	.0030359	-.000196	.0390920	-.001119
#2	.0073422	-.002727	-.002707	.0040040	.003029	.0491728	-.000045
#3	.0058942	.006790	-.001684	-.002050	.002347	.0478004	-.001036

Elem	Be2348	Cd2144	Ca3736	Cr2677	Co2286	Cu3247	Fe2598
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000140	-.000084	.0108938	.0011544	-.000039	.0008739	-.002602
Stddev	.0000893	.000093	.0076752	.0006742	.000241	.0015656	.009215
%RSD	638.9103	110.9847	70.45511	58.40224	616.6768	179.1466	354.1905
#1	.0000668	-.000099	.0056283	.0017288	-.000183	.0021529	.004435
#2	.0000643	.000016	.0197003	.0013221	.000239	-.000872	.000793
#3	-.000089	-.000168	.0073528	.0004122	-.000174	.001341	-.013033

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na8183	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0007139	-.027658	.0003658	.0002117	.2562805	-.002269	.0004193
Stddev	.0003688	.038064	.0003512	.0007449	.2681648	.006002	.0001933
%RSD	51.66436	137.6248	96.01186	351.8276	104.6372	264.4984	46.10163
#1	.0007199	-.056917	-.000018	.0008739	.4722051	-.003210	.0004525
#2	.0003421	-.041433	.000671	-.000595	.3405283	-.007746	.0005938
#3	.0010796	.015376	.000444	.000356	-.043892	.004148	.0002115

Elem	K_7698	P_1774	B_2496	Mo2020	S_1820	Si2516	Sn1899
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.123167	.0012776	-.000106	-.000085	.0002470	.0005940	.0002105
Stddev	.204086	.0009761	.001101	.000350	.0028151	.0002415	.0009167
%RSD	165.6980	76.40462	1039.740	408.9346	1139.681	40.65933	435.3718
#1	.105787	.0008102	-.001261	.000295	-.003000	.0008727	.0003812
#2	-.285976	.0006231	.000933	-.000393	.002002	.0004649	-.000779
#3	-.189314	.0023996	.000010	-.000158	.001739	.0004445	.001030

Reviewed By:kareem
On:12/5/2024 8:14:16 PM
Inst Id :P5

Sample Name: CCB073 Acquired: 12/02/2024 19:52:18 Type: Unk
Method: SFAM01.1 INSTRUMENT P5 WITH 6 POINT ICAL(v757) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB073 Custom ID2: Custom ID3:
Comment:

Elem	Ti3361	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000184	-.011843	.0000591
Stddev	.001099	.002528	.0000367
%RSD	598.9921	21.34907	62.08007
#1	.000638	-.010777	.0000351
#2	.000244	-.010022	.0000408
#3	-.001432	-.014729	.0001013

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	997.2545	29686.49	5633.063	882.6831	1822.916
Stddev	2.2924	349.48	13.522	5.4305	2.776
%RSD	.2298756	1.177242	.2400462	.6152235	.1523016
#1	998.8159	29452.60	5618.082	880.0817	1824.740
#2	994.6226	30088.23	5636.743	888.9249	1819.721
#3	998.3250	29518.63	5644.364	879.0427	1824.287

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Prep Standard - Chemical Standard Summary

Order ID : P4917

Test : Metals CLP Full

Prepbatch ID : PB165239,PB165240,

Sequence ID/Qc Batch ID: LB133698,

Standard ID :
MP83105,MP83122,MP83134,MP83136,MP83137,MP83138,MP83139,MP83140,MP83141,MP83142,MP83143,MP831
44,MP83145,MP83146,MP83148,MP83149,

Chemical ID :
M121,M5130,M5218,M5223,M5289,M5295,M5296,M5390,M5395,M5429,M5476,M5498,M5513,M5515,M5519,M5658,
M5698,M5751,M5768,M5798,M5799,M5800,M5801,M5802,M5806,M5815,M5816,M5817,M5818,M5819,M5820,M5875
,M5960,M5962,M5970,M5976,M5978,M5982,M5984,M5985,M6021,M6023,M6025,M6028,M6030,M6033,M 6111,M6116
,M6117,M6124,M6125,W3112,

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
170	1:1HCL	MP83105	11/07/2024	12/06/2024	Janvi Patel	None	None	Sarabjit Jaswal 11/07/2024

FROM 1000.00000ml of M6111 + 1000.00000ml of W3112 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
169	1:1HNO3	MP83122	11/07/2024	12/06/2024	Janvi Patel	None	None	Sarabjit Jaswal 11/07/2024

FROM 1000.00000ml of M6116 + 1000.00000ml of W3112 = Final Quantity: 2000.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
902	ICP AES CAL BLK (SO/ICB/CCB)	MP83134	10/30/2024	12/06/2024	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

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2480	ICP AES STD 6 ISM01.3	MP83136	10/30/2024	12/06/2024	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

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1004	ICPAES ISM01.2 (S5)	MP83137	10/30/2024	12/06/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 0.25000ml of M5798 + 0.50000ml of M5429 + 0.50000ml of M5476 + 0.50000ml of M5815 + 0.50000ml of M5817 + 12.50000ml of M5519 + 12.50000ml of 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

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1005	ICPAES ISM01.2(S4)	MP83138	10/30/2024	12/06/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 250.00000ml of MP83134 + 250.00000ml of MP83137 = Final Quantity: 500.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1007	ICPAES ISM01.2(S3)	MP83139	10/30/2024	12/06/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 25.00000ml of MP83137 + 75.00000ml of MP83134 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1008	ICPAES ISM01.2(S2)	MP83140	10/30/2024	12/06/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 12.50000ml of MP83137 + 87.50000ml of MP83134 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
994	ICPAES ISM01.2 S1 (CONC.)	MP83141	10/30/2024	12/06/2024	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

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1003	ICPAES ISM01.2 S1	MP83142	10/30/2024	12/06/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 0.50000ml of MP83141 + 99.50000ml of MP83134 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2054	ICV-ICPAES	MP83143	10/30/2024	12/06/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 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

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
904	ICP AES ICSA SOLN	MP83144	10/30/2024	12/06/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 25.00000ml of M5130 + 200.00000ml of MP83134 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
905	ICP AES ICSAB SOLN	MP83145	10/30/2024	12/06/2024	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

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1119	ICPAES ISM01.2(CCV)	MP83146	10/30/2024	12/06/2024	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

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
919	ICP AES INTERNAL STD	MP83148	10/30/2024	12/06/2024	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

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
903	ICP AES RINSE SOLN	MP83149	10/30/2024	12/06/2024	Kareem Khairalla	None	None	Mohan Bera 11/08/2024

FROM 200.00000ml of M6117 + 9800.00000ml of W3112 = Final Quantity: 10000.000 ml

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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

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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

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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 #
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

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

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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

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

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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

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

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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 #
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

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

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CHEMICAL RECEIPT LOG BOOK

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 #
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 / Tl, 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

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CHEMICAL RECEIPT LOG BOOK

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

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)	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	11/04/2024 / Janvi	09/29/2024 / Eman	M6116

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

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

CHEMICAL RECEIPT LOG BOOK

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	05/22/2025	11/22/2024 / Janvi	10/22/2024 / Janvi	M6124

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	05/25/2025	11/26/2024 / Eman	11/22/2024 / Eman	M6125

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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M6028

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

R 8/5/24

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CERTIFIED WEIGHT REPORT:

Part Number:	**57048**		**Lot #**		
Lot Number:	**070124**	**Solvent:**	24002546	Nitric Acid	
Description:	**Cadmium (Cd)**	2%	40.0 (mL)	Nitric Acid	
Expiration Date:	070127				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty		

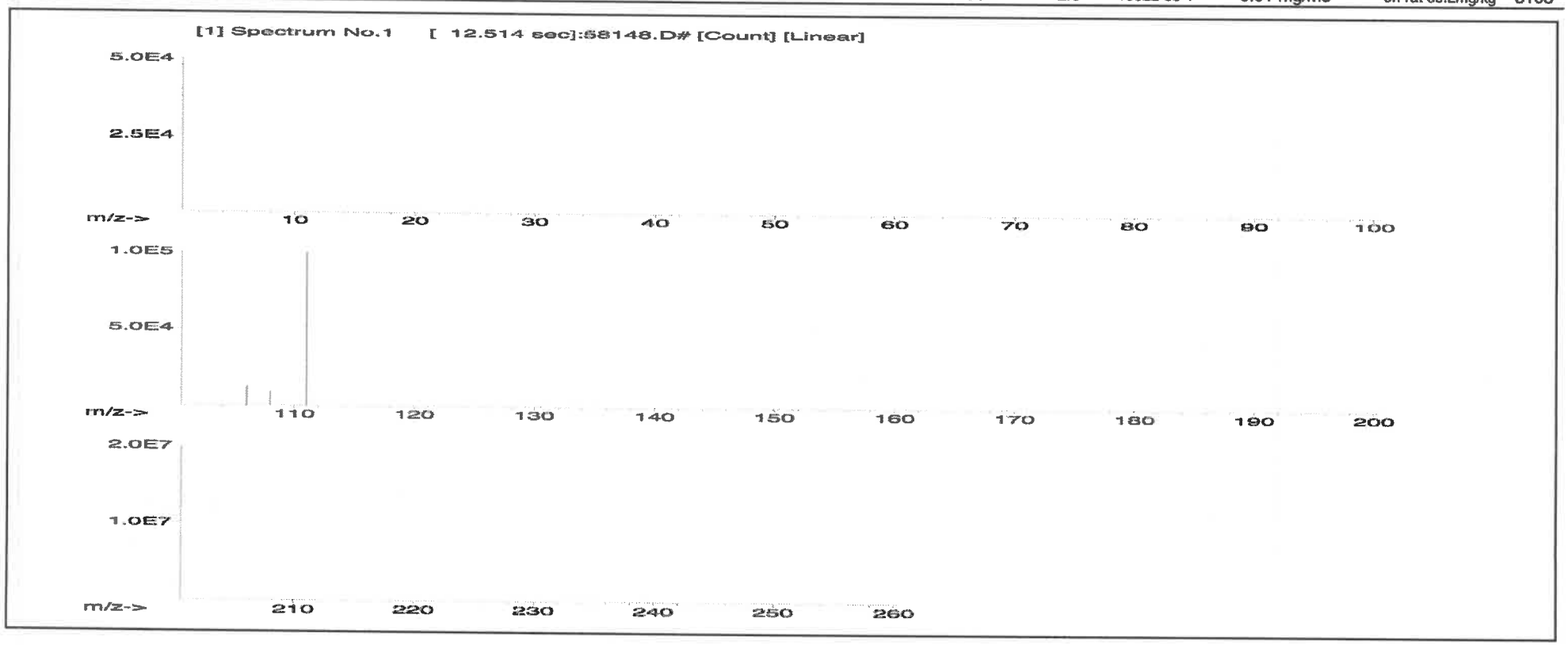
Aleah O'Brady

Formulated By:	Aleah O'Brady	070124

Pedro Rentas

Reviewed By:	Pedro L. Rentas	070124

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Cadmium nitrate tetrahydrate (Cd)	IN024	CDM092021A1	1000	99.999	0.10	36.5	5.4797	5.4804	**1000.1**	**2.0**	10022-68-1	0.01 mg/m3	orl-rat 60.2mg/kg	3108



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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	T	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<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 certifed (+/-) 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).

M5296 OP: 09/19/2022 BH

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Certificate of Analysis

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P: 800-669-6799/540-585-3030
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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).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

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 ºC)

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, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

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

N/A

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

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

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Christiansburg, VA 24073 USA
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1.0 ACCREDITATION / REGISTRATION

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ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	CLPP-CAL-1
Lot Number:	T2-MEB714417
Matrix:	5% (v/v) HNO3
Value / Analyte(s):	5 000 µg/mL ea: Calcium, Potassium, Magnesium, Sodium, 2 000 µg/mL ea: Aluminum, Barium, 1 000 µg/mL ea: Iron, 500 µg/mL ea: Nickel, Vanadium, Zinc, Cobalt, Manganese, 250 µg/mL ea: Silver, Copper, 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 ºC)

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, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

$CRM/RM\ Expanded\ Uncertainty\ (\pm) = U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

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

N/A

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information.

https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

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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

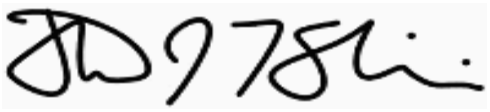
- Sealed TCT Bag Open Date: _____

- 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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ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

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 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
As	ICP Assay	3103a	100818
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Tl	ICP Assay	3158	151215

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

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

N/A

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 13, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **January 13, 2027**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

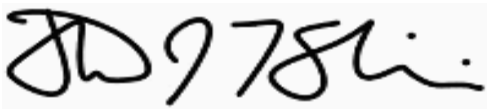
- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

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

R: 8/5/24

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CERTIFIED WEIGHT REPORT:

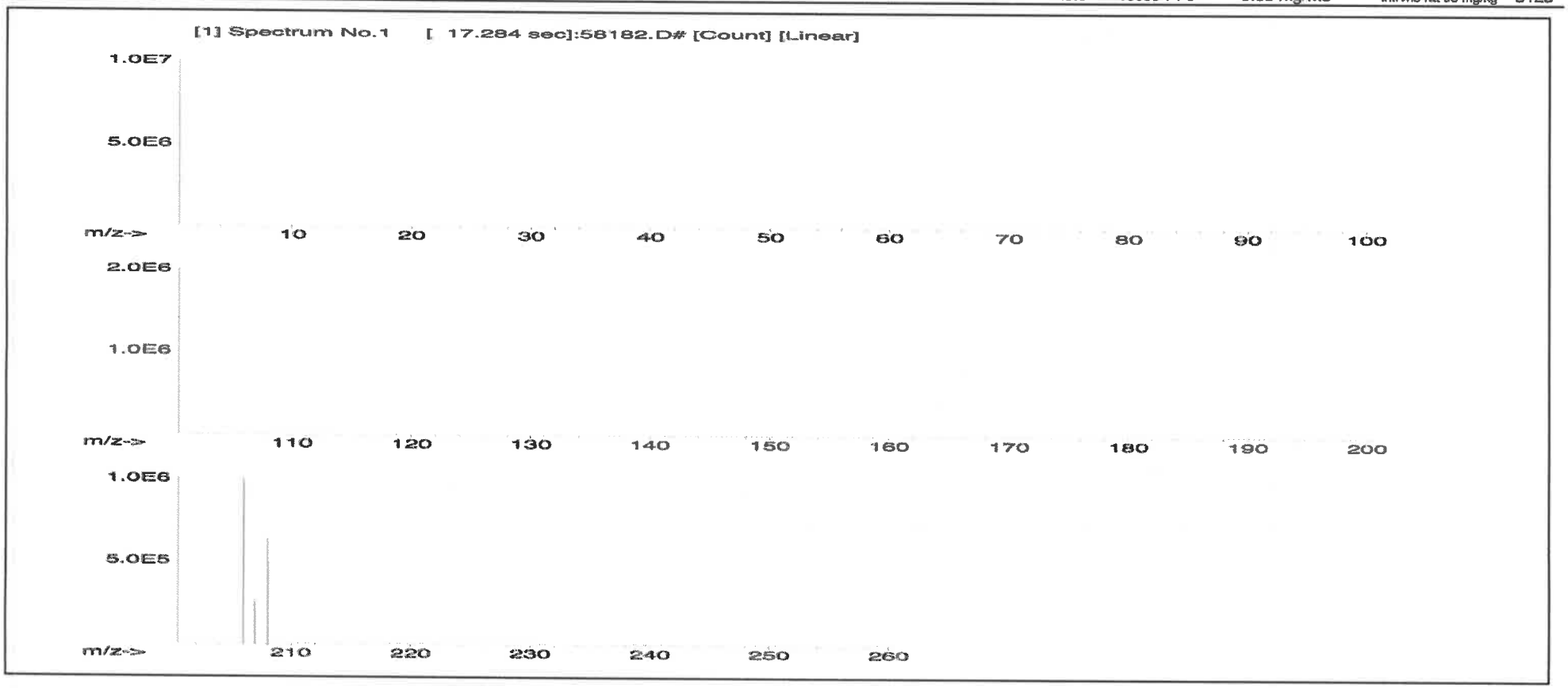
Part Number: 57182
Lot Number: 110923
Description: Lead (Pb)

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

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	
	0.058	Flask Uncertainty	

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

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lead(II) nitrate (Pb)	IN029	PBD122016A1	10000	99.999	0.10	62.5	32.0006	32.0040	**10001.1**	**20.0**	10099-74-8	0.05 mg/m3	intrvns-rat 93 mg/kg	3128



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<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

(T)= Target analyte

Physical Characterization:

Certified by:

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

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

QATS LABORATORY INORGANIC REFERENCE MATERIAL INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

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,

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 HNO_3. 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 HNO_3. 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

ICSA M5126 M5127 M5128 M5129 M5130

ICSB M5219 M5220 M5221 M5222 M5223

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.

INORGANIC VENTURES™
Refine your results. Redefine your industry.

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).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

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 ºC)

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, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

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

N/A

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

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

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,

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 HNO_3. 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 HNO_3. 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

ICSA M5126 M5127 M5128 M5129 M5130

ICSB M5219 M5220 M5221 M5222 M5223

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.

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M5289 R: 07/12/22 (BH)

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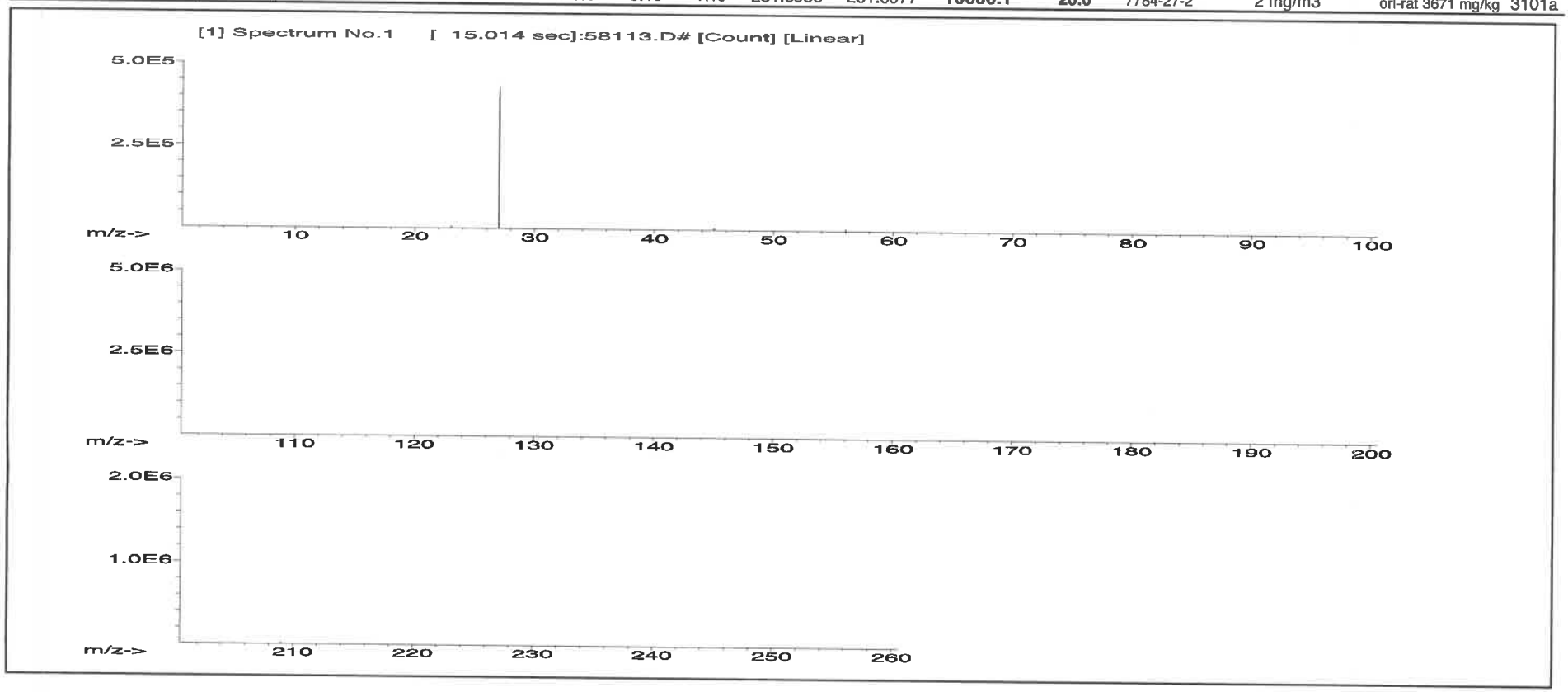
CERTIFIED WEIGHT REPORT:

Part Number:	**58113**			**Lot #**	
Lot Number:	**070622**		**Solvent:**	20370011	Nitric Acid
Description:	**Aluminum (Al)**		2%	40.0 (mL)	Nitric Acid
Expiration Date:	070625				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**10000**				
NIST Test Number:	6UTB	5E-05 Balance Uncertainty			
Weight shown below was diluted to (mL):	2000.02	0.058 Flask Uncertainty			

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

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST 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	orl-rat 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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<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:

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 certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

QATS LABORATORY INORGANIC REFERENCE MATERIAL 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
M5292
M5293
M5294
M5295

(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.

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

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R: 09/08/22 (BH)

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M5387 - M5389. M5390. M5391. M5392

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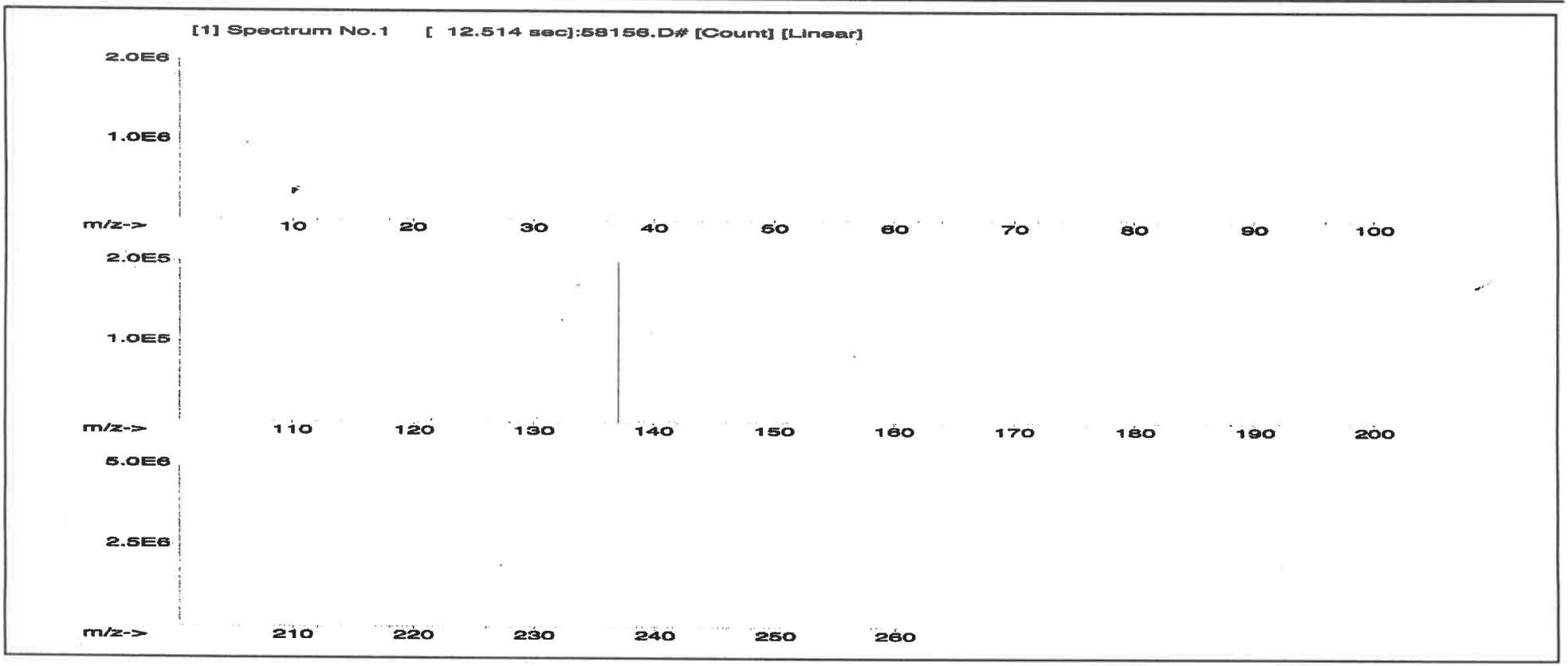
CERTIFIED WEIGHT REPORT:

Part Number:	**57056**		**Lot #**		
Lot Number:	**072122**	**Solvent:**	20510011	Nitric Acid	
Description:	**Barium (Ba)**	2%	40.0 (mL)	Nitric Acid	
Expiration Date:	072125				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

Giovanni Esposito

Formulated By:	Giovanni Esposito	072122
Reviewed By:	Pedro L. Rentas	072122

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Barium nitrate (Ba)	IN023	BAD022019A1	1000	99.999	0.10	52.3	3.82417	3.82426	**1000.0**	2.0	10022-31-8	0.5 mg/m3	orl-rat 355 mg/kg	3104a



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	T	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

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.
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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).

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M5429 R1 01/26/23 BH

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CERTIFIED WEIGHT REPORT:

Part Number: 57103
Lot Number: 070622
Description: Lithium (Li)

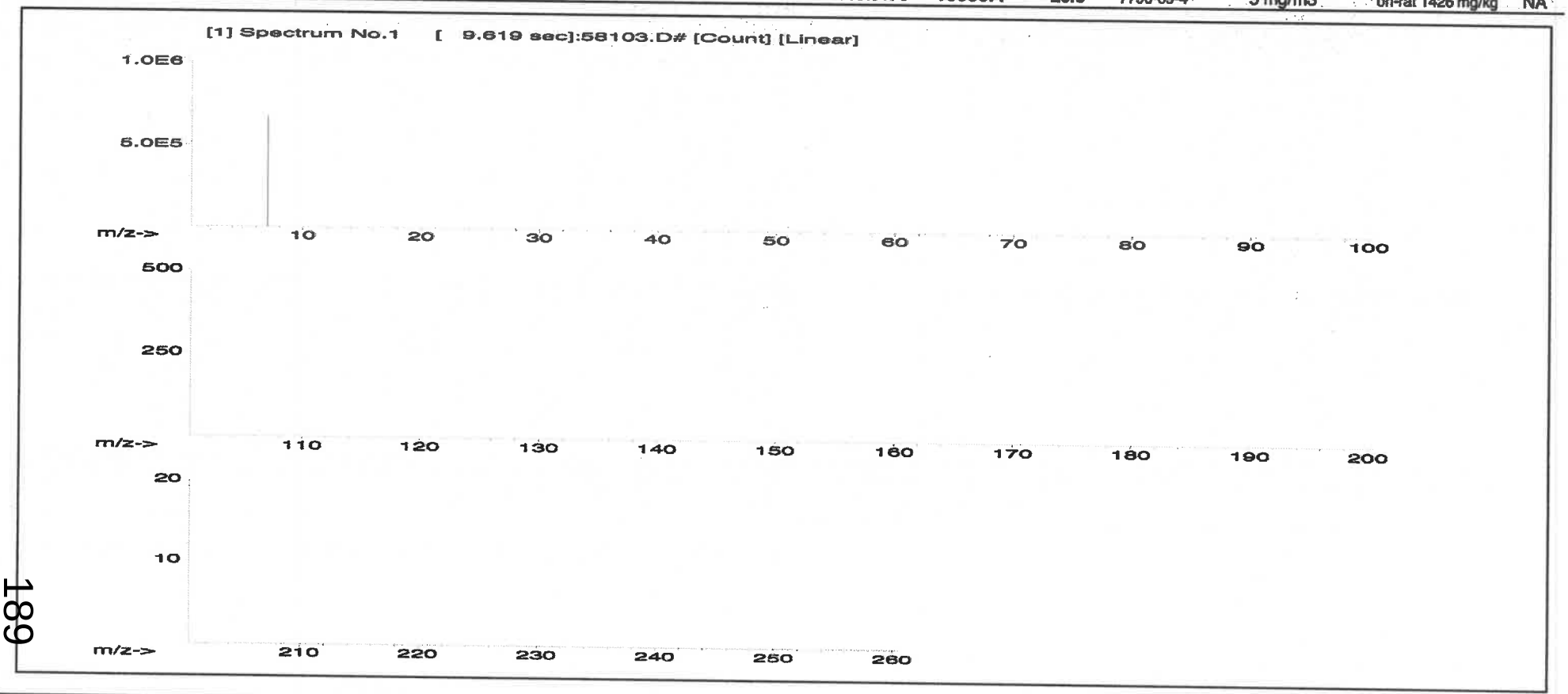
Expiration Date: 070625
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1000.12

	Lot #			
Solvent:	20510011	Nitric Acid		
2%	20.0 (mL)	Nitric Acid		

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lithium nitrate (Li)	IN019	LIZ042018A1	10000	99.999	0.10	10.0	100.0134	100.0173	**10000.4**	**20.0**	7790-69-4	5 mg/m3	orl-rat 1426 mg/kg	NA



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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	T	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<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 certifed (+/-) 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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M5497 - M5498 R: 03/17/23 BH

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CERTIFIED WEIGHT REPORT:

Part Number: 58120
Lot Number: 031523
Description: Calcium (Ca)

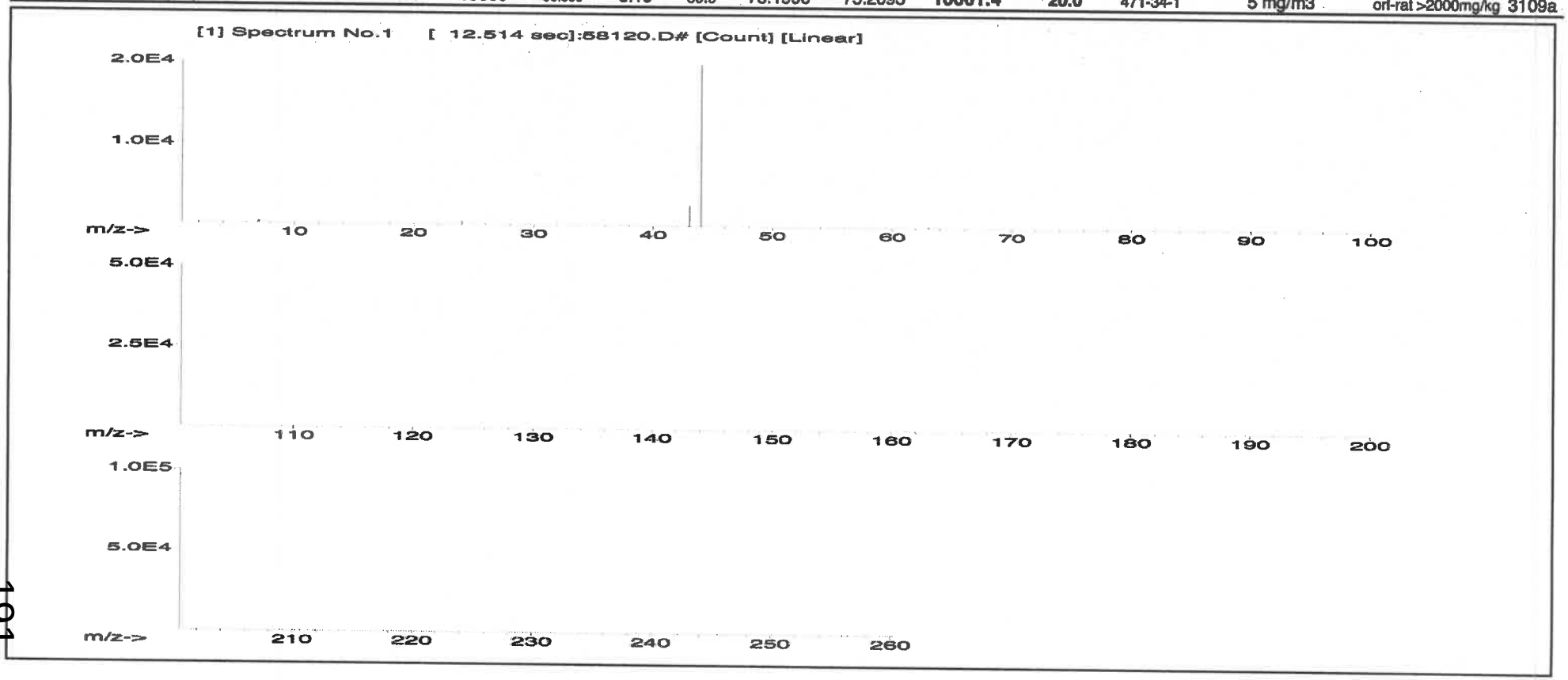
Expiration Date: 031526
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.41

	Lot #		
Solvent:	21110221	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	
	0.058	Flask Uncertainty	

Giovanni Esposito
Formulated By: Giovanni Esposito 031523

Pedro Rentas
Reviewed By: Pedro L. Rentas 031523

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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	orl-rat >2000mg/kg	3109a



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	T	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	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:

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 certifed (+/-) 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).

T-192

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M 5513 R: 03/17/23

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CERTIFIED WEIGHT REPORT:

Part Number: 57182
Lot Number: 061522
Description: Lead (Pb)

Expiration Date: 061525
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02

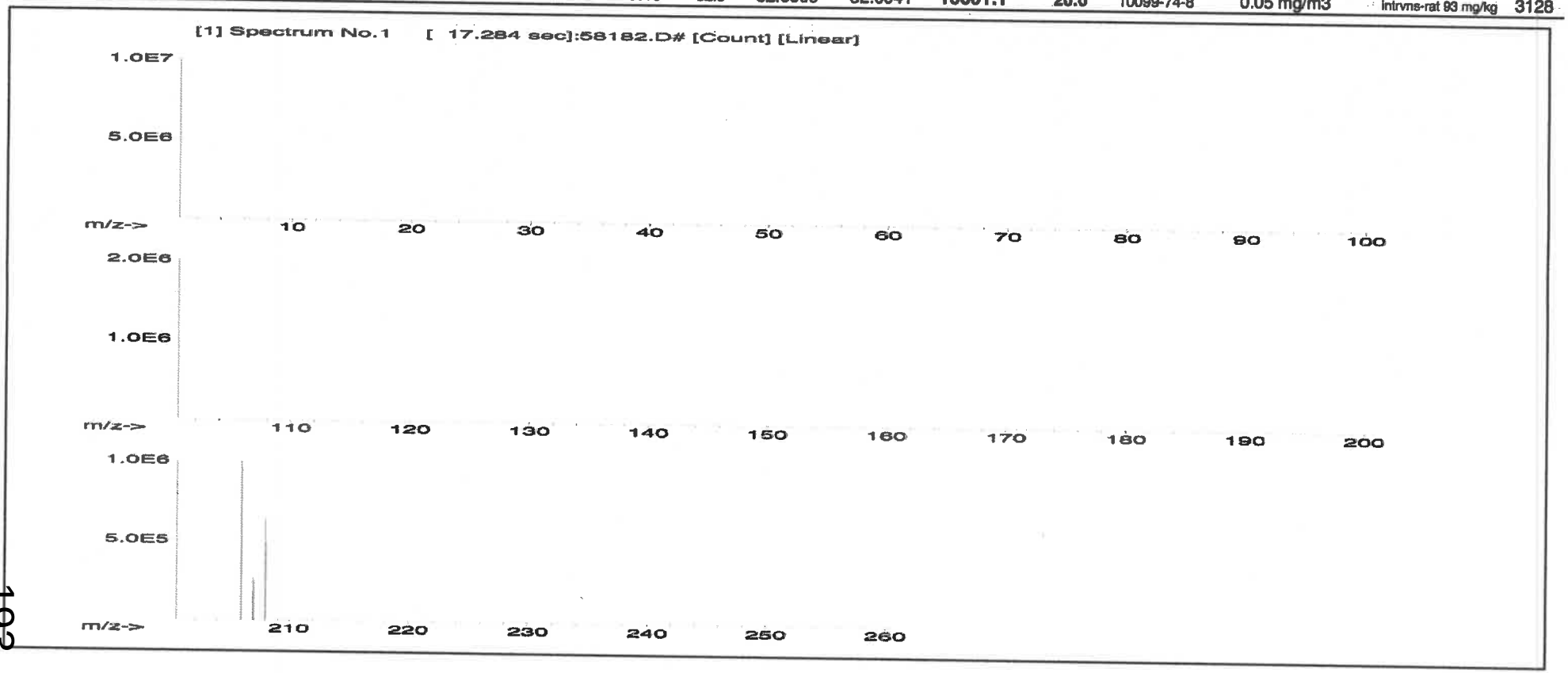
	Lot #		
Solvent:	20510011	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Giovanni Esposito

Formulated By:	Giovanni Esposito	061522
Reviewed By:	Pedro L. Rentas	061522

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lead(II) nitrate (Pb)	IN029	PBD122016A1	10000	99.999	0.10	62.5	32.0006	32.0041	**10001.1**	**20.0**	10099-74-8	0.05 mg/m3	Intrvns-rat 93 mg/kg	3128



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<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

(T)= Target analyte

Physical Characterization:

Certified by:

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

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 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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M5514 - M5515 R: 03/17/22

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CERTIFIED WEIGHT REPORT:

Part Number: 58126
Lot Number: 092122
Description: Iron (Fe)

Expiration Date: 092125
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 5000.1 ± 0.12 Flask Uncertainty

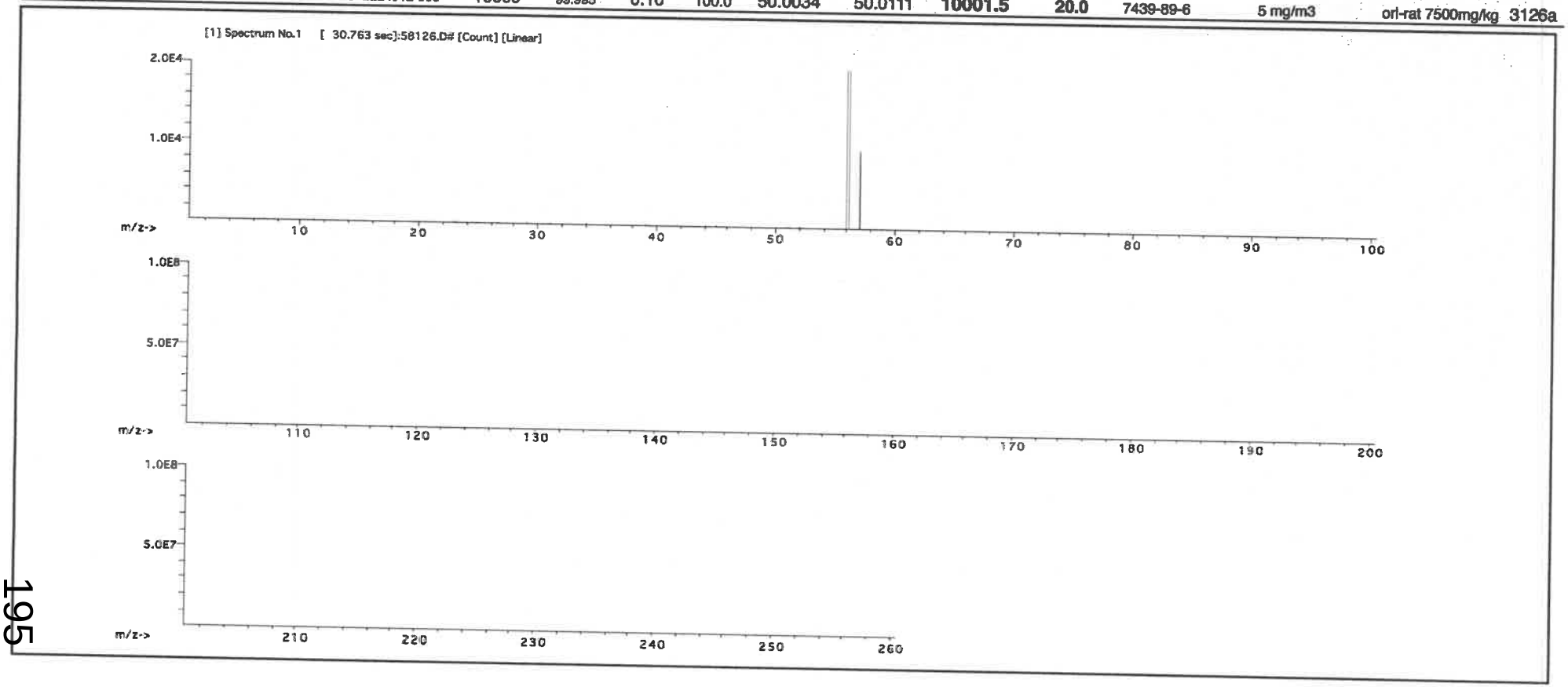
		Lot #	
Solvent:	20510011	Nitric Acid	
7.0%	350.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

Giovanni Esposito

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

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Iron (Fe)	IN346	2224912-500	10000	99.995	0.10	100.0	50.0034	50.0111	**10001.5**	**20.0**	7439-89-6	5 mg/m3	orl-rat 7500mg/kg	3126a



195

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	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	<0.10	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.05	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.10	Ge	<0.10	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	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:

Certified by:

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

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* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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M5519. M5520 BH R:03/17/23

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197

CERTIFIED WEIGHT REPORT:

Part Number: 58119
Lot Number: 120822
Description: Potassium (K)

Expiration Date: 120825
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.4

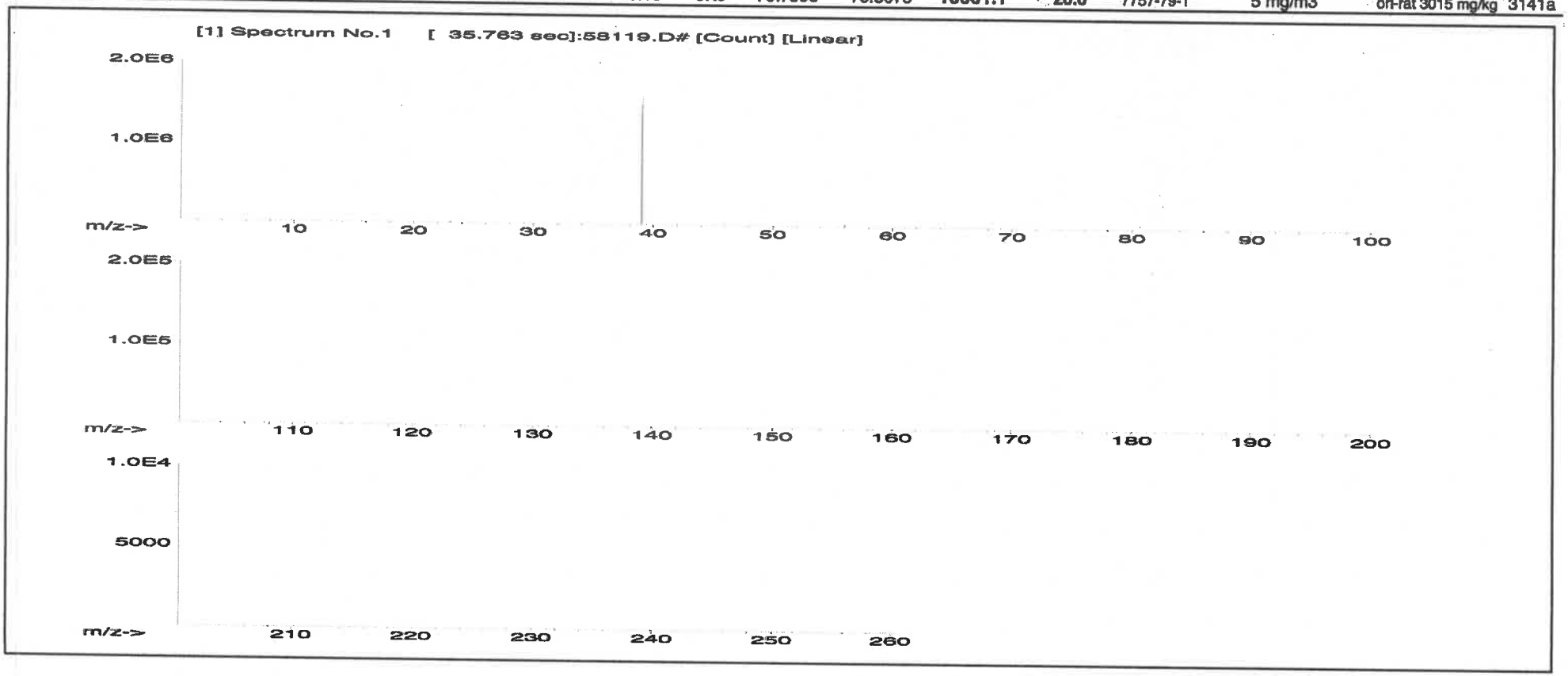
	Lot #		
Solvent:	20510011	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.06 Flask Uncertainty

Giovanni Esposito

Formulated By:	Giovanni Esposito	120822
Reviewed By:	Pedro L. Rentas	120822

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Potassium nitrate (K)	IN034	KD022021A1	10000	99.999	0.10	37.6	79.7990	79.8075	**10001.1**	**20.0**	7757-79-1	5 mg/m3	orl-rat 3015 mg/kg	3141a



198

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	T	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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M5658 R! 8/25/23

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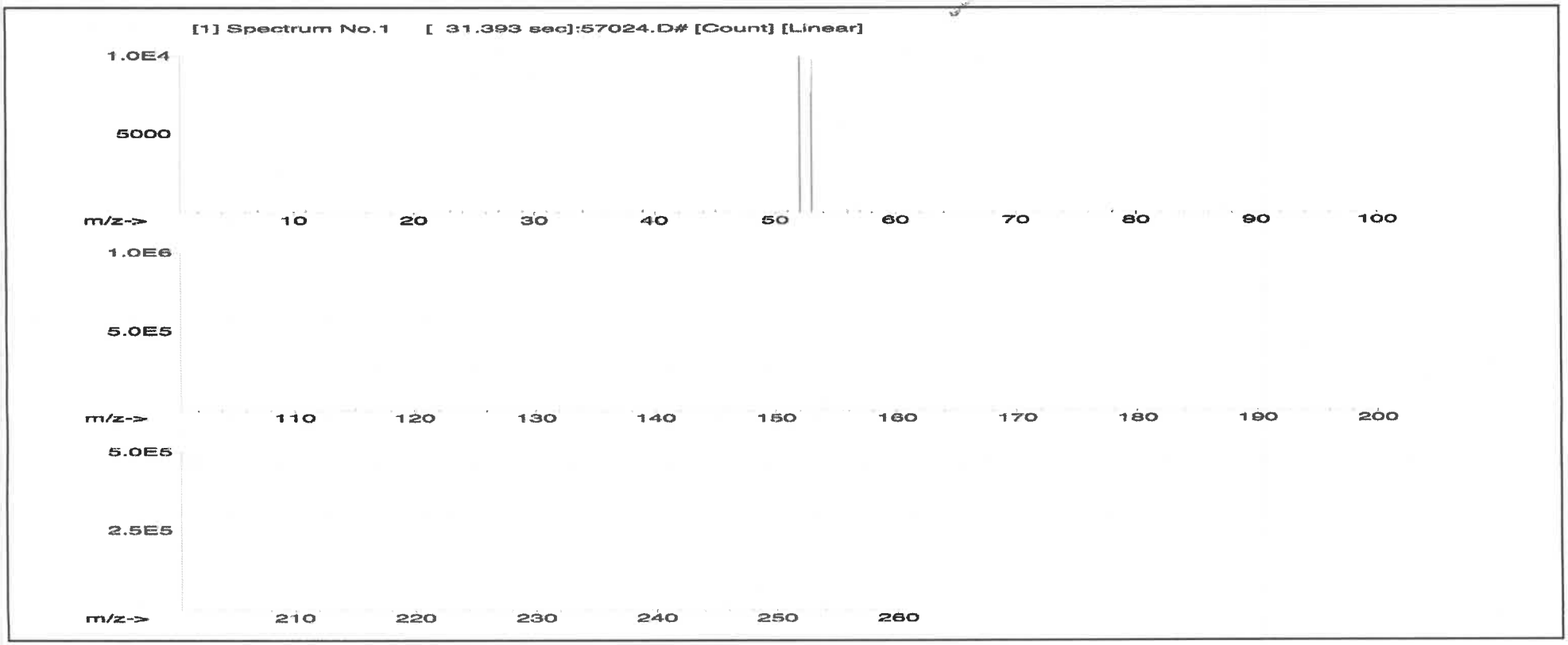
199

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58024**	21110221	Nitric Acid	
Lot Number:	**060523**			
Description:	**Chromium (Cr)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	060526			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

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

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.) 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	orl-rat 3250 mg/kg	3112a



200

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:

Certified by:

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

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* 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).

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M5648 R: 10/27/23

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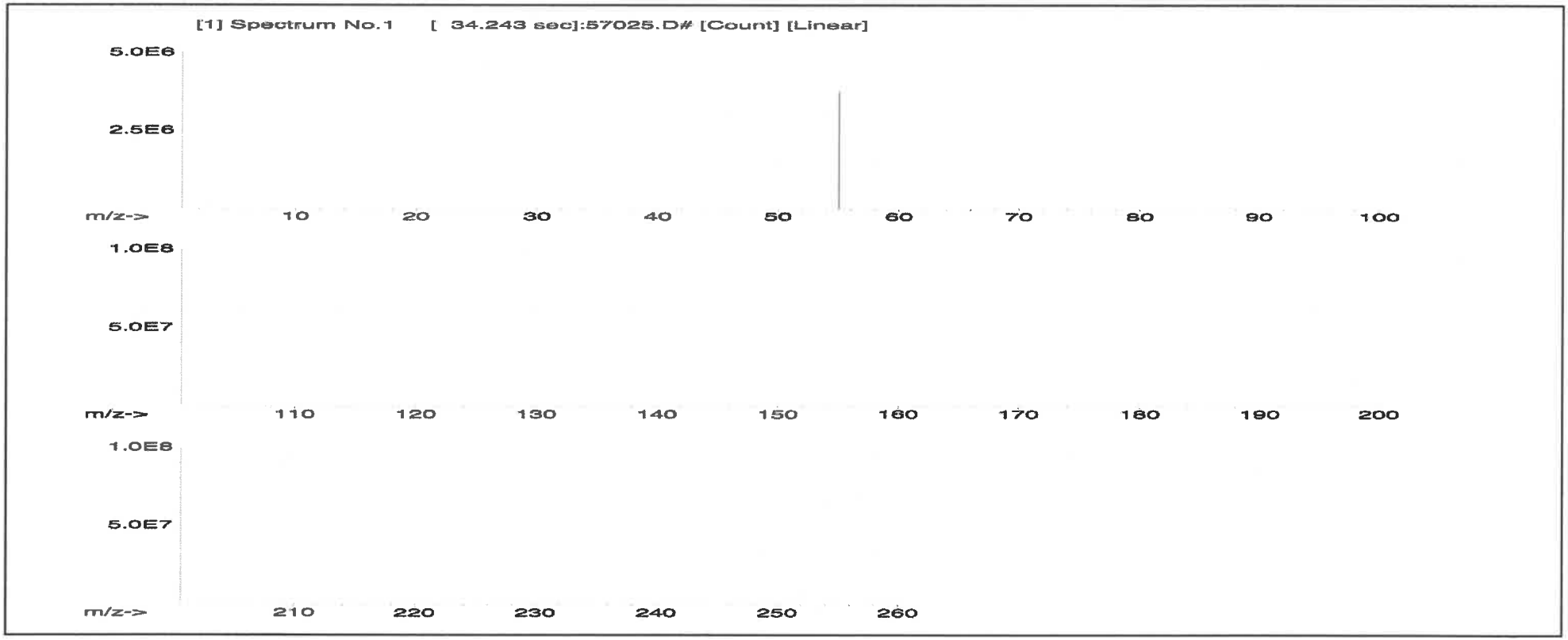
201

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58025**	24002546	Nitric Acid	
Lot Number:	**102623**			
Description:	**Manganese (Mn)**			
		2.0%	60.0 (mL)	Nitric Acid
Expiration Date:	102626			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	3000.41	0.058	Flask Uncertainty	

Formulated By:	Benson Chan	102623
Reviewed By:	Pedro L. Rentas	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.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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	orl-rat >300mg/kg	3132



202

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	T	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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R: 8/25/23 M5751

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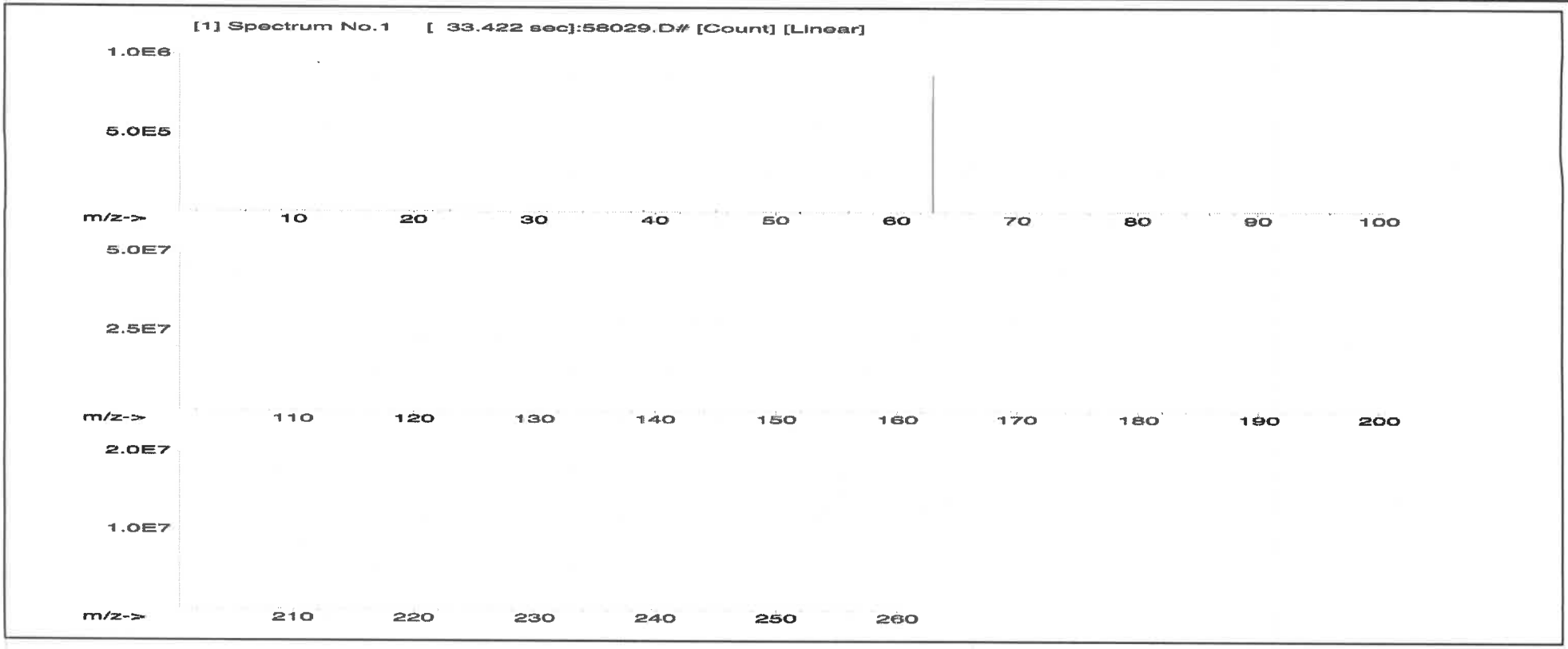
203

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58029**	21110221	Nitric Acid	
Lot Number:	**071723**			
Description:	**Copper (Cu)**	2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	071726			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

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

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.) 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	orl-rat 794 mg/kg	3114



204

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	T	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

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

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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).

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M5768 M5769 (BP) R:1/3/24

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205

CERTIFIED WEIGHT REPORT:

Part Number: 58112
Lot Number: 091823
Description: Magnesium (Mg)

Expiration Date: 091826
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

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

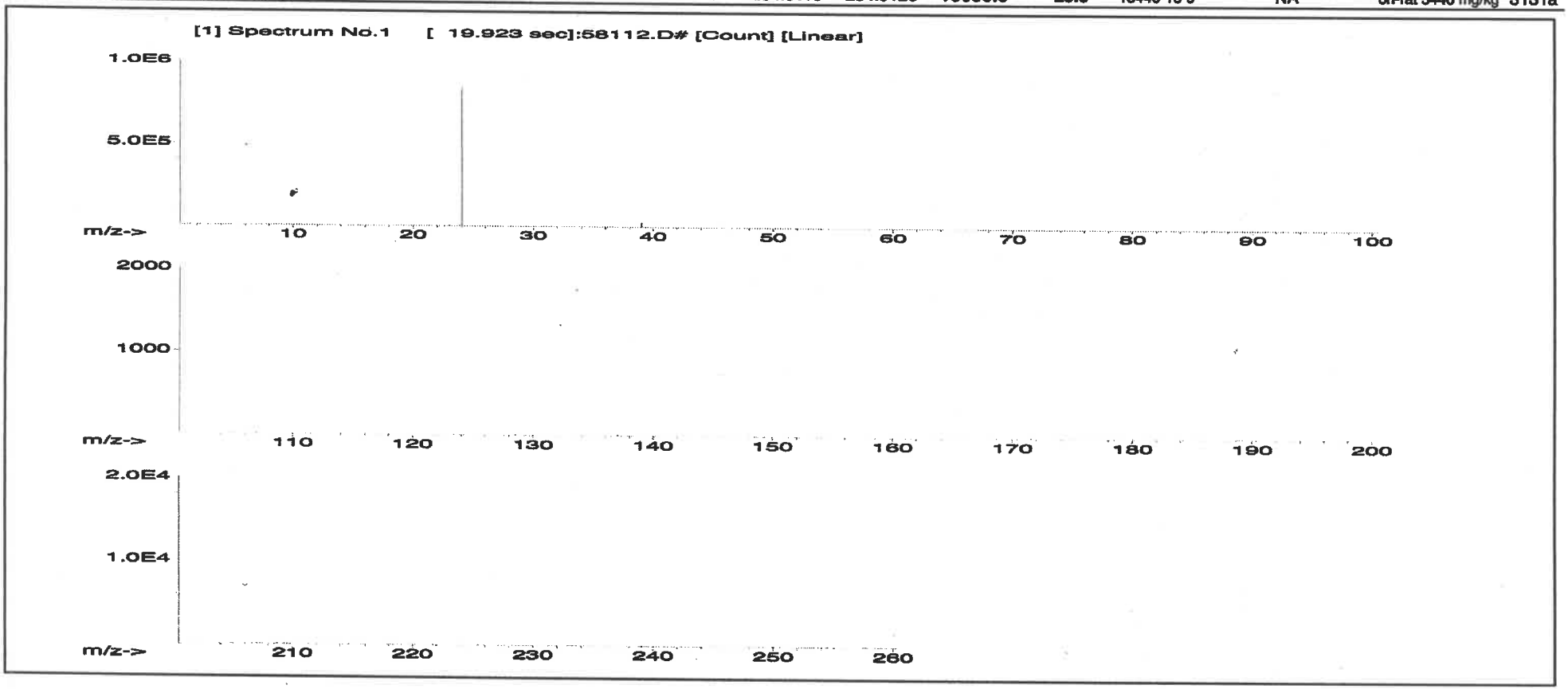
		Lot #	
Solvent:	24002546	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

M5768, M5769 (BP) R: 1/3/24

Formulated By:	Lawrence Barry	091823
Reviewed By:	Pedro L. Rentas	091823

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Magnesium nitrate hexahydrate (Mg)	IN030	MGD052023A1	10000	99.999	0.10	8.51	234.9118	234.9126	**10000.0**	**20.0**	13446-18-9	NA	orl-rat 5440 mg/kg	3131a



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	T	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 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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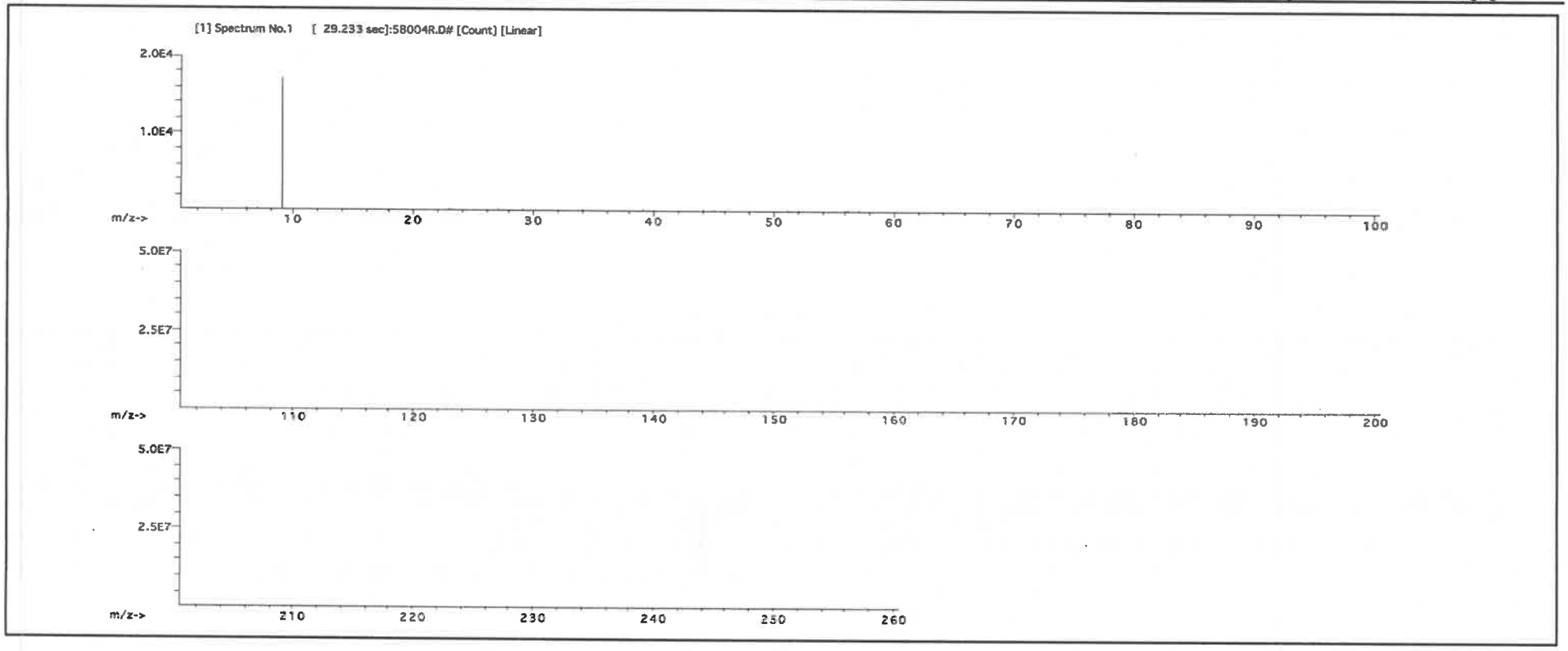
CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:		
Part Number:	**57004**	24002546	Nitric Acid		
Lot Number:	**102523**				
Description:	**Beryllium (Be)**	2.0%	40.0 (mL)	Nitric Acid	
Expiration Date:	102526				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

Formulated By:	Benson Chan	102523
Reviewed By:	Pedro L. Rentas	102523

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.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Beryllium nitrate (Be)	58104	091423	0.1000	200.0	0.084	1000	10001.5	**1000.0**	**2.2**	13597-99-4	0.2ug/m3	intrvns-rat 3.16mg/kg	NA



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	T	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:

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.
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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).

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CERTIFIED WEIGHT REPORT:

Part Number: 57050
Lot Number: 071123
Description: Tin (Sn)

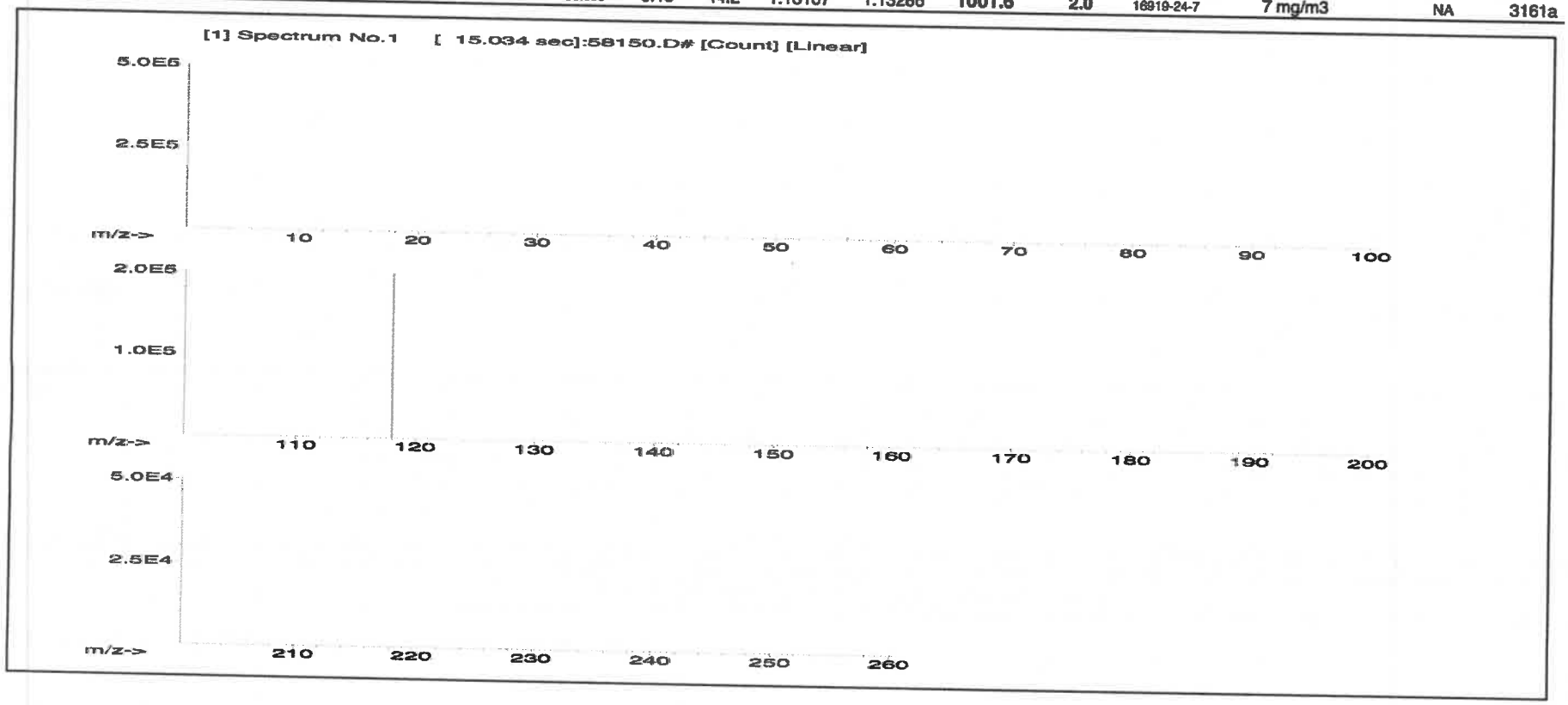
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93

Solvents:	Lot #	
	21110221	Nitric Acid
	22D0562008	Hydrochloric acid
2%	10.0	Nitric Acid
6%	30.0	Hydrochloric acid
	(mL)	

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium hexafluorostannate(IV) (Sn)	IN010	SND042023A1	1000	99.999	0.10	44.2	1.13107	1.13286	**1001.6**	**2.0**	16919-24-7	7 mg/m3	NA	3161a



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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	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	<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	Sn	T	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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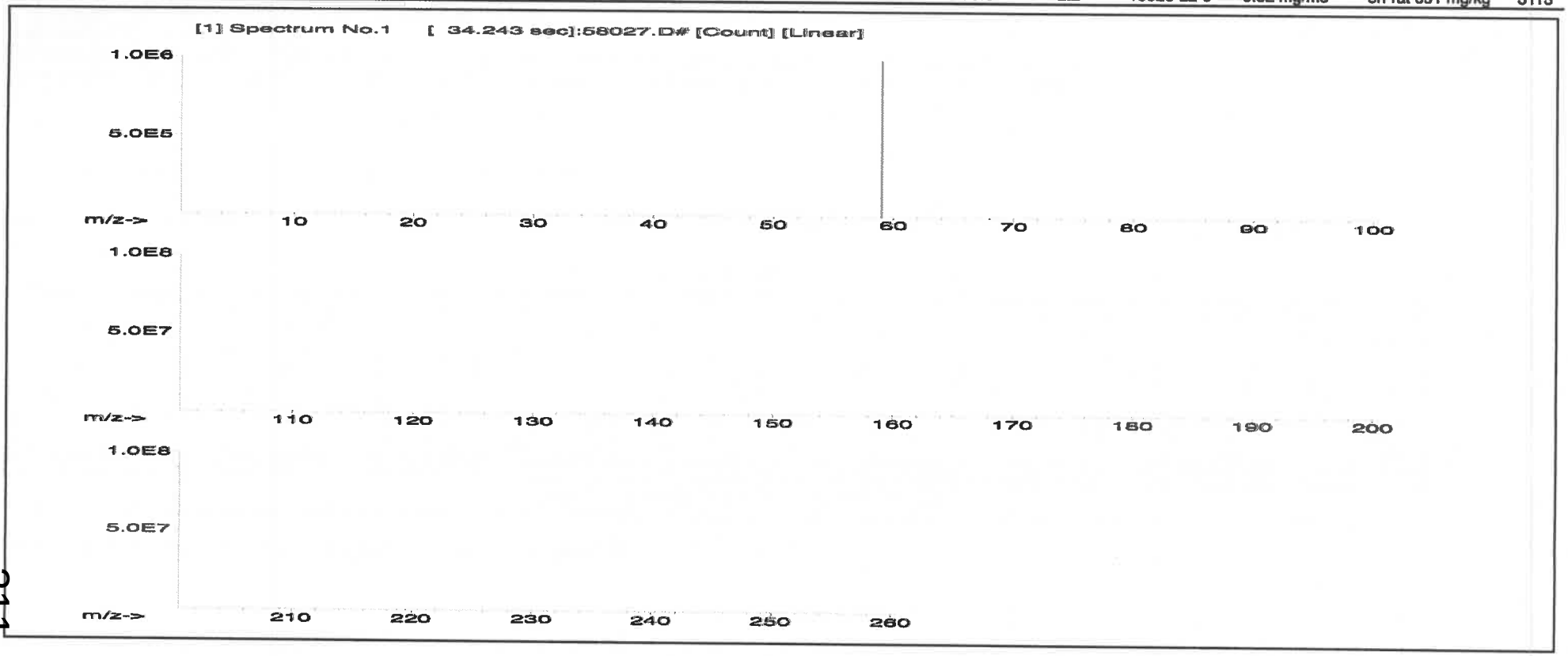
CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:		
Part Number:	**57027**	24002546	Nitric Acid		
Lot Number:	**091923**				
Description:	**Cobalt (Co)**				
		2.0%	40.0 (mL)	Nitric Acid	
Expiration Date:	091926				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

Formulated By:	Lawrence Barry	091923
Reviewed By:	Pedro L. Rentas	091923

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.) 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



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Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	T	Gé	<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:

Certified by:

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

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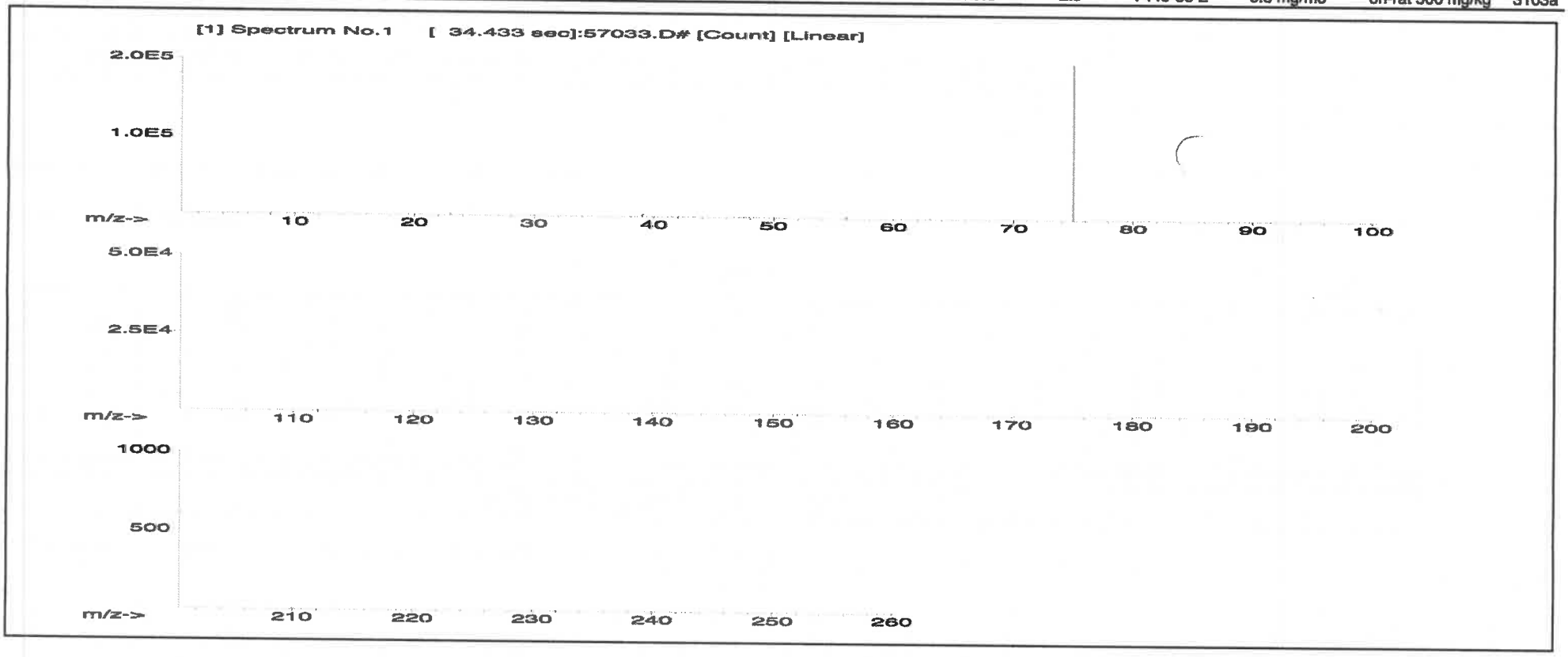
CERTIFIED **WEIGHT** REPORT:

		Lot #	Solvent:		
Part Number:	**57033**	24002546	Nitric Acid		
Lot Number:	**111323**				
Description:	**Arsenic (As)**	2.0%	80.0 (mL)	Nitric Acid	
Expiration Date:	111326				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	4000.0	0.06	Flask Uncertainty		

Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rentas	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)	SDS Information (Solvent Safety Info. On Attached pg.) 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	orl-rat 500 mg/kg	3103a



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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	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	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	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:

Certified by:

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

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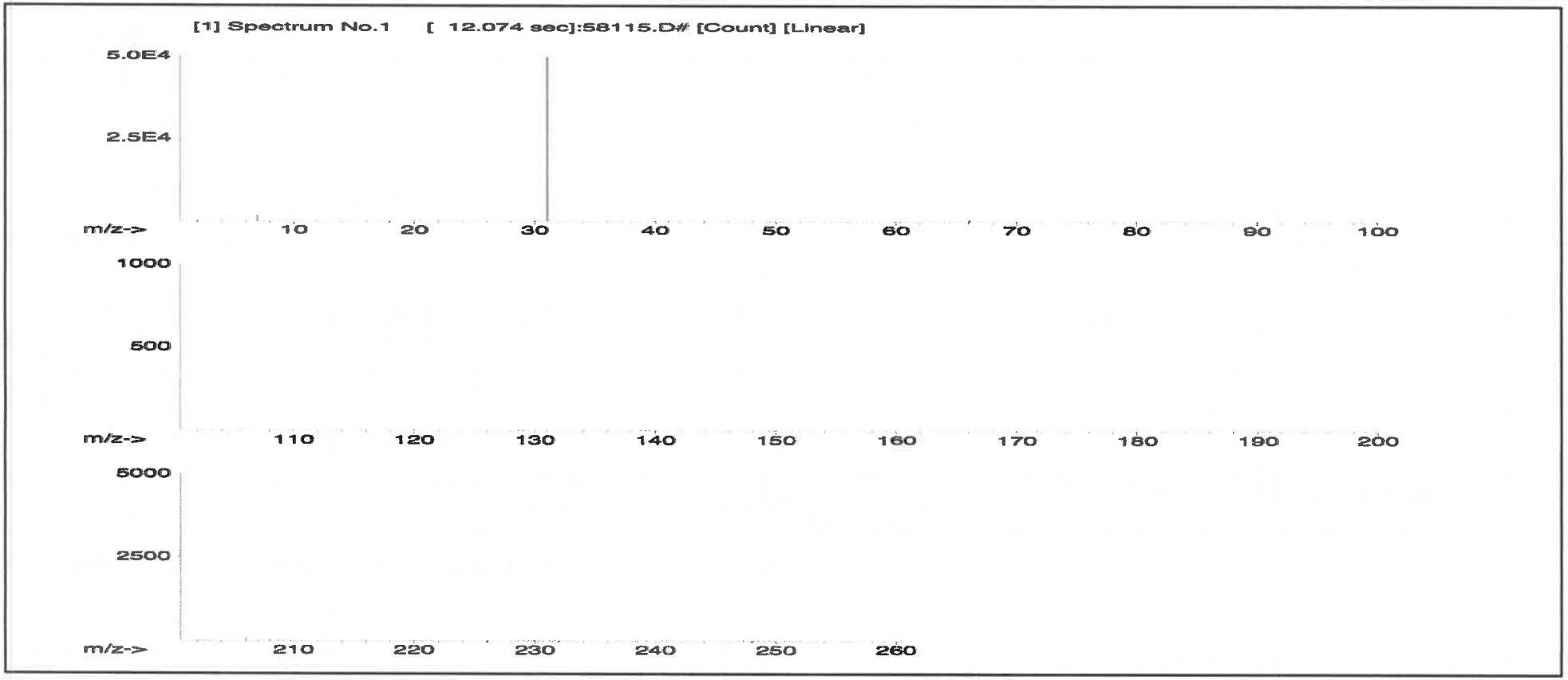
CERTIFIED WEIGHT REPORT:

			Lot #	
Part Number:	**57115**	**Solvent:**	21110221	Nitric Acid
Lot Number:	**041723**			
Description:	**Phosphorous (P)**	2%	40.0 (mL)	Nitric Acid
Expiration Date:	041726			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**10000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Weight shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

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

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium dihydrogen phosphate (P)	IN008	PV082019A1	10000	99.999	0.10	27.5	72.7287	72.7289	**10000.0**	**20.0**	7722-76-1	5 mg/m3	orl-rat >2000mg/kg	3186



Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	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:

Certified by:

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

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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).

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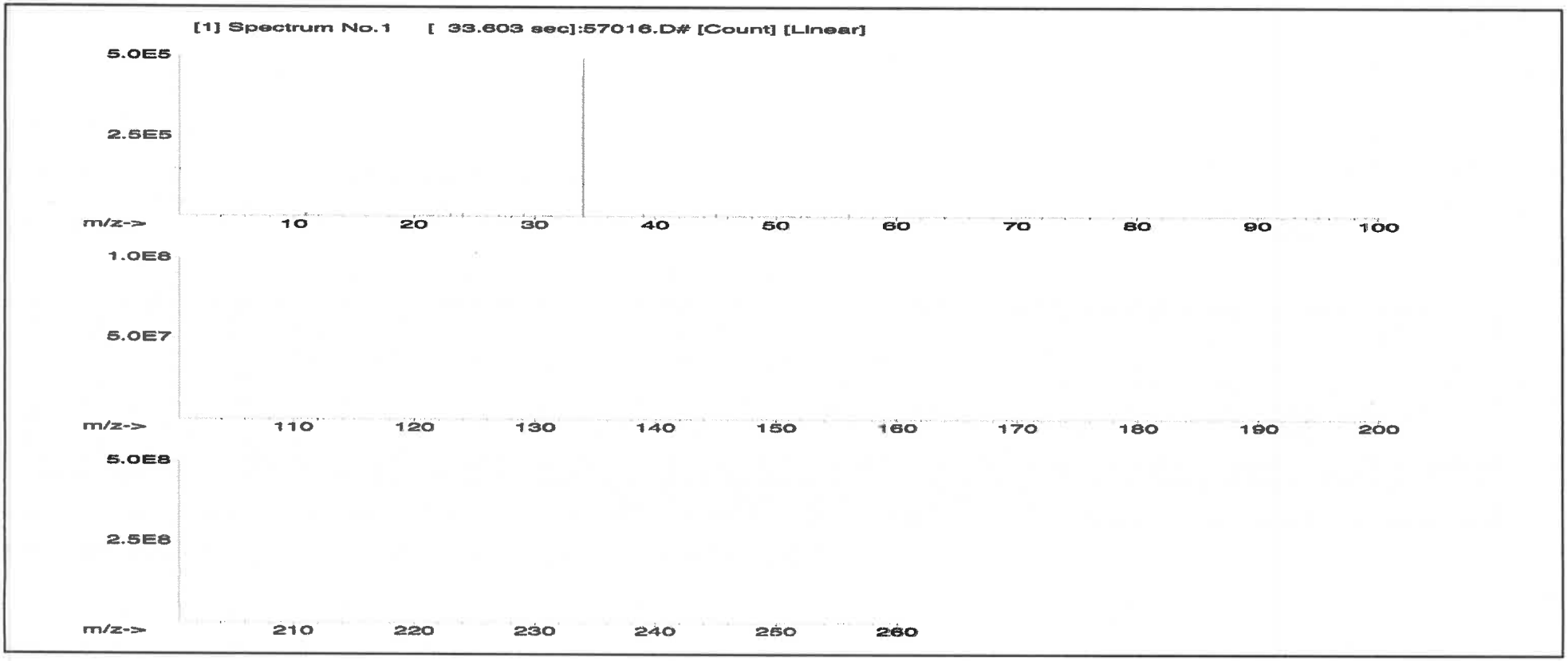
217

CERTIFIED WEIGHT REPORT:

Part Number:	**57016**	**Solvent:**	**Lot #** 122923	ASTM Type 1 Water
Lot Number:	**122923**			
Description:	**Sulfur (S)**			
Expiration Date:	122926			
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):	4000.0	0.06	Flask Uncertainty	

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

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium sulfate (S)	IN117	SLBR7225V	1000	99.9	0.10	24.3	16.4979	16.4980	**1000.0**	**2.0**	7783-20-2	NA	orl-rat 4250mg/kg	3181



218

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	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

(T) = Target analyte

Physical Characterization:

Certified by:

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

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 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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219

CERTIFIED WEIGHT REPORT:

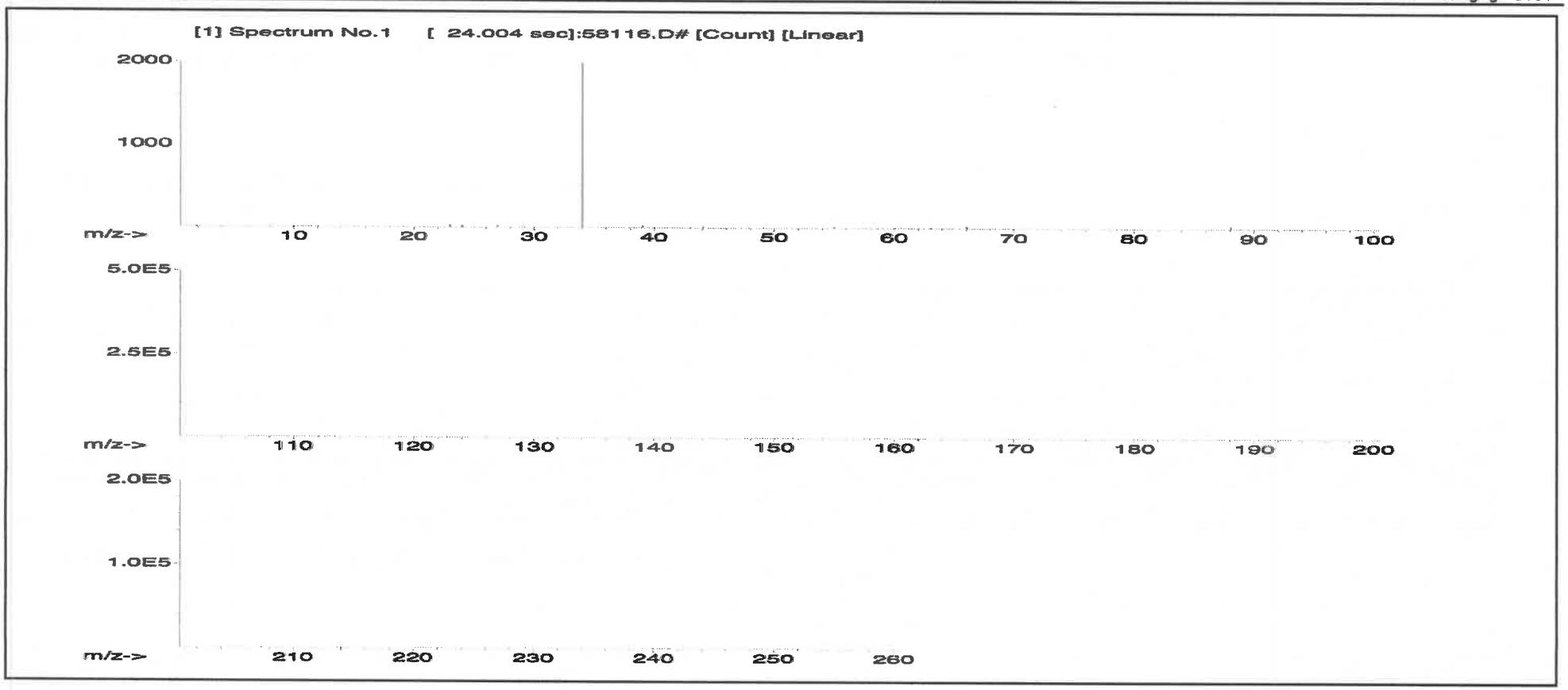
Part Number: 57116
Lot Number: 071123
Description: Sulfur (S)

Lot #
Solvent: 071123 ASTM Type 1 Water

Expiration Date: 071126
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): 1999.48 0.058 Flask Uncertainty

Formulated By:	Lawrence Barry	071123
Reviewed By:	Pedro L. Rentas	071123

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium sulfate (S)	IN117	SLBR7225V	10000	99.9	0.10	24.3	82.4675	82.4682	**10000.1**	**20.0**	7783-20-2	NA	orl-rat 4250mg/kg	3181



220

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	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

(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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* 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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R: 02/09/24 M.5818

Lot #

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221

CERTIFIED WEIGHT REPORT:

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

Expiration Date: 122026
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1999.48 ± 0.058 Flask Uncertainty

Solvent: 24002546 Nitric Acid

2% 40.0 (mL) Nitric Acid

5E-05 Balance Uncertainty

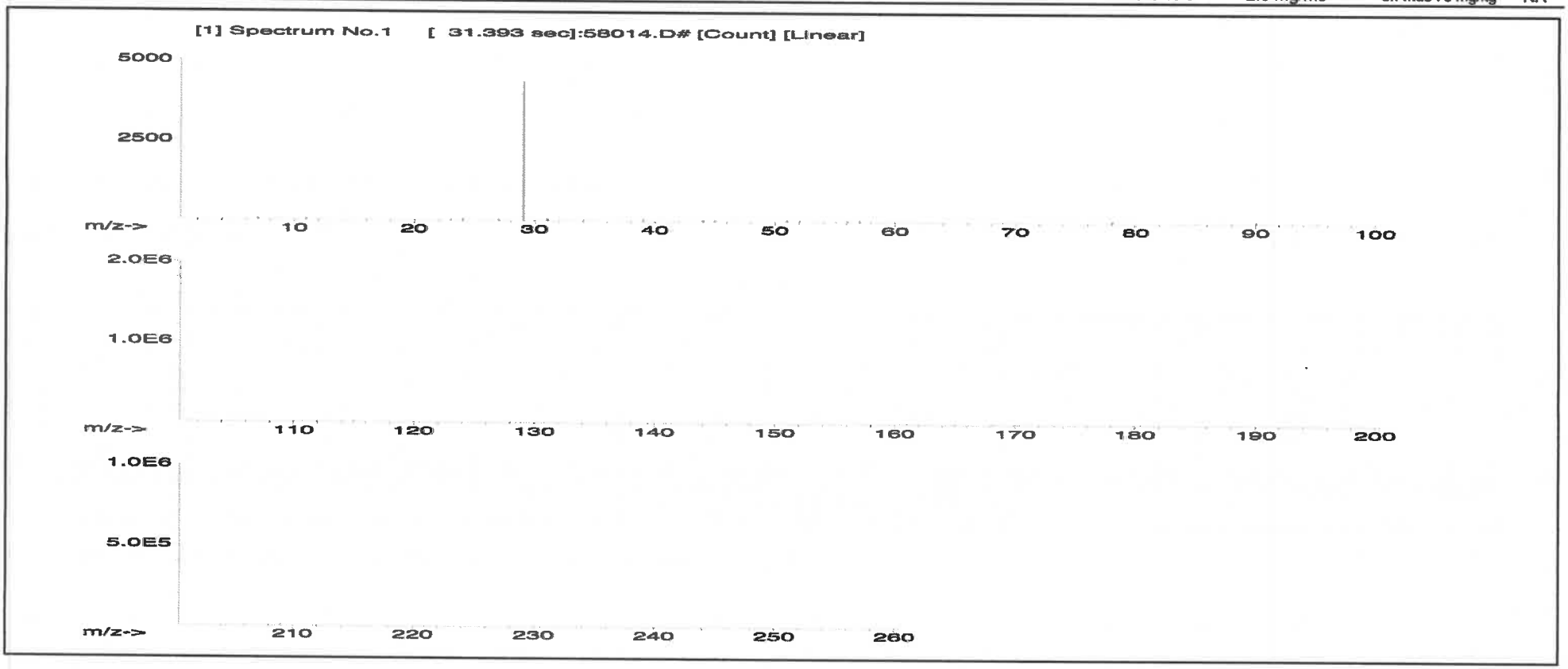
Aleah O'Brady

Formulated By: Aleah O'Brady 122023

Pedro Rentas

Reviewed By: Pedro L. Rentas 122023

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium hexafluorosilicate (Si)	IN009	SID082022A1	1000	99.999	0.10	14.4	13.8854	13.8855	**1000.0**	**2.0**	16919-19-0	2.5 mg/m3	orl-mus 70 mg/kg	NA



222

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	T	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(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).

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223

CERTIFIED WEIGHT REPORT:

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

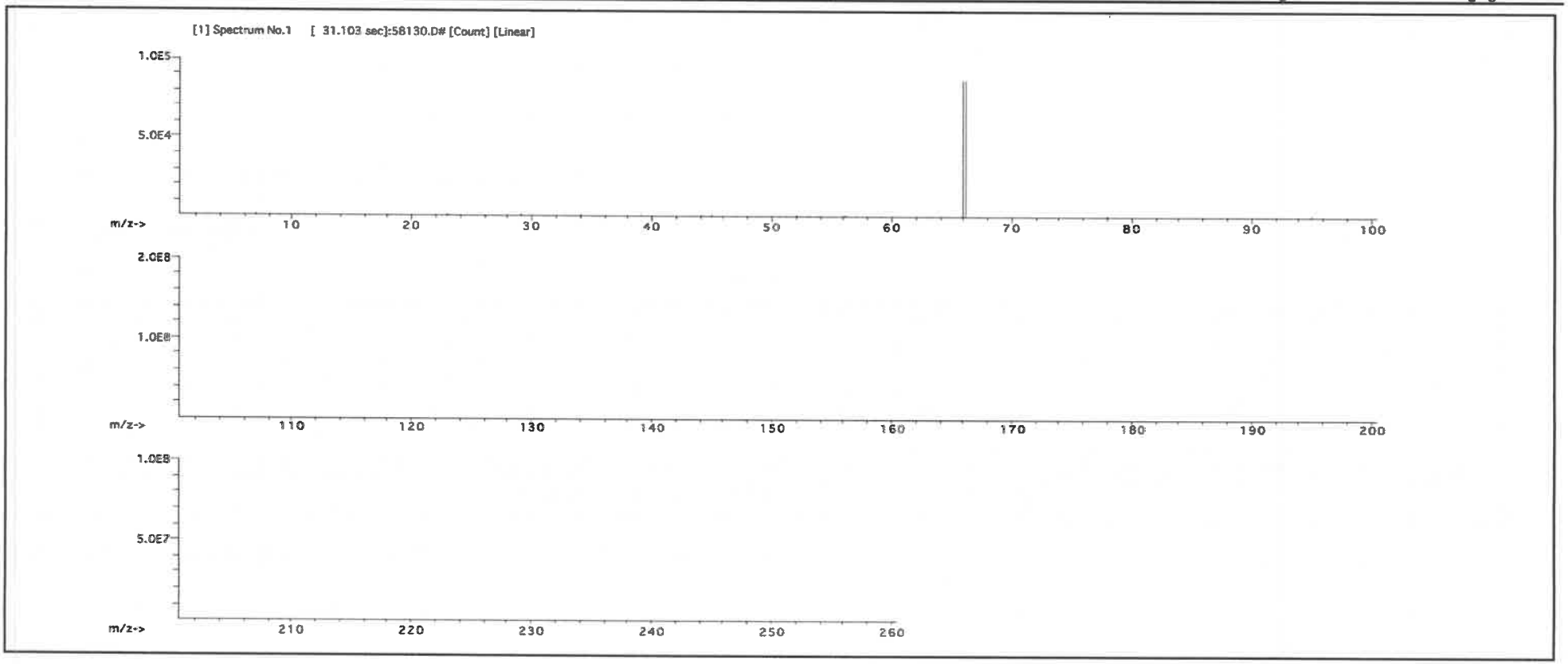
Expiration Date: 111626
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 3000.4 0.06 Flask Uncertainty

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	

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

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Zinc nitrate hexahydrate (Zn)	IN016	ZNE032021A1	1000	99.999	0.10	24.3	12.3475	12.3502	**1000.2**	**2.0**	10196-18-6	1 mg/m3	orl-rat 1190mg/kg	3168



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	T
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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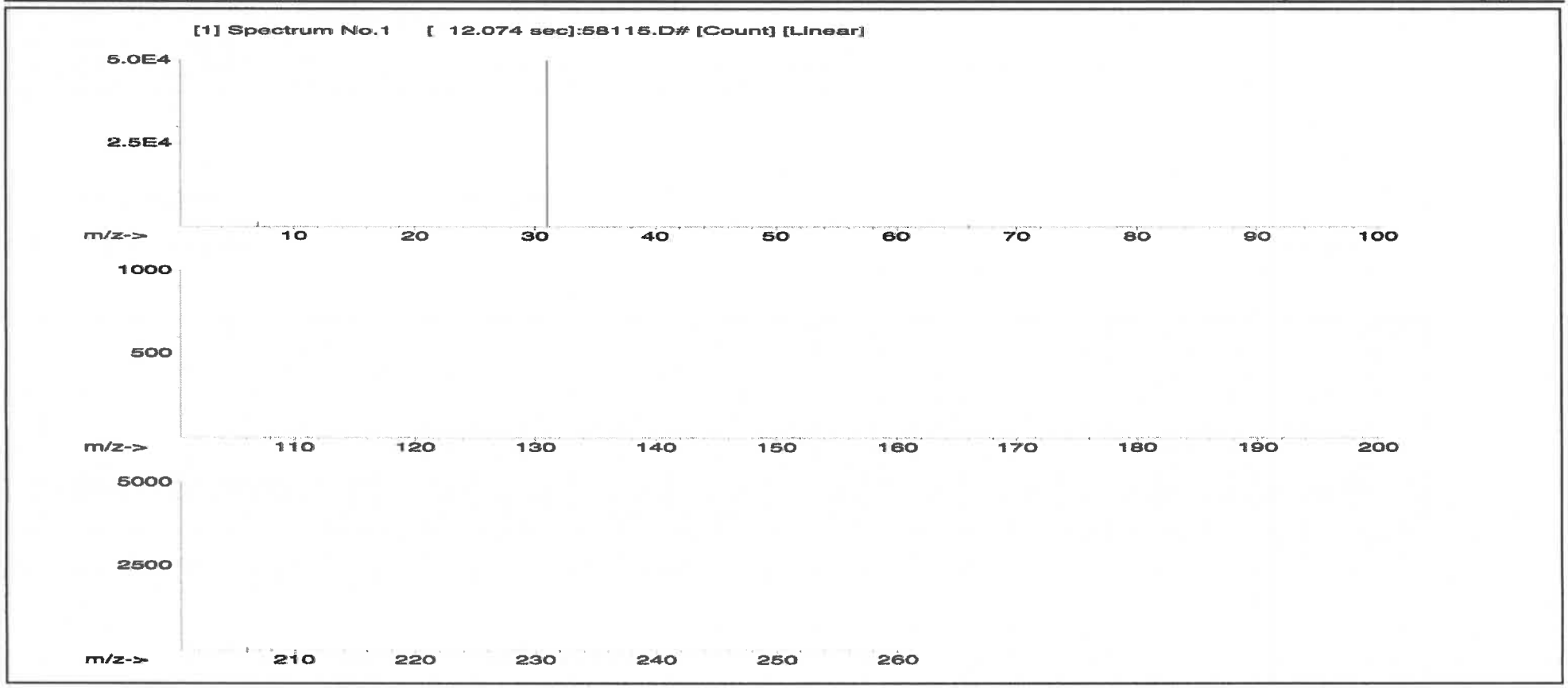
225

CERTIFIED WEIGHT REPORT:

Part Number:	**57015**		**Solvent:**	**Lot #** 24002546	Nitric Acid
Lot Number:	**091123**				
Description:	**Phosphorous (P)**		2%	40.0 (mL)	Nitric Acid
Expiration Date:	091126				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

Formulated By:	Lawrence Barry	091123
Reviewed By:	Pedro L. Rentas	091123

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium dihydrogen phosphate (P)	IN008	PV082019A1	1000	99.999	0.10	27.5	7.2729	7.2730	**1000.0**	**2.0**	7722-76-1	5 mg/m3	orl-rat >2000mg/k	3186



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	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:

Certified by:

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

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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).

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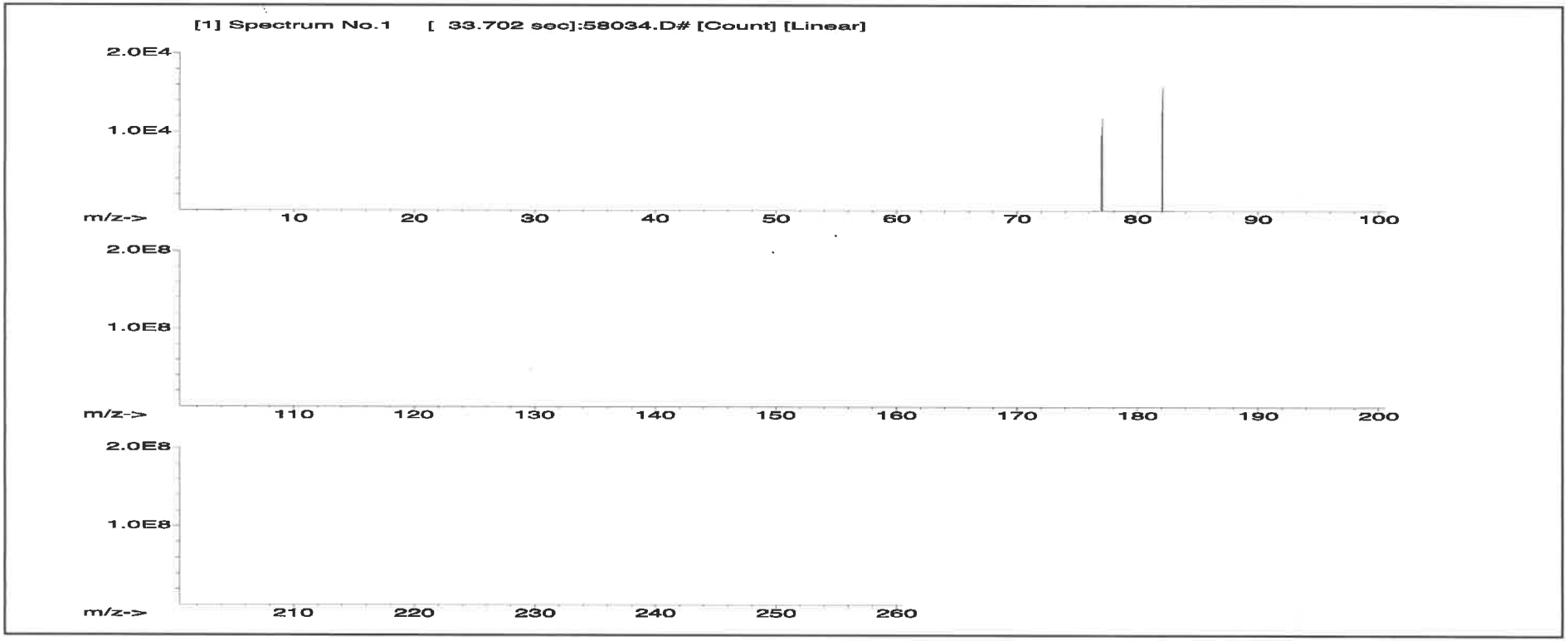
227

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57034**	24002546	Nitric Acid	
Lot Number:	**060624**			
Description:	**Selenium (Se)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	060627			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty	

Formulated By:	Benson Chan	060624
Reviewed By:	Pedro L. Rentas	060624

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.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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	orl-rat 6700 mg/kg	3149



228

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	T	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	<0.2	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 certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M5970, M5971 R: 7/01/24

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: 062127
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 250.11

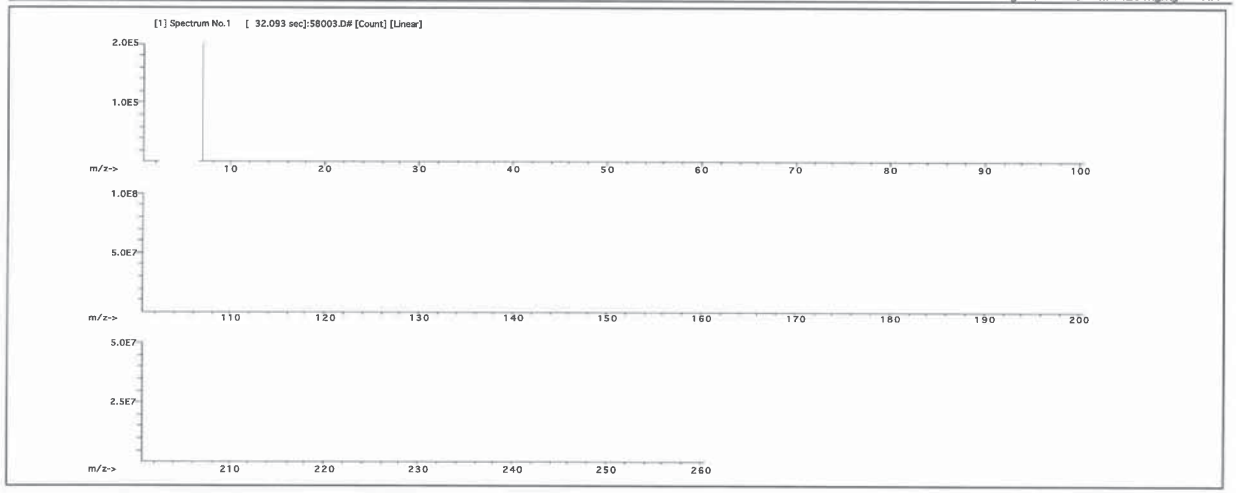
Lot #	Solvent:		
24002546	Nitric Acid		
2.0%	5.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.016 Flask Uncertainty

Giovanni Esposito
Formulated By: Giovanni Esposito 062124

Pedro Rentas
Reviewed By: Pedro L. Rentas 062124

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.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lithium nitrate (Li)	58103	070622	0.1000	25.0	0.004	1000	10000.4	**1000.0**	**2.0**	7790-69-4	5 mg/m3	orl-rat 1426 mg/kg	NA



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Certified Reference Material CRM

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

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	T	Ni	<0.02	Pr	<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	<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 certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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Certificate of Analysis

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300 Technology Drive
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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).

ACCREDITED Testing Laboratory Certificate 883.01 — ACCREDITED Reference Material Producer Certificate 883.02

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:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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,79Br1 6O,190Os2+,190Pt 2+
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: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

July 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

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1.0 ACCREDITATION / REGISTRATION

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ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGTI1
Lot Number:	T2-TI719972
Matrix:	2% (v/v) HNO3 tr. HF
Value / Analyte(s):	1 000 µg/mL ea: Titanium
Starting Material:	Ti Metal
Starting Material Lot#:	2094
Starting Material Purity:	99.9975%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL

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

Assay Information:

Assay Method #1 **1002 ± 4 µg/mL**
ICP Assay NIST SRM 3162a Lot Number: 130925

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$
w_i = the weighting factors for each method calculated using the inverse square of the variance

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = (\Sigma(w_i)^2\ (u_{char\ i})^2)^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty
u_{lts} = long term stability standard uncertainty (storage)
u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with
$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization
u_{bb} = bottle to bottle homogeneity standard uncertainty
u_{lts} = long term stability standard uncertainty (storage)
u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

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

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

M	Ag	<	0.000536	M	Eu	<	0.000268	O	Na	<	0.032670	M	Se		0.001204	O	Zn	<	0.003267
O	Al		0.000872	O	Fe		0.003225	O	Nb	<	0.043560	O	Si		0.004735	O	Zr	<	0.043560
M	As	<	0.008586	M	Ga	<	0.000268	M	Nd	<	0.000268	M	Sm	<	0.000268				
M	Au	<	0.004577	M	Gd	<	0.000268	O	Ni	<	0.010890	M	Sn		0.000096				
O	B	<	0.008929	M	Ge	<	0.002146	M	Os	<	0.000269	O	Sr		0.000096				
M	Ba	<	0.002683	M	Hf		0.002161	O	P	<	0.054450	M	Ta		0.010560				
M	Be	<	0.005366	M	Hg	<	0.003231	M	Pb	<	0.001073	M	Tb	<	0.000268				
M	Bi	<	0.001609	M	Ho	<	0.000268	M	Pd	<	0.000268	M	Te	<	0.001341				
O	Ca		0.000676	M	In	<	0.002683	M	Pr	<	0.000268	M	Th	<	0.053663				
M	Cd	<	0.000268	M	Ir	<	0.000269	M	Pt	<	0.000536	s	Ti	<					
M	Ce	<	0.000268	M	K		0.001172	M	Rb	<	0.000268	M	Tl	<	0.000268				
M	Co	<	0.004293	M	La	<	0.000268	M	Re	<	0.000268	M	Tm	<	0.000268				
M	Cr		0.000752	O	Li	<	0.027225	M	Rh	<	0.000268	M	U	<	0.000268				
M	Cs	<	0.000268	M	Lu	<	0.000268	M	Ru	<	0.000269	M	V	<	0.019855				
O	Cu	<	0.010890	O	Mg	<	0.005445	i	S	<		M	W		0.000473				
M	Dy	<	0.000268	O	Mn	<	0.003267	M	Sb	<	0.006976	M	Y	<	0.002146				
M	Er	<	0.000268	M	Mo		0.000774	O	Sc	<	0.004900	M	Yb	<	0.000536				

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

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 47.87 +4 6 Ti(F)6-2

Chemical Compatibility - Soluble in concentrated HCl, HF, H3PO4 H2SO4 and HNO3. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.

Stability - 2-100 ppb levels stable (Alone or mixed with all other metals) as the Ti(F)6-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the Ti(F)6-2 chemically stable for years in 2-5% HNO3 / trace HF in an LDPE container.

Ti Containing Samples (Preparation and Solution) - Metal (Soluble in H2O / HF caution -powder reacts violently); Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H2O / HF / H2SO4); Oxide - high temperature history (~800EC) brookite (fuse in Pt0 with K2S2O7); Ores (fuse in Pt0 with KF + K2S2O7 - no KF if silica not present); Organic Matrices (Dry ash at 450EC in Pt0 and dissolve by heating with 1:1:1 H2O / HF / H2SO4 or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystalline form).

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

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 48 amu	14 ppt	N/A	32S16O, 32S14N, 14N16O18O, 14N17N2, 36Ar12C, 48Ca, [96X=2 (where X = Zr, Mo, Ru)]
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	Ce, Ar, Ni
ICP-OES 334.941 nm	0.0038 / 0.000028 µg/mL	1	Nb, Ta, Cr, U
ICP-OES 336.121 nm	0.0053 / 0.000034 µg/mL	1	W, Mo, Co

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

June 17, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- June 17, 2027

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

45982 R: 6/11/24

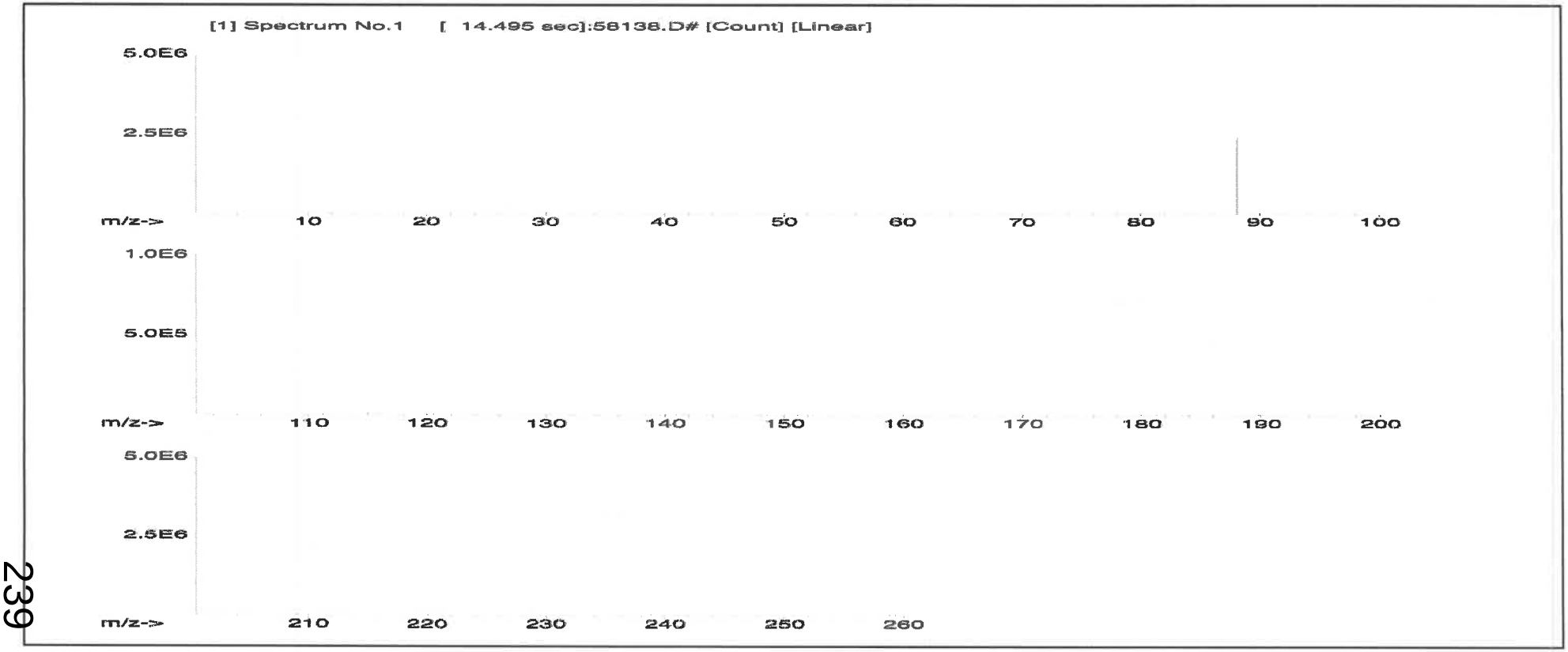
ANAB ISO 17034 Accredited
AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

Part Number:	**57038**		**Lot #**		
Lot Number:	**031524**	**Solvent:**	24002546	Nitric Acid	
Description:	**Strontium (Sr)**	2%	40.0 (mL)	Nitric Acid	
Expiration Date:	031527				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty		

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

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Strontium nitrate (Sr)	IN017	SRZ022018A1	1000	99.997	0.10	41.2	4.85470	4.85502	**1000.1**	**2.0**	10042-76-9	NA	orl-rat >2000mg/kg	3153a



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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	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:

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 certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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Certificate of Analysis

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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).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

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:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

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

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

M	Ag	<	0.004600	M	Eu		0.009037	M	Na		0.086360	M	Se	<	0.005200	M	Zn		0.030125
M	Al		0.014862	O	Fe		0.002410	M	Nb	<	0.000570	O	Si		0.024100	O	Zr	<	0.002600
M	As	<	0.003500	M	Ga	<	0.000570	M	Nd		0.000923	M	Sm		0.000461				
M	Au	<	0.001700	M	Gd	<	0.003500	M	Ni	<	0.005700	M	Sn	<	0.002300				
O	B		0.002209	M	Ge	<	0.005200	M	Os	<	0.001200	M	Sr	<	0.004600				
O	Ba	<	0.002500	M	Hf	<	0.000570	n	P	<		M	Ta	<	0.000570				
O	Be	<	0.001400	M	Hg	<	0.000570	M	Pb		0.005020	M	Tb		0.001044				
M	Bi	<	0.003500	M	Ho		0.009037	M	Pd	<	0.005100	M	Te	<	0.002300				
O	Ca		0.009841	M	In	<	0.002300	M	Pr	<	0.002300	M	Th	<	0.000570				
M	Cd	<	0.000570	M	Ir	<	0.000570	M	Pt	<	0.000570	M	Ti	<	0.003500				
M	Ce	<	0.002300	O	K		0.018677	M	Rb	<	0.000570	M	Tl	<	0.000570				
M	Co	<	0.000570	M	La		0.000461	M	Re	<	0.000570	M	Tm	<	0.003500				
M	Cr	<	0.004000	O	Li	<	0.009300	M	Rh	<	0.008000	M	U	<	0.000570				
M	Cs	<	0.000570	M	Lu		0.000582	M	Ru	<	0.000570	M	V		0.001265				
M	Cu		0.002610	O	Mg		0.001486	n	S	<		M	W	<	0.002300				
M	Dy		0.003815	M	Mn		0.000582	M	Sb		0.005422	s	Y	<					
M	Er		0.003615	M	Mo	<	0.005700	M	Sc	<	0.001200	M	Yb		0.001827				

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

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, https://www.inorganicventures.com/terms-and-conditions-sale. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 88.91 +3 6 Y(OH)(H2O)x+2

Chemical Compatibility -Soluble in HCl, H2SO4 and HNO3. Avoid HF, H3PO4 and neutral to basic media. Stable with most metals and inorganic anions forming an insoluble carbonate, oxide, oxalate, and fluoride. Avoid mixing with elements / solutions containing moderate amounts of fluoride.

Stability - 2-100 ppb levels stable for months in 1% HNO3 / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO3 / LDPE container.

Y Containing Samples (Preparation and Solution) - Metal (Soluble in acids); Oxide (Dissolve by heating in H2O/ HNO3); Ores (Carbonate fusion in Pt0 followed by HCl dissolution); Organic Matrices (Dry ash and dissolve in 1:1 H2O / HCl or HNO3).

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

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 89 amu	0.8 ppt	N/A	73Ge16O, 178Hf+2
ICP-OES 360.073 nm	0.005 / 0.000036 µg/mL	1	Ce, Th
ICP-OES 371.030 nm	0.004 / 0.00007 µg/mL	1	Ce
ICP-OES 377.433 nm	0.005 / 0.0009 µg/mL	1	Ta, Th

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 20, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- February 20, 2029

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor

Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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inorganicventures.com

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MS985
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).

ACCREDITED Testing Laboratory Certificate 863.01
ACCREDITED Reference Material Producer Certificate 863.02

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:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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 Pt0 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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

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 #**	
Lot Number:	**011623**		**Solvent:**	20510011	Nitric Acid
Description:	**Aluminum (Al)**				
			2%	40.0 (mL)	Nitric Acid
Expiration Date:	011626				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**10000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

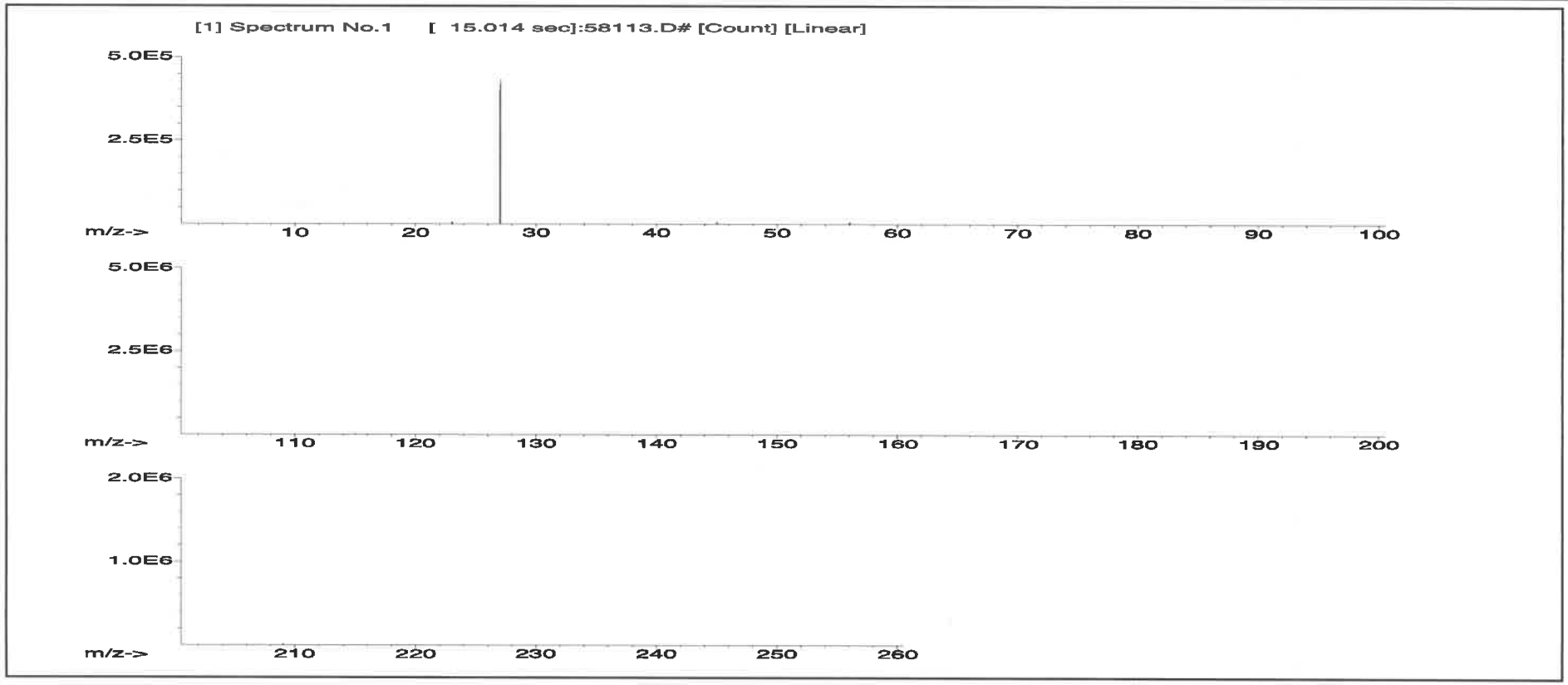
Giovanni Esposito

Formulated By:	Giovanni Esposito	011623

Pedro Rentas

Reviewed By:	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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Aluminum nitrate nonahydrate (Al)	IN022	ALM112021A1	10000	99.999	0.10	7.30	273.9779	274.0078	**10001.1**	**20.0**	7784-27-2	2 mg/m3	orl-rat 3671 mg/kg	3101a



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

M6109
M6110
M6111

Received date 9/29/24 Met dig.

avantor™ | J.T.Baker®

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

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.6 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.190
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 >>>

For questions on this Certificate of Analysis please contact Technical Services at 855 282 6867 or +1 610 386 1700

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

avantor™ | J.T.Baker®

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™ | J.T.Baker®

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

Test	Specification	Result

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

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

James T Ethier

Jamie Ethier
Vice President Global Quality

Nitric Acid 69%
CMOS

M6112
M6113
M6114
M6115
M6116
M6117

Receive:
9/29/24
Met dig

avantor™ | J.T.Baker®

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™ | J.T.Baker®

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

avantor™ | J.T.Baker®

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

Test	Specification	Result

For Microelectronic Use

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

Ken Koehnlein
Sr. Manager, Quality Assurance

Nitric Acid 69%
CMOS

M6112
M6113
M6114
M6115
M6116
M6117

Receive:
9/29/24
Met dig

avantor™ | J.T.Baker®

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™ | J.T.Baker®

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

avantor™ | J.T.Baker®

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

Test	Specification	Result

For Microelectronic Use

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

Ken Koehnlein
Sr. Manager, Quality Assurance

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

R:- 10/22/24

MG124

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

Certificate of Analysis

Test	Specification	Result
Assay (HNO_3)	69.0 - 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO_4)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities - Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	2.3 ppb
Trace Impurities - Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities - Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	100 ppb
Trace Impurities - Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities - Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

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

Test	Specification	Result
Trace Impurities - Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities - Potassium (K)	≤ 50 ppb	16 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	10 par/ml
Particle Count - 1.0 µm and greater	≤ 10 par/ml	3 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

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

Test	Specification	Result

For Microelectronic Use

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

Jamie Croak
Director Quality Operations, Bioscience Production

M6125 Receive -> 11/22/24

CORCO CHEMICAL CORPORATION

Manufacturers of ACS Reagents and Semiconductor Grade Chemicals

Office and Plant
299 Cedar Lane
Fairless Hills, PA 19030

Phone: 215-295-5006
Fax: 215-295-0781

Hydrogen Peroxide 30%, ACS

Reagent Grade

SPECIFICATION	MAXIMUM LIMITS
Appearance	Colorless and free from suspended matter or sediment
Assay	29-32%
Color (APHA)	10
Residue after Evaporation	0.002%
Titratable Acid	0.0006 meq/g
Chloride (Cl)	3 ppm
Nitrate (NO_3)	2 ppm
Phosphate	2 ppm
Sulfate (SO_4)	5 ppm
Ammonium (NH_4)	5 ppm
Heavy Metals (as Pb)	1 ppm
Iron (Fe)	0.5 ppm

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

R: 01/03/24 M5806, M5807

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

264

CERTIFIED WEIGHT REPORT:

Part Number: 58111
Lot Number: 122223
Description: Sodium (Na)

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

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	

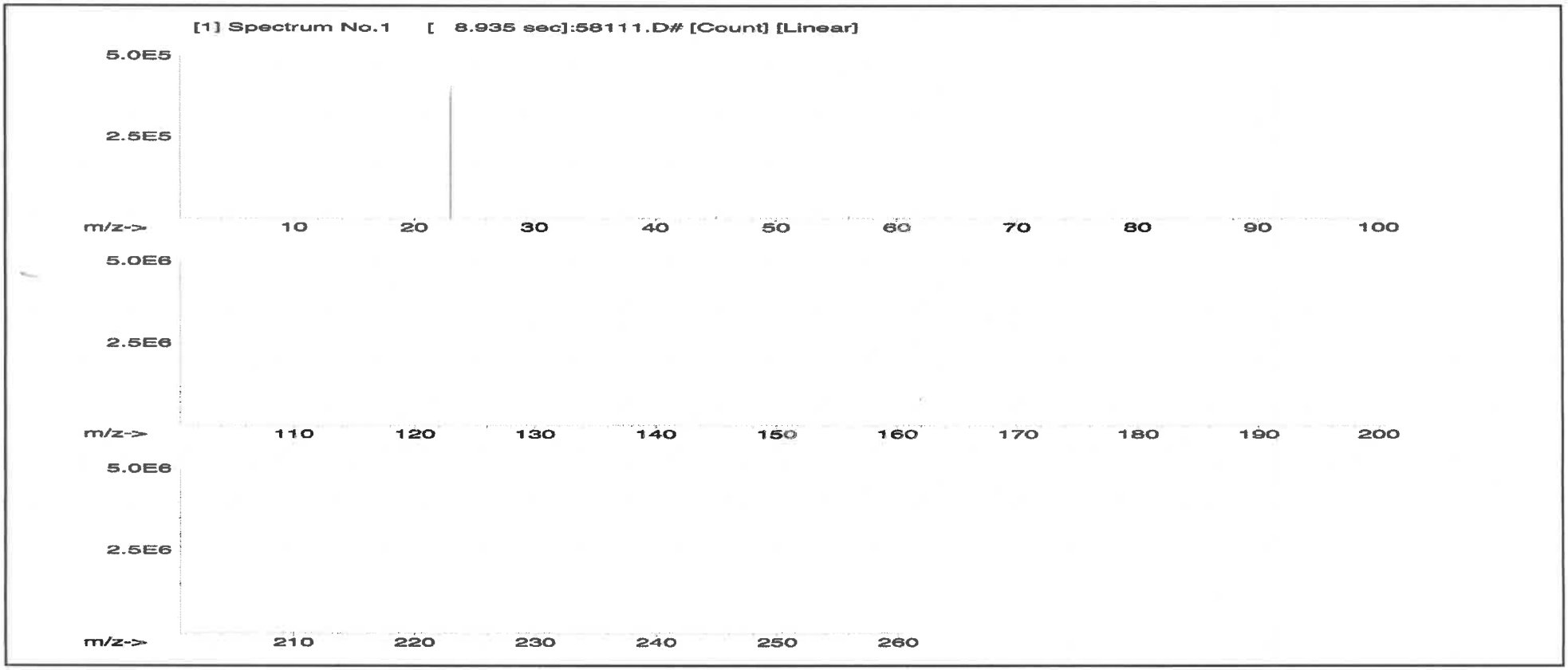
5E-05 Balance Uncertainty

Aleah O'Brady

Formulated By: Aleah O'Brady 122223

Reviewed By: Pedro L. Rentas 122223

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Sodium nitrate (Na)	IN036	NAV012015I1	10000	99.999	0.10	26.9	111.5406	111.5479	**10000.7**	**20.0**	7631-99-4	5 mg/m3	orl-rat 3430 mg/kg	3152a



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	T	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 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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R: 01/03/24 M5802, M5803

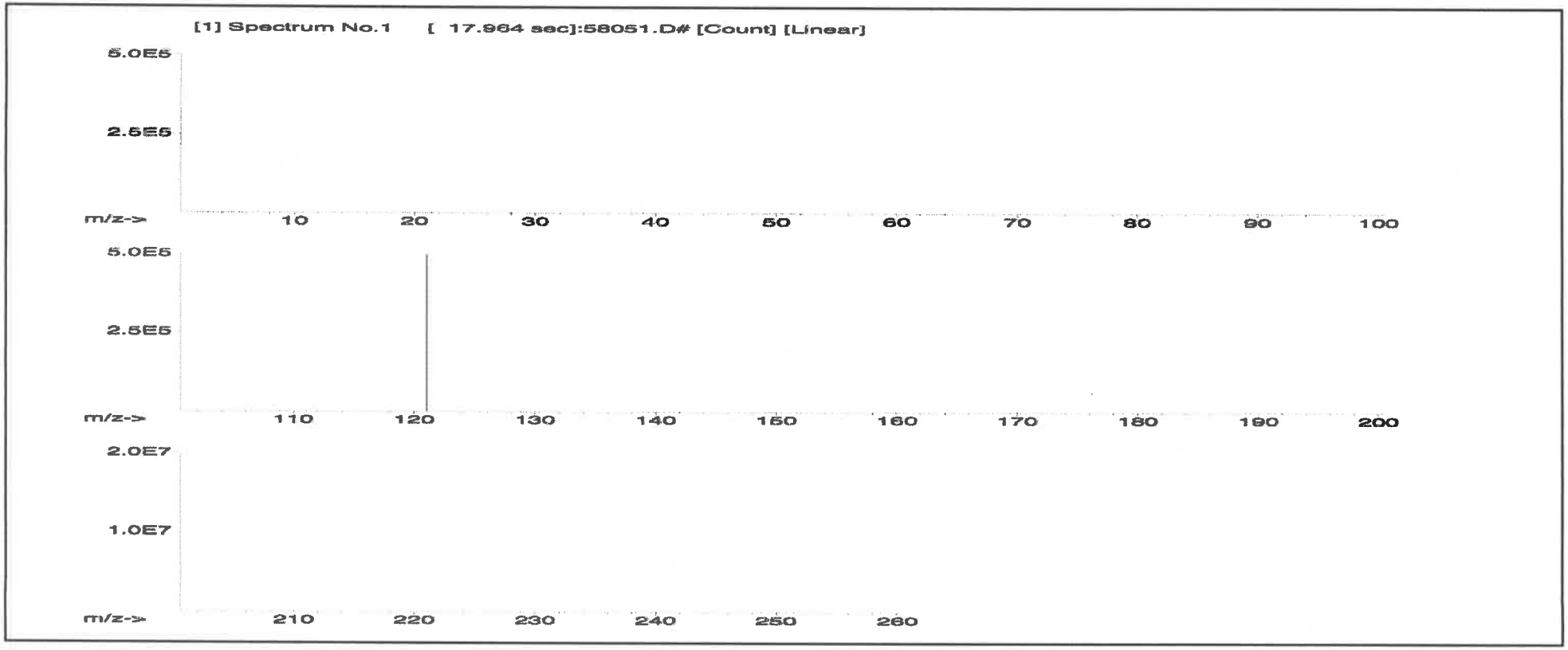
266

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57051**	24002546	Nitric Acid	
Lot Number:	**120523**			
Description:	**Antimony (Sb)**			
		2.0%	60.0 (mL)	Nitric Acid
Expiration Date:	120526			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	3000.41	0.058	Flask Uncertainty	

Formulated By:	Lawrence Barry	120523
Reviewed By:	Pedro L. Rentas	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)	SDS Information (Solvent Safety Info. On Attached pg.) 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	orl-rat 7000 mg/kg	3102a



267

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	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:

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* 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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R: 8/5/24

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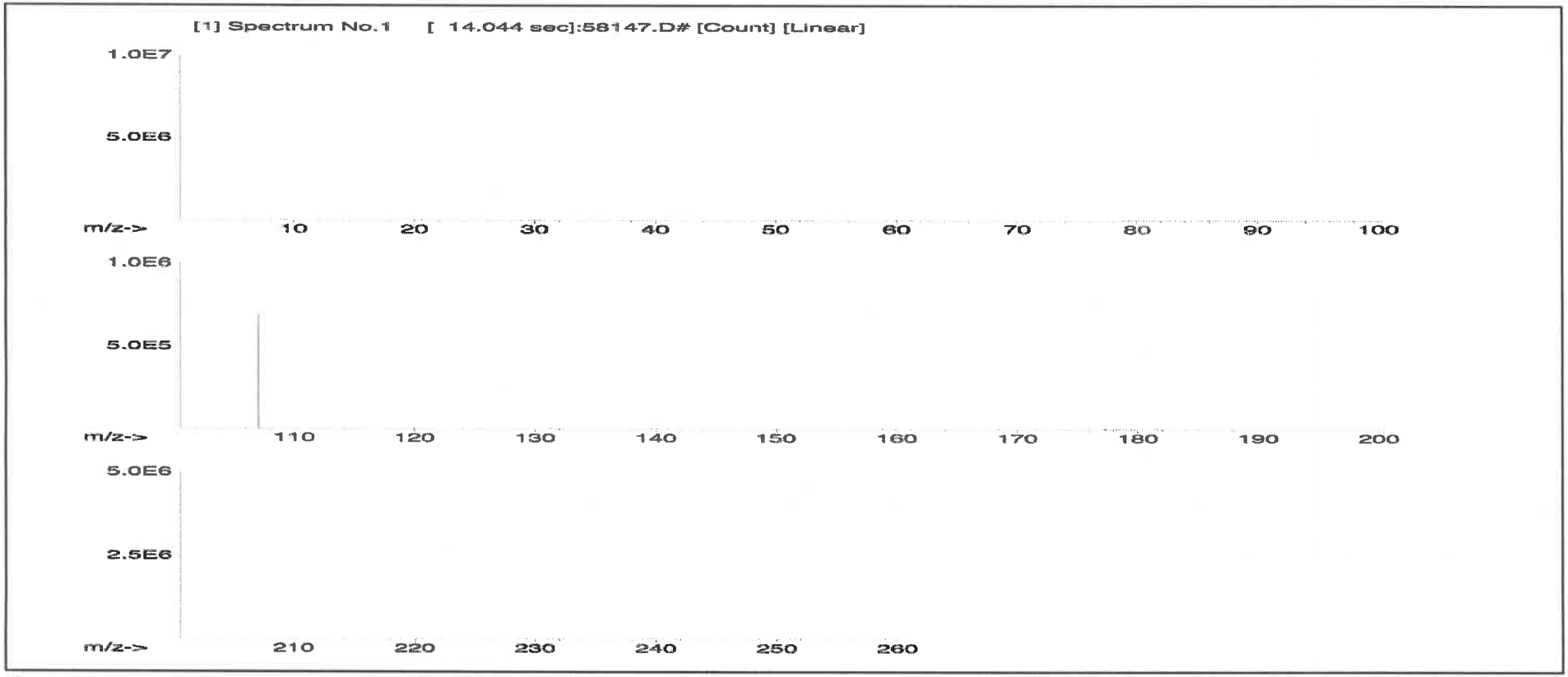
268

CERTIFIED WEIGHT REPORT:

Part Number:	**57047**			**Lot #**	
Lot Number:	**122823**	**Solvent:**	24002546	Nitric Acid	
Description:	**Silver (Ag)**				
		2%	80.0 (mL)	Nitric Acid	
Expiration Date:	122826				
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):	4000.30	0.058	Flask Uncertainty		

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

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Silver nitrate (Ag)	IN035	J0612AGA1	1000.0	99.9999	0.10	63.7	6.27992	6.27998	**1000.0**	**2.0**	7761-88-8	10 ug/m3	NA	3151



269

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	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 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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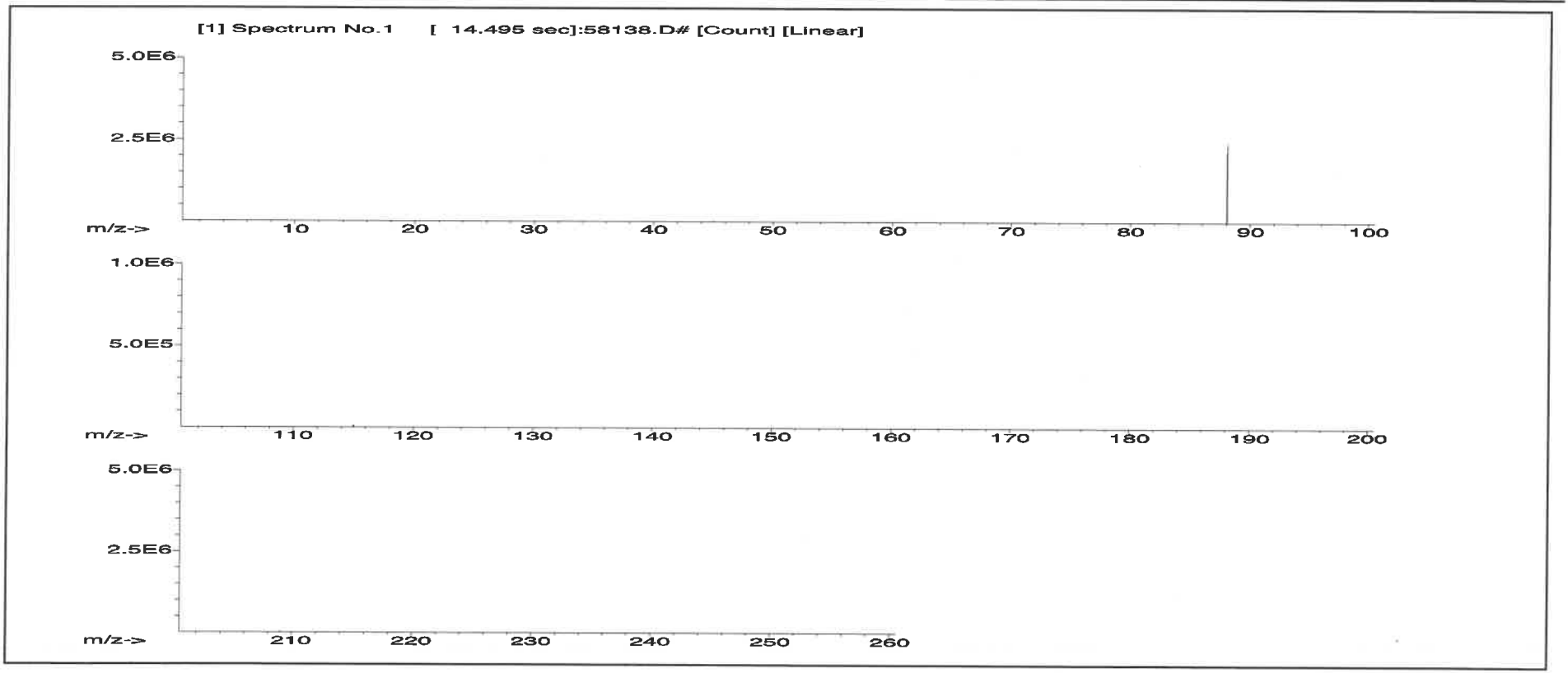
270

CERTIFIED WEIGHT REPORT:

Part Number:	**56138**		**Lot #**		
Lot Number:	**082922**	**Solvent:**	20510011	Nitric Acid	
Description:	**Strontium (Sr)**	2%	20.0 (mL)	Nitric Acid	
Expiration Date:	082925				
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. Rentas	082922

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Strontium nitrate (Sr)	IN017	SRZ022018A1	10000	99.997	0.10	41.2	24.2756	24.2758	**10000.1**	**20.0**	10042-76-9	NA	orl-rat >2000mg/kg	3153a



271

Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	T	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Certified by:

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

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R ! 8/5/24

272

CERTIFIED WEIGHT REPORT:

Part Number:	**57081**		**Lot #**		
Lot Number:	**062724**	**Solvent:**	24002546	Nitric Acid	
Description:	**Thallium (Tl)**	2%	40.0 (mL)	Nitric Acid	
Expiration Date:	062727				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.1	0.10	Flask Uncertainty		

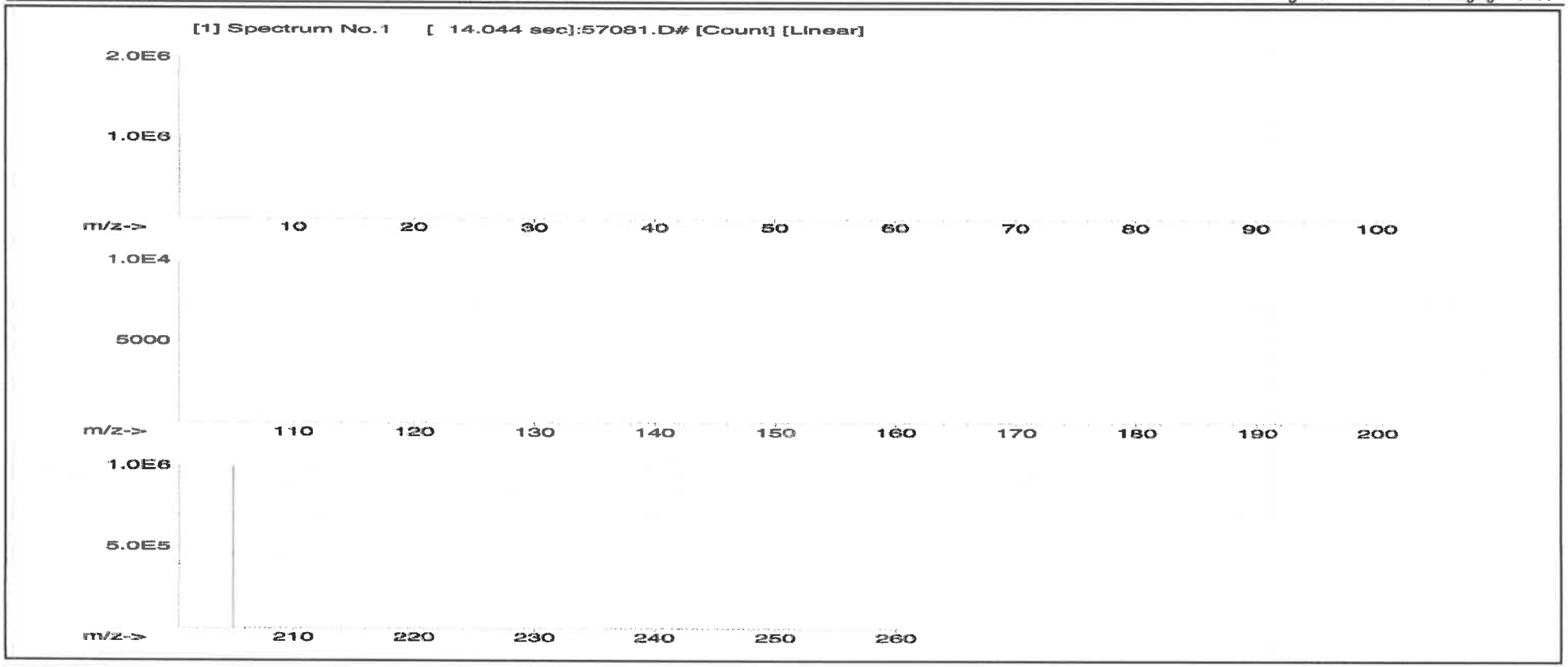
Aleah O'Brady

Formulated By:	Aleah O'Brady	062724

Pedro Rentas

Reviewed By:	Pedro L. Rentas	062724

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Thallium nitrate (Tl)	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



273

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	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	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:

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Rc. 8/5/24

274

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57023**			
Lot Number:	**062424**			
Description:	**Vanadium (V)**	24002546	Nitric Acid	
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	062427			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.3	0.06	Flask Uncertainty	

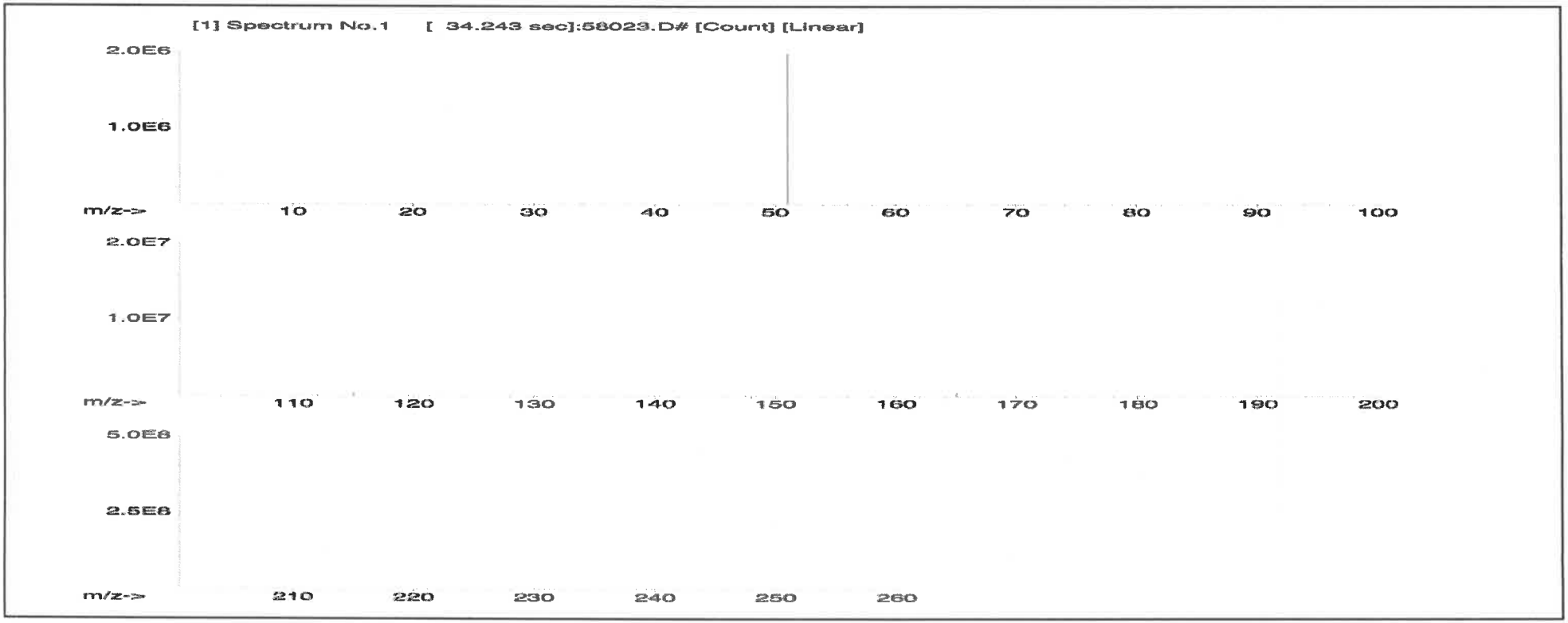
Aleah O'Brady

Formulated By:	Aleah O'Brady	062424

Pedro Rentas

Reviewed By:	Pedro L. Rentas	062424

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.) 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	orl-rat 58.1mg/kg	3165



275

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	T
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:

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* Standards are certifed (+/-) 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).

Alliance TECHNICAL GROUP

Soil/Sludge Metals Preparation Sheet

PB165239

SOP ID : M3050B-Digestion-20, MSFAM01.1-Trace Metals-2

SDG No : MX1007

Matrix : SOIL

Pippete ID: ICP A

Balance ID : M SC-2

Filter paper ID : N/A

pH Strip ID : N/A

Hood ID : #3

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

Start Digest Date: 11/27/2024 **Time :** 10:50 **Temp :** 96 °C

End Digest Date: 11/27/2024 **Time :** 12:55 **Temp :** 96 °C

Digestion tube ID: M6054

Block thermometer ID: MET-DIG. #2

Dig Technician Signature:

Supervisor Signature:

Temp : 1. 96°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
LCSS	1.00	MP83141
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
1:1 HNO3	10.00	MP83122
Conc. HNO3	5.00	M6124
30% H2O2	3.00	M6125
Conc. HCL	10.00	M6121
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 #2 CELL#34 : 96

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
11/27/24 13:10		
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Soil/Sludge Metals Preparation Sheet

PB165239

Lab Sample ID	Client Sample ID	pH	Initial Weight (g)	Final Vol (ml)	Color Before	Color After	Texture	Artifact	Comment	Prep Pos
P4917-01	MX1007	N/A	1.33	100	Brown	Yellow	Medium	N/A	N/A	31
PB165239BL	PBS239	N/A	1.00	100	Colorless	Colorless	Fine	N/A	N/A	32
PB165239BS	LCS239	N/A	1.00	100	Colorless	Colorless	Fine	N/A	MP83141	33

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB165240

SOP ID : M200.7-Trace Elements-22, MSFAM01.1-Trace Metals-2

SDG No : MX1007

Matrix : WATER

Pippete ID: ICP A

Balance ID : N/A

Filter paper ID : N/A

pH Strip ID : M6069

Hood ID : #3

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

Start Digest Date: 11/27/2024 **Time :** 10:45 **Temp :** 96 °C

End Digest Date: 11/27/2024 **Time :** 12:50 **Temp :** 96 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: JPP

Supervisor Signature:

Temp : 1. 96°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
LCSW	1.00	MP83141
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
1:1 HNO3	1.00	MP83122
1:1 HCL	0.50	MP83105
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

HOT BLOCK #1 CELL #55 :96

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
11/27/24 13:10	JPP MET-DIG	[illegible]
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB165240

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
P4917-03	MX1009	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	19
PB165240BL	PBW240	<2	50	50	Colorless	Colorless	Clear	Clear	N/A	20
PB165240BS	LCS240	<2	50	50	Colorless	Colorless	Clear	Clear	MP83141	21

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Fax : 908 789 8922

Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133698

Review By	Sarabjit Jaswal	Review On	12/3/2024 10:24:06 PM
Supervise By	Kareem Khairalla	Supervise On	12/5/2024 8:14:16 PM

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	12/02/24 15:21		Kareem	OK
2	S1	S01	CAL2	12/02/24 15:26		Kareem	OK
3	S2	S02	CAL3	12/02/24 15:30		Kareem	OK
4	S3	S03	CAL4	12/02/24 15:35		Kareem	OK
5	S4	S04	CAL5	12/02/24 15:39		Kareem	OK
6	S5	S05	CAL6	12/02/24 15:44		Kareem	OK
7	S6	S06	CAL7	12/02/24 15:48		Kareem	OK
8	ICV011	ICV011	ICV	12/02/24 16:20	Inst. paused for calibration review	Kareem	OK
9	ICB011	ICB011	ICB	12/02/24 16:27	Inst. paused for review	Kareem	OK
10	ICSA011	ICSA011	ICSA	12/02/24 16:40	Inst. paused for review	Kareem	OK
11	ICSAB011	ICSAB011	ICSAB	12/02/24 16:44		Kareem	OK
12	CCV071	CCV071	CCV	12/02/24 16:49		Kareem	OK
13	CCB071	CCB071	CCB	12/02/24 16:53		Kareem	OK
14	PB165190BL	PBW190	MB	12/02/24 16:58		Kareem	OK
15	PB165190BS	LCS190	LCS	12/02/24 17:02		Kareem	OK
16	PB165192BL	PBS192	MB	12/02/24 17:07		Kareem	OK
17	PB165192BS	LCS192	LCS	12/02/24 17:11		Kareem	OK
18	PB165197BL	PBS197	MB	12/02/24 17:16		Kareem	OK

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133698

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Supervise By	Kareem Khairalla	Supervise On	12/5/2024 8:14:16 PM

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	PB165197BS	LCS197	LCS	12/02/24 17:20		Kareem	OK
20	PB165139BL	PBS139	MB	12/02/24 17:25		Kareem	OK
21	PB165139BS	LCS139	LCS	12/02/24 17:30		Kareem	OK
22	PB165171BL	PBS171	MB	12/02/24 17:34		Kareem	OK
23	PB165171BS	LCS171	LCS	12/02/24 17:39		Kareem	OK
24	PB165167BL	PBS167	MB	12/02/24 17:43		Kareem	OK
25	PB165167BS	LCS167	LCS	12/02/24 17:48		Kareem	OK
26	PB165169BL	PBS169	MB	12/02/24 17:52		Kareem	OK
27	PB165169BSRE	LCS169	LCS	12/02/24 17:57	Not use	Kareem	Not Ok
28	P4939-10	MBHHW8	SAM	12/02/24 18:01		Kareem	OK
29	P4939-11	MBHHW8D	DUP	12/02/24 18:18		Kareem	OK
30	P4939-10L	MBHHW8L	SD	12/02/24 18:23		Kareem	OK
31	P4939-12	MBHHW8S	MS	12/02/24 18:27	MS fail for Se(Below RL)	Kareem	OK
32	P4933-20	MBHHX4	SAM	12/02/24 18:31	MS fail for all parameters	Kareem	Not Ok
33	CCV072	CCV072	CCV	12/02/24 18:40		Kareem	OK
34	CCB072	CCB072	CCB	12/02/24 18:45		Kareem	OK
35	P4917-03	MX1009	SAM	12/02/24 18:50		Kareem	OK
36	P4917-01	MX1007	SAM	12/02/24 18:54	Be high	Kareem	Dilution
37	P4917-01DL	MX1007	SAM	12/02/24 19:02	2X for Be,Still high	Kareem	Dilution
38	P4917-01DL2	MX1007	SAM	12/02/24 19:16	5X for Be	Kareem	Confirms

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133698

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Supervise By	Kareem Khairalla	Supervise On	12/5/2024 8:14:16 PM

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	PB165240BL	PBW240	MB	12/02/24 19:25		Kareem	OK
40	PB165240BS	LCS240	LCS	12/02/24 19:29		Kareem	OK
41	PB165239BL	PBS239	MB	12/02/24 19:34		Kareem	OK
42	PB165239BS	LCS239	LCS	12/02/24 19:38		Kareem	OK
43	PB165169BS	LCS169	LCS	12/02/24 19:43		Kareem	OK
44	CCV073	CCV073	CCV	12/02/24 19:47		Kareem	OK
45	CCB073	CCB073	CCB	12/02/24 19:52		Kareem	OK
46	P4933-21	MBHHX4D	DUP	12/02/24 19:56	MS fail for all parameters	Kareem	Not Ok
47	P4933-20L	MBHHX4L	SD	12/02/24 20:01	MS fail for all parameters	Kareem	Not Ok
48	P4933-22	MBHHX4S	MS	12/02/24 20:05	MS fail for all parameters	Kareem	Not Ok
49	P4912-04	MBHHJ4	SAM	12/02/24 20:10		Kareem	OK
50	P4912-05	MBHHJ4D	DUP	12/02/24 20:14		Kareem	OK
51	P4912-04L	MBHHJ4L	SD	12/02/24 20:18		Kareem	OK
52	P4912-06	MBHHJ4S	MS	12/02/24 20:23	MS fail for Cu(617.0452ppb), Se(Below RL), Zn(3393.068ppb)	Kareem	OK
53	P4932-03	MBHHQ2D	DUP	12/02/24 20:31		Kareem	OK
54	P4932-02	MBHHQ2	SAM	12/02/24 20:36		Kareem	OK
55	P4932-02L	MBHHQ2L	SD	12/02/24 20:40		Kareem	OK
56	P4932-04	MBHHQ2S	MS	12/02/24 20:45	MS fail for Zn(2524.072ppb)	Kareem	OK

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133698

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Supervise By	Kareem Khairalla	Supervise On	12/5/2024 8:14:16 PM

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

57	P4914-11	MBHHK4	SAM	12/02/24 20:49		Kareem	OK
58	P4914-12	MBHHK4D	DUP	12/02/24 20:53		Kareem	OK
59	P4914-11L	MBHHK4L	SD	12/02/24 20:58		Kareem	OK
60	P4914-13	MBHHK4S	MS	12/02/24 21:02	MS fail for Cu(497.7801ppb)	Kareem	OK
61	P4915-08	MBHHM8	SAM	12/02/24 21:06		Kareem	OK
62	P4915-09	MBHHM8D	DUP	12/02/24 21:11		Kareem	OK
63	P4915-08L	MBHHM8L	SD	12/02/24 21:15		Kareem	OK
64	P4915-10	MBHHM8S	MS	12/02/24 21:20	MS fail for Se(Below RL)	Kareem	OK
65	P4915-06	MBHHM6	SAM	12/02/24 21:24		Kareem	OK
66	CCV074	CCV074	CCV	12/02/24 21:29		Kareem	OK
67	CCB074	CCB074	CCB	12/02/24 21:33		Kareem	OK
68	P4933-14	MBHHS4	SAM	12/02/24 21:38		Kareem	OK
69	P4939-01	MBHHS5	SAM	12/02/24 21:42		Kareem	OK
70	P4939-02	MBHHS6	SAM	12/02/24 21:47		Kareem	OK
71	P4939-03	MBHHT6	SAM	12/02/24 21:51		Kareem	OK
72	P4939-04	MBHHT7	SAM	12/02/24 21:55		Kareem	OK
73	P4939-05	MBHHT8	SAM	12/02/24 22:00		Kareem	OK
74	P4939-06	MBHHT9	SAM	12/02/24 22:04		Kareem	OK
75	P4939-07	MBHHW0	SAM	12/02/24 22:08		Kareem	OK

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133698

Review By	Sarabjit Jaswal	Review On	12/3/2024 10:24:06 PM
Supervise By	Kareem Khairalla	Supervise On	12/5/2024 8:14:16 PM

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

76	P4939-08	MBHHW6	SAM	12/02/24 22:13		Kareem	OK
77	P4939-09	MBHHW7	SAM	12/02/24 22:17		Kareem	OK
78	P4939-13	MBHHX5	SAM	12/02/24 22:22		Kareem	OK
79	P4939-14	MBHHX6	SAM	12/02/24 22:26		Kareem	OK
80	P4939-15	MBHHY5	SAM	12/02/24 22:30		Kareem	OK
81	P4939-16	MBHHY6	SAM	12/02/24 22:35		Kareem	OK
82	P4939-17	MBHHY7	SAM	12/02/24 22:39		Kareem	OK
83	P4939-18	MBHHY8	SAM	12/02/24 22:43		Kareem	OK
84	P4939-19	MBHHY9	SAM	12/02/24 22:48		Kareem	OK
85	P4939-20	MBHHZ0	SAM	12/02/24 22:53		Kareem	OK
86	P4939-21	MBHHZ1	SAM	12/02/24 22:57		Kareem	OK
87	P4939-22	MBHHZ2	SAM	12/02/24 23:02	Cu high	Kareem	Dilution
88	CCV075	CCV075	CCV	12/02/24 23:06		Kareem	OK
89	CCB075	CCB075	CCB	12/02/24 23:10		Kareem	OK
90	P4933-01	MBHHR1	SAM	12/02/24 23:15		Kareem	OK
91	P4933-02	MBHHR2	SAM	12/02/24 23:19		Kareem	OK
92	P4933-03	MBHHR3	SAM	12/02/24 23:24		Kareem	OK
93	P4933-04	MBHHR4	SAM	12/02/24 23:28		Kareem	OK
94	P4933-05	MBHHR5	SAM	12/02/24 23:32	Mn high	Kareem	Dilution
95	P4933-06	MBHHR6	SAM	12/02/24 23:37		Kareem	OK

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Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133698

Review By	Sarabjit Jaswal	Review On	12/3/2024 10:24:06 PM
Supervise By	Kareem Khairalla	Supervise On	12/5/2024 8:14:16 PM

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

96	P4933-07	MBHHR7	SAM	12/02/24 23:41		Kareem	OK
97	P4933-08	MBHHR8	SAM	12/02/24 23:45		Kareem	OK
98	P4933-09	MBHHR9	SAM	12/02/24 23:50		Kareem	OK
99	P4933-10	MBHHS0	SAM	12/02/24 23:55		Kareem	OK
100	P4933-11	MBHHS1	SAM	12/02/24 23:59		Kareem	OK
101	P4933-12	MBHHS2	SAM	12/03/24 00:03		Kareem	OK
102	P4933-13	MBHHS3	SAM	12/03/24 00:08		Kareem	OK
103	P4933-15	MBHHW9	SAM	12/03/24 00:12		Kareem	OK
104	P4933-16	MBHHX0	SAM	12/03/24 00:16		Kareem	OK
105	P4933-17	MBHHX1	SAM	12/03/24 00:21		Kareem	OK
106	P4933-18	MBHHX2	SAM	12/03/24 00:25	Not use	Kareem	Not Ok
107	P4933-19	MBHHX3	SAM	12/03/24 00:30		Kareem	OK
108	P4912-01	MBHHJ1	SAM	12/03/24 00:34		Kareem	OK
109	P4912-02	MBHHJ2	SAM	12/03/24 00:38		Kareem	OK
110	CCV076	CCV076	CCV	12/03/24 00:43		Kareem	OK
111	CCB076	CCB076	CCB	12/03/24 00:47		Kareem	OK
112	P4912-03	MBHHJ3	SAM	12/03/24 00:52	Not use	Kareem	Not Ok
113	P4912-07	MBHHJ5	SAM	12/03/24 00:56	Not use	Kareem	Not Ok
114	P4912-08	MBHHJ6	SAM	12/03/24 01:01	Not use	Kareem	Not Ok
115	P4912-09	MBHHJ7	SAM	12/03/24 01:05	Not use	Kareem	Not Ok

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Fax : 908 789 8922

Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133698

Review By	Sarabjit Jaswal	Review On	12/3/2024 10:24:06 PM
Supervise By	Kareem Khairalla	Supervise On	12/5/2024 8:14:16 PM

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

116	P4912-10	MBHHJ8	SAM	12/03/24 01:09	Not use	Kareem	Not Ok
117	P4912-11	MBHHJ9	SAM	12/03/24 01:14	Not use	Kareem	Not Ok
118	P4912-12	MBHHK0	SAM	12/03/24 01:18	Not use	Kareem	Not Ok
119	P4912-13	MBHHK1	SAM	12/03/24 01:22	Not use	Kareem	Not Ok
120	P4912-14	MBHHK2	SAM	12/03/24 01:27	Not use	Kareem	Not Ok
121	P4912-15	MBHHK3	SAM	12/03/24 01:31	Not use	Kareem	Not Ok
122	P4912-16	MBHHL8	SAM	12/03/24 01:36	Not use	Kareem	Not Ok
123	P4912-17	MBHHL9	SAM	12/03/24 01:40	Not use	Kareem	Not Ok
124	P4912-18	MBHHM0	SAM	12/03/24 01:44	Not use	Kareem	Not Ok
125	P4912-19	MBHHM1	SAM	12/03/24 01:49	Not use	Kareem	Not Ok
126	P4912-20	MBHHM2	SAM	12/03/24 01:53	Not use	Kareem	Not Ok
127	P4912-21	MBHHM3	SAM	12/03/24 01:57	Not use	Kareem	Not Ok
128	P4912-22	MBHHM4	SAM	12/03/24 02:02	Not use	Kareem	Not Ok
129	P4932-01	MBHHQ1	SAM	12/03/24 02:06	Not use	Kareem	Not Ok
130	P4932-05	MBHHQ3	SAM	12/03/24 02:11	Not use	Kareem	Not Ok
131	P4932-06	MBHHQ4	SAM	12/03/24 02:15	Not use	Kareem	Not Ok
132	CCV077	CCV077	CCV	12/03/24 02:19	%RSD fail for Ag, Zn	Kareem	OK
133	CCB077	CCB077	CCB	12/03/24 02:24		Kareem	OK
134	P4932-07	MBHHQ5	SAM	12/03/24 02:28	Not use	Kareem	Not Ok
135	P4932-08	MBHHQ6	SAM	12/03/24 02:33	Not use	Kareem	Not Ok

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Fax : 908 789 8922

Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133698

Review By	Sarabjit Jaswal	Review On	12/3/2024 10:24:06 PM
Supervise By	Kareem Khairalla	Supervise On	12/5/2024 8:14:16 PM

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

136	P4932-09	MBHHQ7	SAM	12/03/24 02:37	Not use	Kareem	Not Ok
137	P4932-10	MBHHQ8	SAM	12/03/24 02:41	Not use	Kareem	Not Ok
138	P4932-11	MBHHQ9	SAM	12/03/24 02:46	Not use	Kareem	Not Ok
139	P4932-12	MBHHP1	SAM	12/03/24 02:50	Not use	Kareem	Not Ok
140	P4932-13	MBHHP2	SAM	12/03/24 02:55	Not use	Kareem	Not Ok
141	P4932-14	MBHHP3	SAM	12/03/24 02:59	Not use	Kareem	Not Ok
142	P4932-15	MBHHP4	SAM	12/03/24 03:03	Not use	Kareem	Not Ok
143	P4932-16	MBHHP5	SAM	12/03/24 03:08	Not use	Kareem	Not Ok
144	P4932-17	MBHHP6	SAM	12/03/24 03:12	Not use	Kareem	Not Ok
145	P4932-18	MBHHP7	SAM	12/03/24 03:17	Not use	Kareem	Not Ok
146	P4932-19	MBHHP8	SAM	12/03/24 03:21	Not use	Kareem	Not Ok
147	P4932-20	MBHHP9	SAM	12/03/24 03:25	Not use	Kareem	Not Ok
148	P4932-21	MBHHQ0	SAM	12/03/24 03:30	Not use	Kareem	Not Ok
149	P4932-22	MBHHR0	SAM	12/03/24 03:34	Not use	Kareem	Not Ok
150	P4914-01	MBHHF2	SAM	12/03/24 03:38	Not use	Kareem	Not Ok
151	P4914-02	MBHHF3	SAM	12/03/24 03:43	Not use	Kareem	Not Ok
152	P4914-03	MBHHF4	SAM	12/03/24 03:47	Not use	Kareem	Not Ok
153	P4914-04	MBHHF5	SAM	12/03/24 03:52	Not use	Kareem	Not Ok
154	CCV078	CCV078	CCV	12/03/24 03:56	%RSD fail for Cr, Ag, Zn	Kareem	OK
155	CCB078	CCB078	CCB	12/03/24 04:00		Kareem	OK

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

Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133698

Review By	Sarabjit Jaswal	Review On	12/3/2024 10:24:06 PM
Supervise By	Kareem Khairalla	Supervise On	12/5/2024 8:14:16 PM

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

156	P4914-05	MBHHF6	SAM	12/03/24 04:05	Not use	Kareem	Not Ok
157	P4914-06	MBHHF7	SAM	12/03/24 04:09	Not use	Kareem	Not Ok
158	P4914-07	MBHHF8	SAM	12/03/24 04:14	Not use	Kareem	Not Ok
159	P4914-08	MBHHF9	SAM	12/03/24 04:18	Not use	Kareem	Not Ok
160	P4914-09	MBHHG0	SAM	12/03/24 04:22	Not use	Kareem	Not Ok
161	P4914-10	MBHHG1	SAM	12/03/24 04:27	Not use	Kareem	Not Ok
162	P4914-14	MBHHK5	SAM	12/03/24 04:31	Not use	Kareem	Not Ok
163	P4914-15	MBHHK6	SAM	12/03/24 04:36	Not use	Kareem	Not Ok
164	P4914-16	MBHHK7	SAM	12/03/24 04:40	Not use	Kareem	Not Ok
165	P4914-17	MBHHK8	SAM	12/03/24 04:44	Not use	Kareem	Not Ok
166	P4914-18	MBHHK9	SAM	12/03/24 04:49	Not use	Kareem	Not Ok
167	P4914-19	MBHHL0	SAM	12/03/24 04:53	Not use	Kareem	Not Ok
168	P4914-20	MBHHL1	SAM	12/03/24 04:57	Not use	Kareem	Not Ok
169	P4914-21	MBHHL2	SAM	12/03/24 05:02	Not use	Kareem	Not Ok
170	P4914-22	MBHHL3	SAM	12/03/24 05:06	Not use	Kareem	Not Ok
171	P4915-01	MBHHL4	SAM	12/03/24 05:11	Not use	Kareem	Not Ok
172	P4915-02	MBHHL5	SAM	12/03/24 05:15	Not use	Kareem	Not Ok
173	P4915-03	MBHHL6	SAM	12/03/24 05:19	Not use	Kareem	Not Ok
174	P4915-04	MBHHL7	SAM	12/03/24 05:24	Not use	Kareem	Not Ok
175	P4915-05	MBHHM5	SAM	12/03/24 05:28	Not use	Kareem	Not Ok

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

Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133698

Review By	Sarabjit Jaswal	Review On	12/3/2024 10:24:06 PM
Supervise By	Kareem Khairalla	Supervise On	12/5/2024 8:14:16 PM

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	CCV079	CCV079	CCV	12/03/24 05:33		Kareem	OK
177	CCB079	CCB079	CCB	12/03/24 05:37		Kareem	OK
178	P4915-07	MBHHM7	SAM	12/03/24 05:42		Kareem	OK
179	P4915-11	MBHHM9	SAM	12/03/24 05:46		Kareem	OK
180	P4915-12	MBHHN0	SAM	12/03/24 05:50		Kareem	OK
181	P4915-13	MBHHN1	SAM	12/03/24 05:55		Kareem	OK
182	P4915-14	MBHHN2	SAM	12/03/24 05:59		Kareem	OK
183	P4915-15	MBHHN3	SAM	12/03/24 06:03		Kareem	OK
184	P4915-16	MBHHN4	SAM	12/03/24 06:08		Kareem	OK
185	P4915-17	MBHHN5	SAM	12/03/24 06:12		Kareem	OK
186	P4915-18	MBHHN6	SAM	12/03/24 06:17		Kareem	OK
187	P4915-19	MBHHN7	SAM	12/03/24 06:21		Kareem	OK
188	P4915-20	MBHHN8	SAM	12/03/24 06:25		Kareem	OK
189	P4915-21	MBHHN9	SAM	12/03/24 06:30		Kareem	OK
190	P4915-22	MBHHP0	SAM	12/03/24 06:34		Kareem	OK
191	CCV080	CCV080	CCV	12/03/24 06:39		Kareem	OK
192	CCB080	CCB080	CCB	12/03/24 06:43		Kareem	OK
193	P4907-04DL	MBHHE4	SAM	12/03/24 06:48	2X for Ca	Kareem	Confirms
194	P4907-05DL	MBHHE5	SAM	12/03/24 06:52	2X for Ca	Kareem	Confirms
195	P4906-18DL	MBHHA3	SAM	12/03/24 06:57	2X for Ca	Kareem	Confirms

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

Instrument ID: P5

Daily Analysis Runlog For Sequence/QCBatch ID # LB133698

Review By	Sarabjit Jaswal	Review On	12/3/2024 10:24:06 PM
Supervise By	Kareem Khairalla	Supervise On	12/5/2024 8:14:16 PM

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

196	P4906-19DL	MBHHA4	SAM	12/03/24 07:01	2X for Ca	Kareem	Confirms
197	P4902-01	E29Y8	SAM	12/03/24 07:06	Ca high	Kareem	Dilution
198	P4902-02	E2A12	SAM	12/03/24 07:10		Kareem	OK
199	P4902-03	E2A12D	DUP	12/03/24 07:15		Kareem	OK
200	P4902-02L	E2A12L	SD	12/03/24 07:20		Kareem	OK
201	P4902-04	E2A12S	MS	12/03/24 07:24		Kareem	OK
202	PB165215BL	PBS215	MB	12/03/24 07:29		Kareem	OK
203	PB165215BS	LCS215	LCS	12/03/24 07:33		Kareem	OK
204	CCV081	CCV081	CCV	12/03/24 07:38		Kareem	OK
205	CCB081	CCB081	CCB	12/03/24 07:42		Kareem	OK

ERA

A Waters Company

Instructions for Catalog # 540QR

Metals in Soil

Revision 111122

Description:

- This standard is packaged in a 2-ounce glass jar containing approximately 30 grams of soil.
- This standard is not preserved.
- The standard can be stored at room temperature.
- The standard will contain all the analytes listed in the ranges specified on the data reporting form.

Before you Begin:

- The Mercury in this standard should be determined using the digestion and analytical procedures in the current version of EPA method 7471, or equivalent.
- The other metals in this standard should be determined using EPA digestion methods 3050 or 3051 followed by your normal analysis procedures.
- This standard should not be analyzed for Hexavalent Chromium. A separate standard, ERA catalog number 921QR, is available for Hexavalent Chromium.
- Although all ERA soil standards have been thoroughly blended prior to shipping, the standards should be homogenized prior to taking an aliquot for analysis due to settling which may occur during shipping.
- The percent moisture of this standard should be determined, and your analytical results adjusted accordingly and reported on a dry weight basis.

Instructions:

1. Open the Metals in Soil standard in a fume hood to avoid inhalation of dust.
2. Mix the sample well prior to removing aliquots for analysis.
3. Digest and analyze the standard using your normal procedures.
4. Determine the percent moisture of an aliquot of the Metals in Soil standard.
5. Report your results as mg/kg on a dry weight basis.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Safety Data Sheets (SDS) for all ERA products are available through our website www.eraqc.com.

ERA

A Waters Company

Instructions for Catalog # 500QR
WatR™Pollution Trace Metals

Revision 030512

Description:

- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 2% (v/v) nitric acid.
- The concentrate can be stored at room temperature.
- The diluted standard will contain all the analytes listed in the ranges specified on the data reporting form.

Before you begin:

- The sample resulting from the dilution described below will have a nitric acid concentration of approximately 0.02% before any acid is added. You may add a volume of acid different from the 2 to 5 mL of HNO_3 suggested in order to matrix match your calibration standards or meet any other method criteria.
- If analyzing this standard using colorimetric techniques, it may be necessary to pH adjust the sample prior to analysis. If using colorimetric techniques, it is acceptable to omit the addition of the 2-5 mL nitric acid suggested.
- While it is technically not necessary to digest this standard prior to analysis, digestion should be performed if this is your normal procedure.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:

1. Add 100-200 mL of deionized water and approximately 2 to 5 mL of nitric acid to a clean 500 mL class A volumetric flask.
2. Shake the Trace Metals vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 500 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as µg/L for the diluted sample.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA

A Waters Company

Instructions for Catalog # 541QR
Cyanide in Soil
Revision 030512

Description:
- This standard is packaged in a 2-ounce glass jar containing approximately 40 grams of soil.
- This standard is not preserved.
- The standard can be stored at room temperature.
- The standard will contain Reactive and Total Cyanide in the range specified on the data reporting form.

Before you Begin:
- This standard is designed to be distilled using the procedures in the most recent revisions of EPA methods 9010, 9012 or equivalent.
- Although all ERA soil standards have been thoroughly blended prior to shipping, the standards should be homogenized prior to taking an aliquot for analysis due to settling which may occur during shipping.
- The percent moisture of this standard should be determined and your analytical results adjusted accordingly and reported on a dry weight basis.

Instructions:
1. Open the Cyanide in Soil standard in a fume hood to avoid inhalation of dust.
2. Mix the sample well prior to removing aliquots for analysis.
3. Distill and analyze the standard using your normal procedures.
4. Determine the percent moisture of an aliquot of the Cyanide in Soil standard.
5. Report your results as mg/kg on a dry weight basis.

Safety:
ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA

A Waters Company

Instructions for Catalog #666QR
WatR™Supply Mercury

Revision 030512

Description:

- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 1% (v/v) nitric acid and 0.04% (w/v) potassium dichromate.
- The concentrate can be stored at room temperature.
- The diluted standard will contain Mercury in the range specified on the data reporting form.

Before you begin:

- This standard has been prepared as a concentrate and must be diluted prior to analysis.
- The USEPA *Criteria Document* requires that Mercury be present as a mixture of organic and inorganic forms and must, therefore, be analyzed as Total Mercury.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:

1. Add 100-200 mL of deionized water and approximately 2 to 5 mL of nitric acid to a clean 500 mL class A volumetric flask.
2. Shake the Mercury vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 500 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as µg/L for the diluted sample.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA

A Waters Company

Instructions for Catalog # 697QR

WatR™Supply Metals

Revision 030512

Description:

- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 2% (v/v) nitric acid.
- The concentrate can be stored at room temperature.
- The diluted standard will contain all the analytes listed in the ranges specified on the data reporting form.

Before you begin:

- This standard has been prepared as a concentrate and must be diluted prior to analysis.
- The sample resulting from the dilution described below will have a nitric acid concentration of approximately 0.01% before any acid is added. You may add a volume of acid different from the 2 to 5 mL of nitric acid suggested in order to match the matrix of your calibration standards or to meet any other method requirements.
- If analyzing this standard using colorimetric techniques, it may be necessary to pH adjust the sample prior to analysis. If using colorimetric techniques, it is acceptable to omit the addition of the 2-5 mL nitric acid suggested.
- While it is technically not necessary to digest this standard prior to analysis, digestion should be performed if this is your normal procedure.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:

1. Add 100-200 mL of deionized water and approximately 2 to 5 mL of nitric acid to a clean 1000 mL class A volumetric flask.
2. Shake the Metals vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 1000 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as µg/L for the diluted sample.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA
A Waters Company

Instructions for Catalog # 983QR
WatR™Supply Cyanide
Revision 030512

Description:
- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 0.25%(w/v) sodium hydroxide.
- The concentrate can be stored at room temperature.
- The diluted standard will contain Total Cyanide in the range specified on the data reporting form.

Before you begin:
- This standard has been prepared as a concentrate and must be diluted prior to analysis.
- This standard does not require distillation prior to analysis.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:
1. Add 100-200 mL of deionized water and approximately 1 to 2 mL of 50% sodium hydroxide to a clean 1000 mL class A volumetric flask.
2. Shake the Cyanide vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 1000 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as mg/L for the diluted sample.

Safety:
ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

EPA SAMPLE NO.

MX1007

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51882 MA No. : SDG No.: MX1007

Matrix: SOIL Lab Sample ID: P4917-01

% Solids: 100 Date Received: 11/19/2024

Analytical Method: ICP_MS

Concentration Units (µg/L, mg/L, mg/kg dry weight, µg, or µg/cm²): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7440-36-0	Antimony	58		12/03/2024	1515
7440-38-2	Arsenic	170		12/03/2024	1515
7440-39-3	Barium	340		12/03/2024	1515
7440-41-7	Beryllium	130		12/03/2024	1515
7440-43-9	Cadmium	110		12/03/2024	1515
7440-47-3	Chromium	230		12/03/2024	1515
7440-48-4	Cobalt	170		12/03/2024	1515
7440-50-8	Copper	120		12/03/2024	1515
7439-92-1	Lead	140		12/03/2024	1515
7439-96-5	Manganese	390		12/03/2024	1515
7440-02-0	Nickel	110		12/03/2024	1515
7782-49-2	Selenium	95		12/03/2024	1515
7440-22-4	Silver	48		12/03/2024	1515
7440-28-0	Thallium	160		12/03/2024	1515
7440-62-2	Vanadium	110		12/03/2024	1515
7440-66-6	Zinc	370		12/03/2024	1515

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

Comments:

EPA SAMPLE NO.

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

MX1010

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

Lab Code: ACE Case No.: 51882 MA No. : SDG No.: MX1007

Matrix: Water Lab Sample ID: P4917-04

% Solids: Date Received: 11/19/2024

Analytical Method: ICP_MS

Concentration Units (µg/L, mg/L, mg/kg dry weight, µg, or µg/cm²): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7429-90-5	Aluminum	820		12/03/2024	1512
7440-36-0	Antimony	13		12/03/2024	1512
7440-38-2	Arsenic	13		12/03/2024	1512
7440-39-3	Barium	1500		12/03/2024	1512
7440-41-7	Beryllium	16		12/03/2024	1512
7440-43-9	Cadmium	41		12/03/2024	1512
7440-70-2	Calcium	500	U	12/03/2024	1512
7440-47-3	Chromium	95		12/03/2024	1512
7440-48-4	Cobalt	0.24	J	12/03/2024	1512
7440-50-8	Copper	1500		12/03/2024	1512
7439-89-6	Iron	1300		12/03/2024	1512
7439-92-1	Lead	76		12/03/2024	1512
7439-95-4	Magnesium	500	U	12/03/2024	1512
7439-96-5	Manganese	450		12/03/2024	1512
7440-02-0	Nickel	470		12/03/2024	1512
7440-09-7	Potassium	500	U	12/03/2024	1512
7782-49-2	Selenium	71		12/03/2024	1512
7440-22-4	Silver	95		12/03/2024	1512
7440-23-5	Sodium	500	U	12/03/2024	1512
7440-28-0	Thallium	7.3		12/03/2024	1512
7440-62-2	Vanadium	570		12/03/2024	1512
7440-66-6	Zinc	430		12/03/2024	1512

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

Comments:

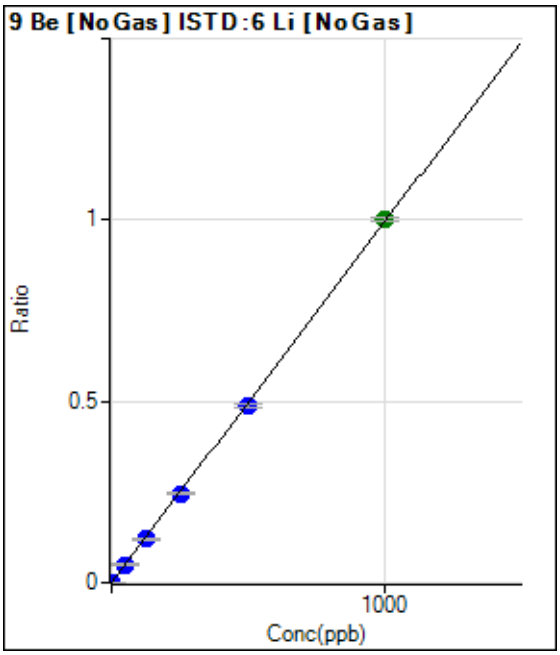
Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

Calibration for 005CALS.d

Batch Folder: D:\Agilent\ICPMH\1\DATA\P7120324 MS.b\
Analysis File: P7120324 MS.batch.bin
DA Date-Time: 2024-12-03 23:51:03
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:

Level	Standard Data File	Sample Name	Acq. Date-Time
1	004CALB.d	S00	2024-12-03 13:12:15
2	005CALS.d	S02	2024-12-03 13:15:31
3	006CALS.d	S03	2024-12-03 13:18:47
4	007CALS.d	S04	2024-12-03 13:21:42
5	008CALS.d	S05	2024-12-03 13:24:30
6	009CALS.d	S06	2024-12-03 13:27:14
7	010CALS.d	S07	2024-12-03 13:29:59
8	011CALS.d	S08	2024-12-03 13:32:43

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7



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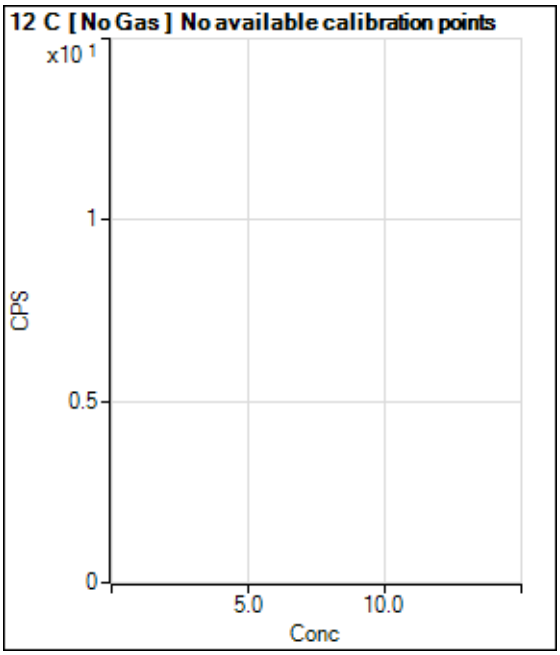
2	☐	1.000	1.045	2092.39	0.0011	P	2.0
3	☐	50.000	50.267	92843.84	0.0500	P	1.7
4	☐	125.000	121.495	221454.79	0.1208	P	3.5
5	☐	250.000	247.679	444451.27	0.2462	P	1.5
6	☐	500.000	488.618	871052.78	0.4856	P	2.1
7	☐	1000.000	1006.696	1785180.65	1.0003	A	1.2
8	☐			502.24	0.0003	P	7.6

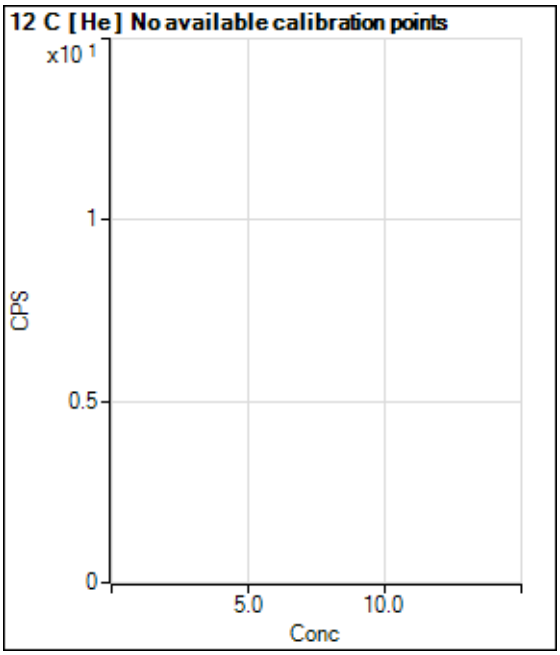
y = 9.9358E-004 * x + 9.7081E-005
R = 0.9999
DL = 0.04706
BEC = 0.09771

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐						
2	☐						
3	☐						
4	☐						
5	☐						
6	☐						
7	☐						
8	☐						

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
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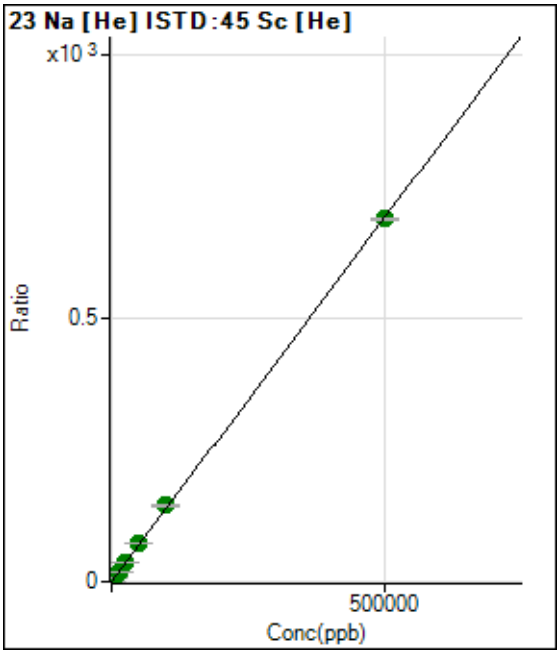
2	☐						
3	☐						
4	☐						
5	☐						
6	☐						
7	☐						
8	☐						



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	23018.37	0.0286	P	1.1
2	☐	500.000	487.613	565660.02	0.7012	P	0.5
3	☐	5000.000	5293.689	5771862.35	7.3302	A	1.1
4	☐	12500.000	12926.411	13486095.35	17.8579	A	1.4
5	☐	25000.000	26194.691	26415927.38	36.1587	A	0.7
6	☐	50000.000	52831.301	52933775.88	72.8984	A	0.9
7	☐	100000.00	104786.54	105990786.20	144.5598	A	1.1
8	☐	500000.00	498686.24	520590063.36	687.8622	A	0.8

y = 0.0014 * x + 0.0286
R = 0.9999
DL = 0.712
BEC = 20.76

Weight: <None>
Min Conc: 0

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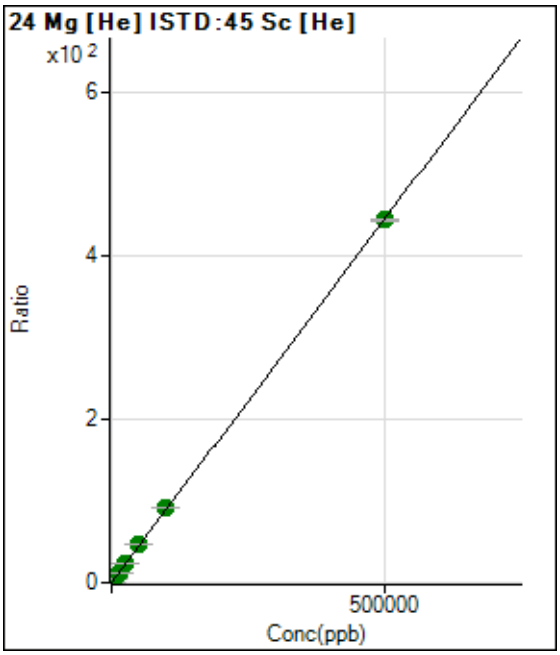
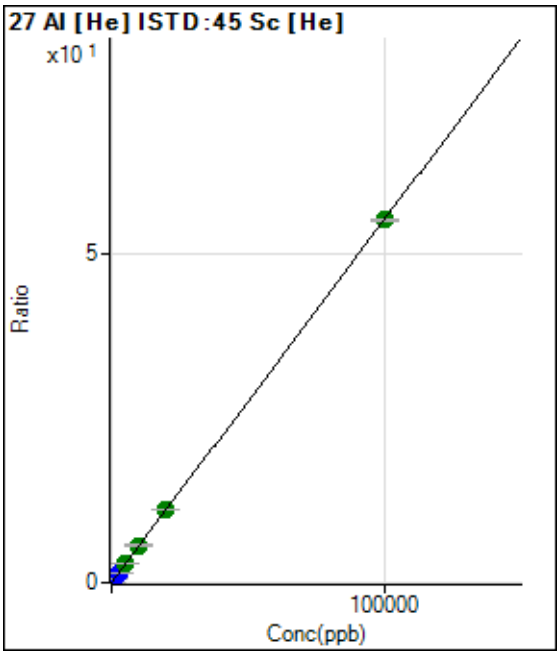


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3454.87	0.0043	P	1.7
2	☐	500.000	499.811	362141.38	0.4489	P	1.3
3	☐	5000.000	5267.411	3693167.48	4.6901	A	0.7
4	☐	12500.000	12908.524	8675628.21	11.4876	A	0.7
5	☐	25000.000	26042.345	16928195.03	23.1713	A	0.3
6	☐	50000.000	52157.423	33695133.39	46.4030	A	0.4
7	☐	100000.00	102613.80	66933603.45	91.2884	A	0.6
8	☐	500000.00	499196.49	336099190.55	444.0841	A	0.2

y = 8.8959E-004 * x + 0.0043
R = 1.0000
DL = 0.2397
BEC = 4.832

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	205.56	0.0003	P	15.7
2	☐	20.000	19.170	8758.13	0.0109	P	3.2
3	☐	1000.000	1034.081	450499.94	0.5721	P	1.1
4	☐	2500.000	2520.839	1052990.64	1.3943	P	1.8
5	☐	5000.000	5124.014	2070294.59	2.8339	A	1.6
6	☐	10000.000	10318.133	4143662.27	5.7064	A	0.5
7	☐	20000.000	20355.017	8253869.67	11.2570	A	0.2
8	☐	100000.00	99890.121	41808476.60	55.2417	A	0.8

y = 5.5302E-004 * x + 2.5574E-004
R = 1.0000
DL = 0.2179
BEC = 0.4624

Weight: <None>
Min Conc: 0

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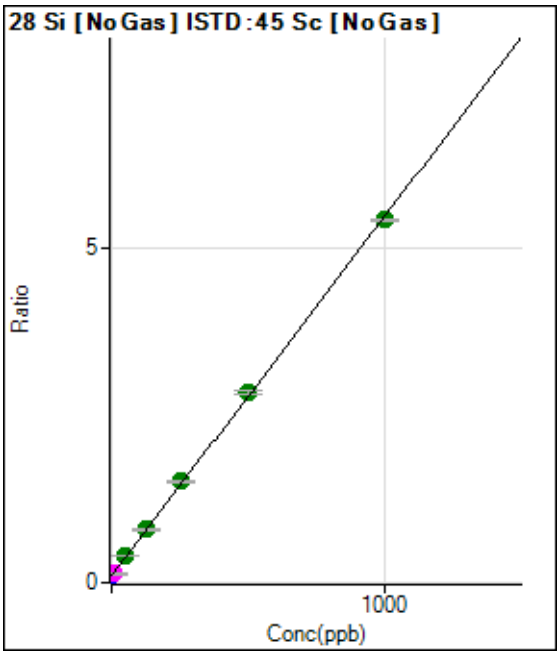
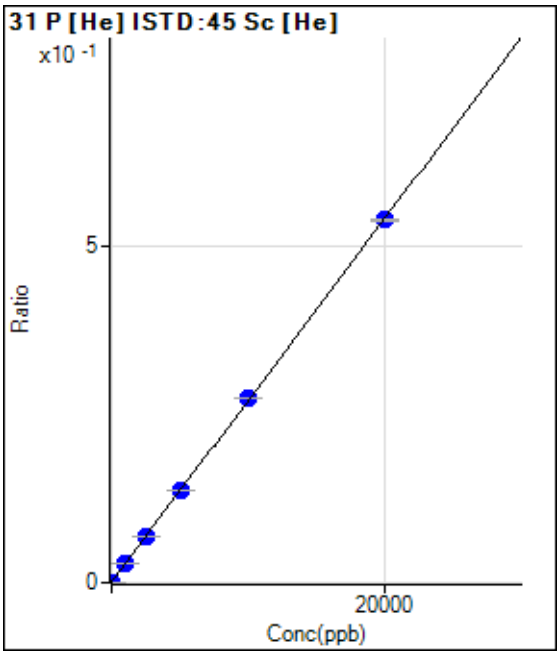


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	865919.26	0.1021	P	0.8
2	☐	10.000	5.259	1103785.29	0.1304	M	15.1
3	☐	50.000	57.964	3472110.47	0.4139	A	1.0
4	☐	125.000	130.314	6500309.83	0.8032	A	3.4
5	☐	250.000	262.052	11469674.97	1.5120	A	0.9
6	☐	500.000	510.153	21156119.27	2.8470	A	1.4
7	☐	1000.000	990.896	40048530.52	5.4336	A	0.7
8	☐			838636.56	0.1111	P	1.4

y = 0.0054 * x + 0.1021
R = 0.9998
DL = 0.4342
BEC = 18.97

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-16.564	400.01	0.0005	P	7.8
2	☐	0.000	16.564	1121.16	0.0014	P	1.7
3	☐	1000.000	1036.924	22726.96	0.0289	P	2.5
4	☐	2500.000	2497.893	51511.93	0.0682	P	0.8
5	☐	5000.000	5023.417	99511.70	0.1362	P	0.4
6	☐	10000.000	10088.877	197957.09	0.2726	P	0.2
7	☐	20000.000	19948.125	394543.37	0.5381	P	0.3
8	☐			561.13	0.0007	P	2.7

y = 2.6928E-005 * x + 9.4366E-004
R = 1.0000
DL = 3.481
BEC = 35.04

Weight: <None>
Min Conc: 0

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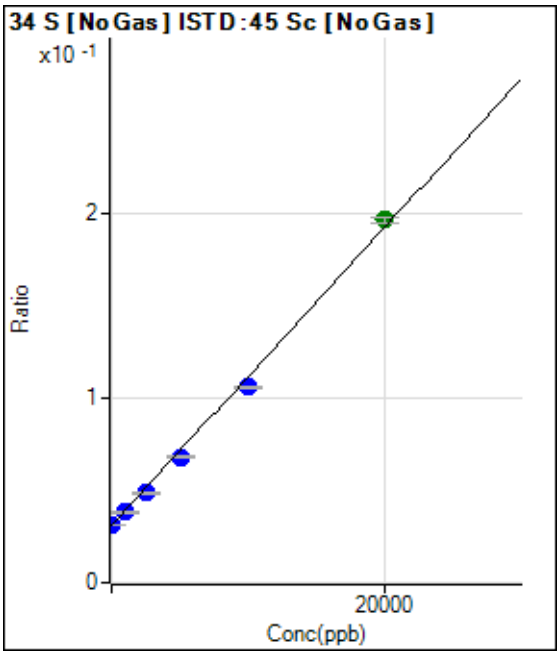
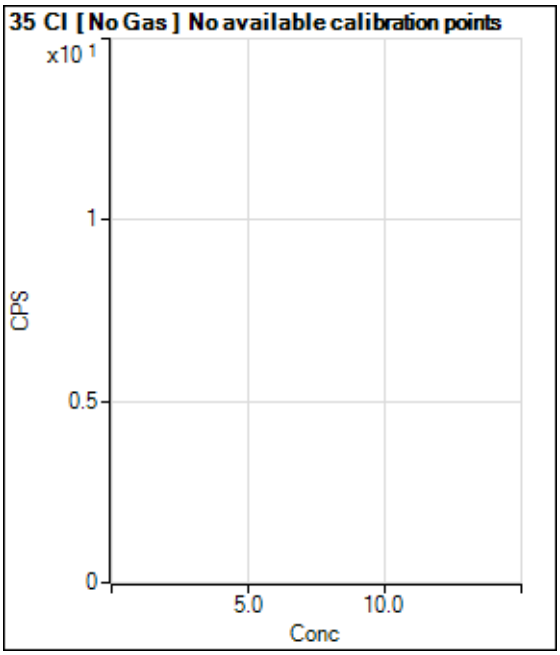


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	-13.968	262498.54	0.0309	P	1.1
2	☐	0.000	13.968	263683.33	0.0312	P	1.0
3	☐	1000.000	878.439	319815.61	0.0381	P	1.1
4	☐	2500.000	2173.662	393099.33	0.0486	P	1.9
5	☐	5000.000	4600.676	516707.78	0.0681	P	0.2
6	☐	10000.000	9285.082	786616.90	0.1059	P	1.3
7	☐	20000.000	20504.160	1446346.12	0.1962	A	1.3
8	☐			209333.71	0.0277	P	3.7

y = 8.0562E-006 * x + 0.0311
R = 0.9988
DL = 120.3
BEC = 3854

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐						
2	☐						
3	☐						
4	☐						
5	☐						
6	☐						
7	☐						
8	☐						

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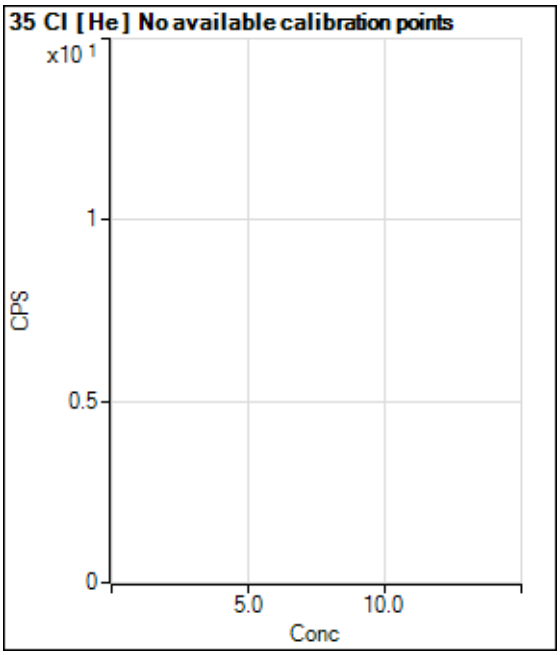
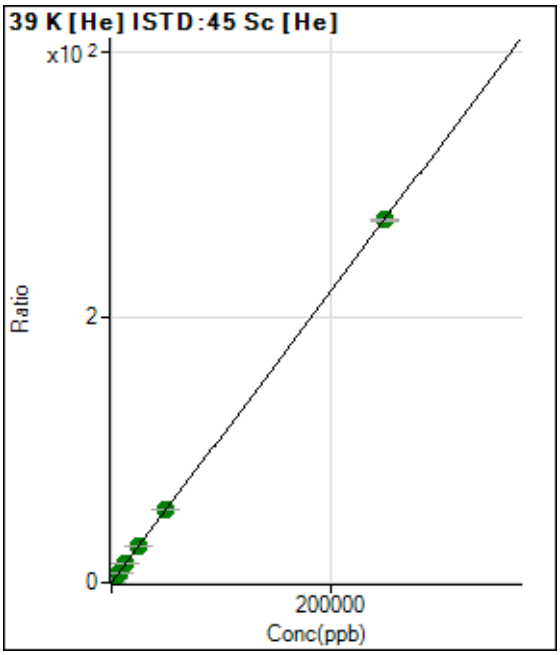


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐						
2	☐						
3	☐						
4	☐						
5	☐						
6	☐						
7	☐						
8	☐						



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	76104.32	0.0947	P	1.4
2	☐	500.000	532.606	546620.50	0.6776	P	0.3
3	☐	2500.000	2660.133	2367099.34	3.0060	A	0.8
4	☐	6250.000	6343.206	5314466.10	7.0368	A	0.7
5	☐	12500.000	12824.132	10323085.75	14.1297	A	1.1
6	☐	25000.000	25440.914	20286530.53	27.9378	A	0.9
7	☐	50000.000	50635.104	40701289.95	55.5110	A	0.5
8	☐	250000.00	249808.68	206985414.69	273.4914	A	0.5

y = 0.0011 * x + 0.0947
R = 1.0000
DL = 3.542
BEC = 86.52

Weight: <None>
Min Conc: 0

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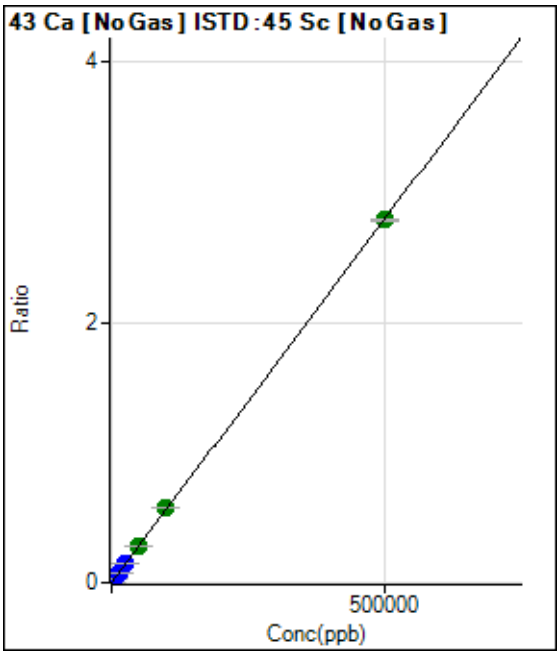
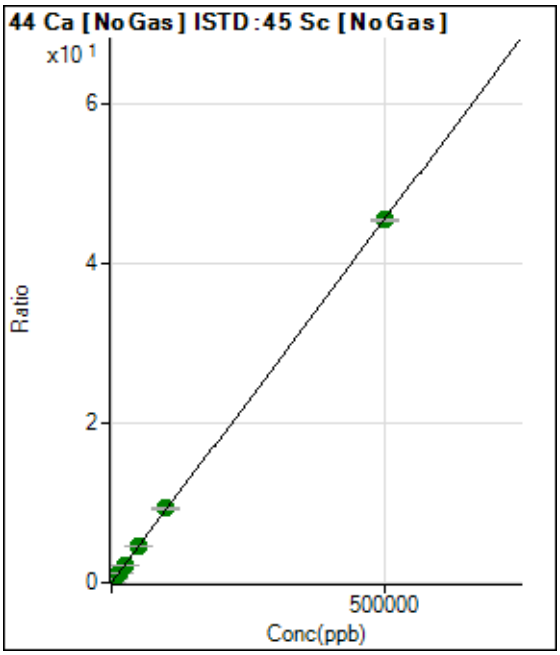


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	958.93	0.0001	P	2.1
2	☐	500.000	524.722	25734.08	0.0030	P	2.1
3	☐	5000.000	5488.276	257871.97	0.0307	P	1.5
4	☐	12500.000	13131.773	594098.92	0.0734	P	2.9
5	☐	25000.000	26553.845	1125077.62	0.1483	P	0.3
6	☐	50000.000	50397.976	2091137.42	0.2814	A	1.3
7	☐	100000.00	103777.16	4269887.75	0.5793	A	0.4
8	☐	500000.00	499106.37	21034698.02	2.7857	A	0.7

y = 5.5812E-006 * x + 1.1301E-004
R = 1.0000
DL = 1.3
BEC = 20.25

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	25900.29	0.0031	P	3.1
2	☐	500.000	523.455	429218.06	0.0507	P	1.3
3	☐	5000.000	5144.302	3955849.25	0.4716	A	1.0
4	☐	12500.000	12427.739	9185818.06	1.1350	A	3.1
5	☐	25000.000	25002.924	17299195.58	2.2804	A	0.9
6	☐	50000.000	50087.622	33923818.11	4.5652	A	1.8
7	☐	100000.00	102428.30	68783151.75	9.3325	A	1.3
8	☐	500000.00	499505.77	343562119.32	45.4993	A	0.5

y = 9.1083E-005 * x + 0.0031
R = 1.0000
DL = 3.075
BEC = 33.51

Weight: <None>
Min Conc: 0

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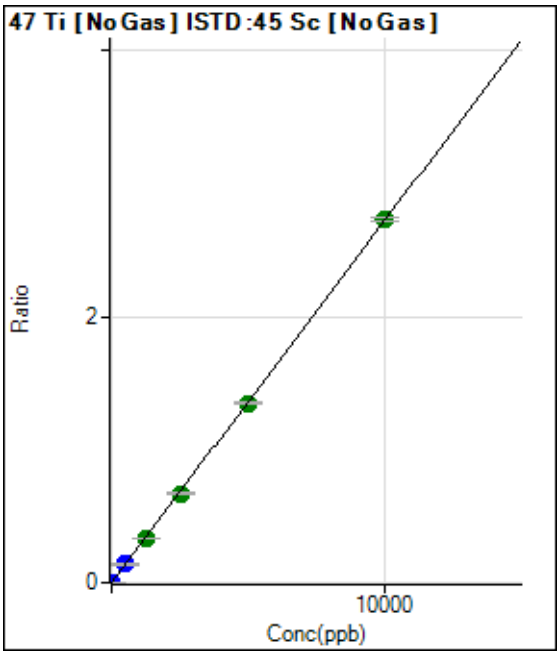
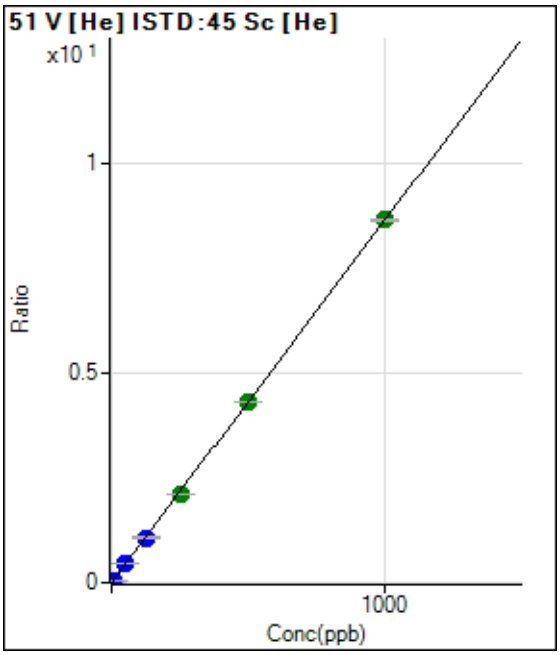


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	132.23	0.0000	P	18.3
2	☐	5.000	5.064	11780.24	0.0014	P	1.6
3	☐	500.000	505.793	1153271.24	0.1375	P	1.6
4	☐	1250.000	1224.828	2694583.57	0.3329	A	3.2
5	☐	2500.000	2466.868	5086500.79	0.6706	A	0.8
6	☐	5000.000	4960.063	10019326.10	1.3483	A	1.1
7	☐	10000.000	10031.109	20095824.70	2.7267	A	1.2
8	☐			3570.46	0.0005	P	2.8

y = 2.7182E-004 * x + 1.5572E-005
R = 1.0000
DL = 0.03148
BEC = 0.05729

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	31.11	0.0000	P	26.8
2	☐	5.000	5.107	35651.09	0.0442	P	0.7
3	☐	50.000	51.289	349187.46	0.4435	P	0.8
4	☐	125.000	124.692	814178.37	1.0781	P	0.3
5	☐	250.000	245.792	1552481.76	2.1250	A	0.4
6	☐	500.000	498.028	3126619.50	4.3058	A	0.1
7	☐	1000.000	1002.012	6351793.38	8.6630	A	0.5
8	☐			2200.19	0.0029	P	1.1

y = 0.0086 * x + 3.8697E-005
R = 1.0000
DL = 0.003598
BEC = 0.004476

Weight: <None>
Min Conc: 0

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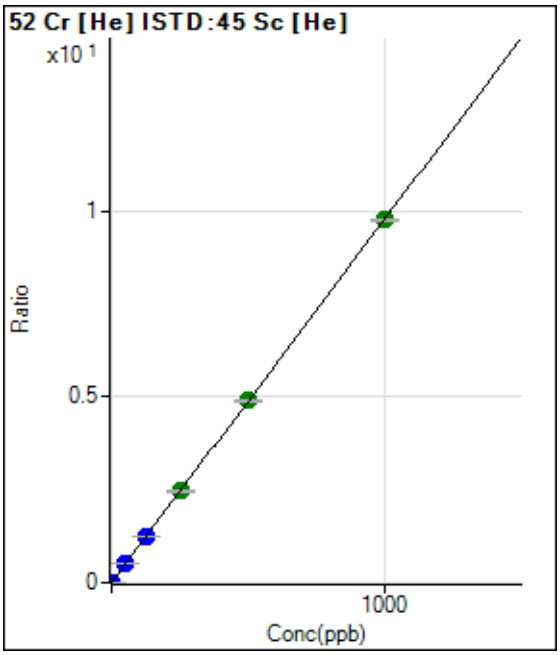
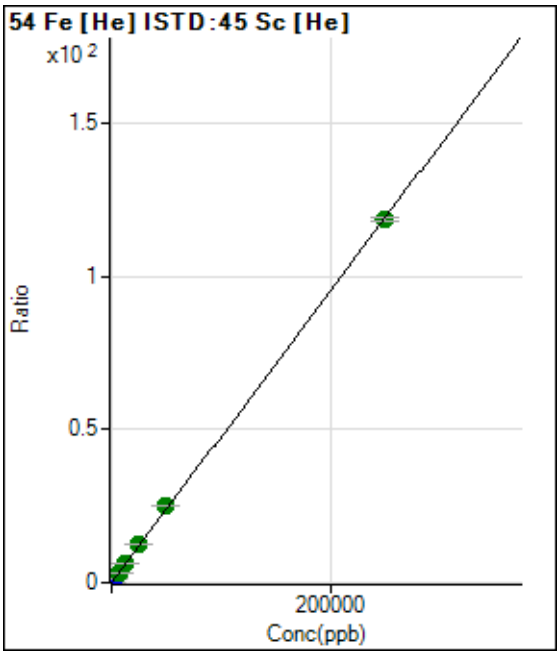


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2732.49	0.0034	P	2.1
2	☐	2.000	2.120	19463.75	0.0241	P	1.7
3	☐	50.000	52.086	403660.31	0.5126	P	0.6
4	☐	125.000	127.891	946867.02	1.2538	P	0.3
5	☐	250.000	252.174	1803725.11	2.4688	A	0.8
6	☐	500.000	500.459	3555375.71	4.8963	A	0.5
7	☐	1000.000	998.761	7161981.63	9.7681	A	0.9
8	☐			13220.78	0.0175	P	6.8

y = 0.0098 * x + 0.0034
R = 1.0000
DL = 0.02173
BEC = 0.3477

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3673.82	0.0046	P	1.5
2	☐	50.000	56.638	25440.47	0.0315	P	2.4
3	☐	2500.000	2894.288	1088532.72	1.3824	P	0.5
4	☐	6250.000	6847.560	2465256.46	3.2643	A	1.1
5	☐	12500.000	13356.318	4648428.44	6.3628	A	1.7
6	☐	25000.000	26579.721	9191248.27	12.6577	A	0.6
7	☐	50000.000	52792.514	18429631.11	25.1361	A	1.2
8	☐	250000.00	249221.82	89791664.22	118.6449	A	1.0

y = 4.7604E-004 * x + 0.0046
R = 0.9999
DL = 0.4297
BEC = 9.602

Weight: <None>
Min Conc: 0

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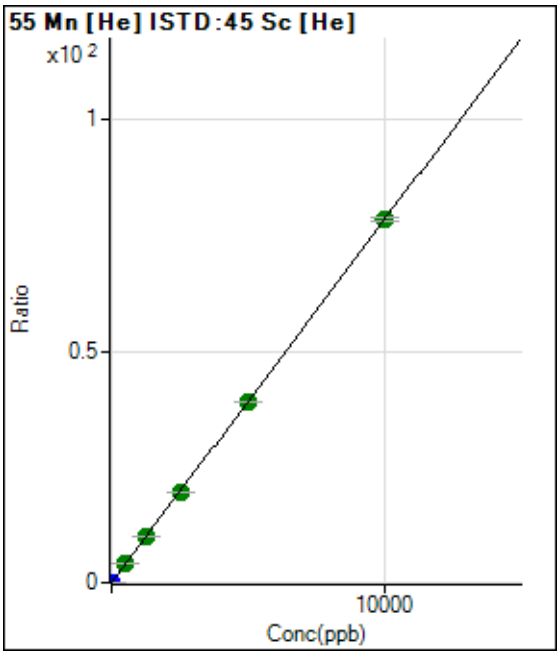
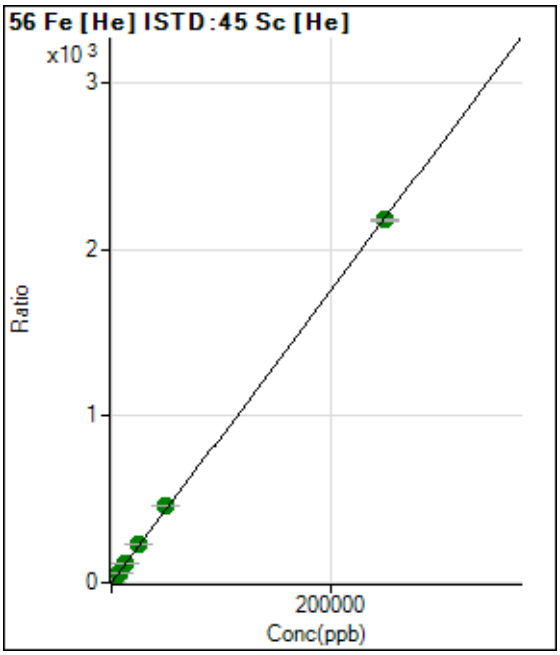


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1091.16	0.0014	P	5.7
2	☐	1.000	1.039	7672.02	0.0095	P	1.2
3	☐	500.000	519.840	3213138.67	4.0805	A	0.4
4	☐	1250.000	1273.220	7546167.25	9.9922	A	0.7
5	☐	2500.000	2501.167	14339522.98	19.6277	A	1.1
6	☐	5000.000	4999.154	28485990.41	39.2291	A	0.2
7	☐	10000.000	9996.236	57512733.59	78.4407	A	0.9
8	☐			34546.25	0.0456	P	1.1

y = 0.0078 * x + 0.0014
R = 1.0000
DL = 0.02972
BEC = 0.173

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	30003.26	0.0373	P	1.3
2	☐	50.000	55.903	423983.66	0.5256	P	0.5
3	☐	2500.000	2725.333	18772761.66	23.8400	A	0.3
4	☐	6250.000	6708.126	44275161.01	58.6252	A	0.5
5	☐	12500.000	13147.969	83920399.86	114.8699	A	1.0
6	☐	25000.000	26261.390	166579496.41	229.4007	A	0.3
7	☐	50000.000	52403.068	335605912.78	457.7185	A	0.5
8	☐	250000.00	249347.14	1648217682.1	2,177.801	A	0.7

y = 0.0087 * x + 0.0373
R = 0.9999
DL = 0.1614
BEC = 4.274

Weight: <None>
Min Conc: 0

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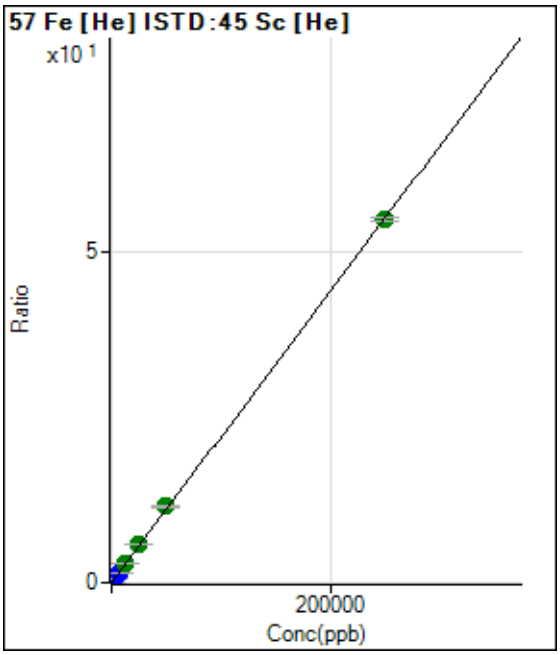
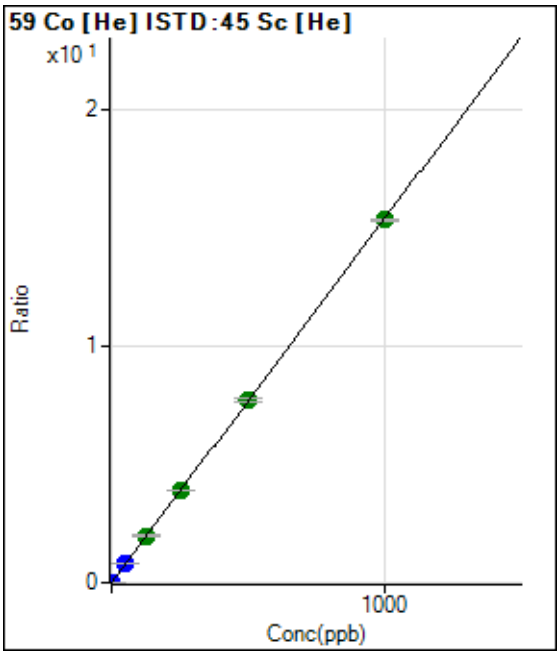


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1773.45	0.0022	P	6.0
2	☐	50.000	58.491	12134.97	0.0150	P	0.5
3	☐	2500.000	2815.831	488323.11	0.6202	P	1.0
4	☐	6250.000	6964.319	1155903.22	1.5306	P	0.8
5	☐	12500.000	13160.588	2111563.29	2.8904	A	1.0
6	☐	25000.000	26383.865	4205988.34	5.7923	A	1.0
7	☐	50000.000	52204.505	8401539.32	11.4588	A	1.4
8	☐	250000.00	249366.66	41417986.88	54.7273	A	1.2

y = 2.1946E-004 * x + 0.0022
R = 1.0000
DL = 1.811
BEC = 10.05

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	574.46	0.0007	P	10.9
2	☐	1.000	1.087	14040.00	0.0174	P	1.3
3	☐	50.000	52.962	641024.62	0.8141	P	0.5
4	☐	125.000	128.579	1491743.86	1.9753	A	1.4
5	☐	250.000	254.548	2856394.09	3.9098	A	0.9
6	☐	500.000	502.702	5606224.50	7.7207	A	1.5
7	☐	1000.000	996.917	11225772.75	15.3104	A	0.5
8	☐			31006.50	0.0410	P	0.5

y = 0.0154 * x + 7.1458E-004
R = 1.0000
DL = 0.01515
BEC = 0.04653

Weight: <None>
Min Conc: 0

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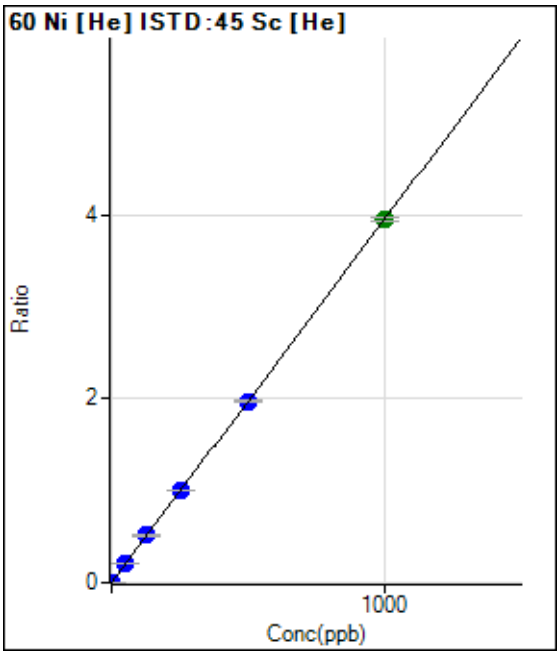
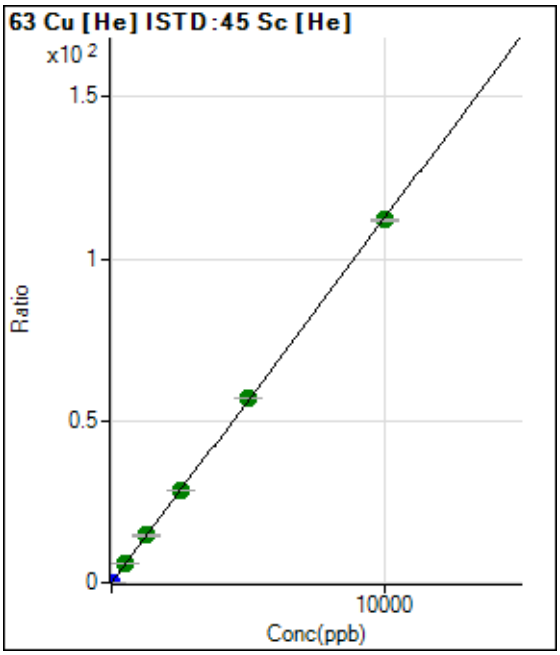


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1106.72	0.0014	P	6.6
2	☐	1.000	1.061	4488.50	0.0056	P	1.6
3	☐	50.000	53.487	167260.01	0.2124	P	0.8
4	☐	125.000	129.864	388003.94	0.5138	P	0.9
5	☐	250.000	254.222	733814.89	1.0044	P	0.5
6	☐	500.000	498.963	1430565.64	1.9701	P	0.6
7	☐	1000.000	998.681	2890183.85	3.9418	A	1.0
8	☐			9266.27	0.0122	P	1.0

y = 0.0039 * x + 0.0014
R = 1.0000
DL = 0.06938
BEC = 0.3489

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1565.65	0.0019	P	1.7
2	☐	2.000	2.006	19784.29	0.0245	P	1.2
3	☐	500.000	528.474	4684918.61	5.9494	A	0.1
4	☐	1250.000	1298.652	11038202.61	14.6169	A	2.0
5	☐	2500.000	2543.583	20914177.74	28.6272	A	0.4
6	☐	5000.000	5052.034	41286219.11	56.8572	A	0.4
7	☐	10000.000	9955.582	82151527.66	112.0413	A	0.5
8	☐			19836.58	0.0262	P	2.0

y = 0.0113 * x + 0.0019
R = 1.0000
DL = 0.008824
BEC = 0.1731

Weight: <None>
Min Conc: 0

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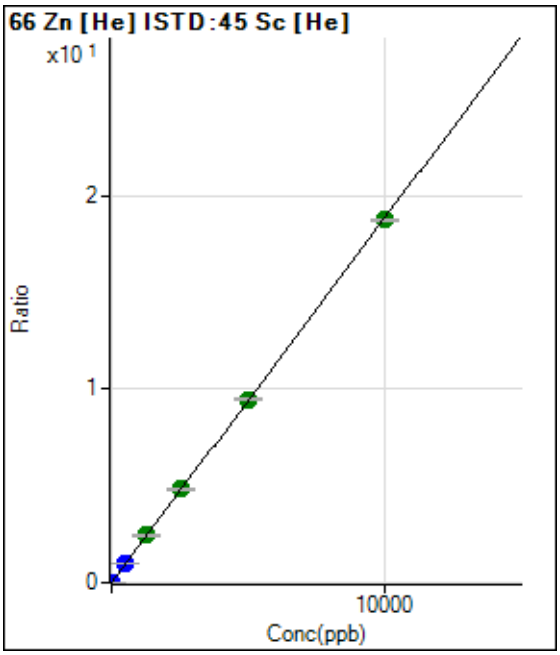
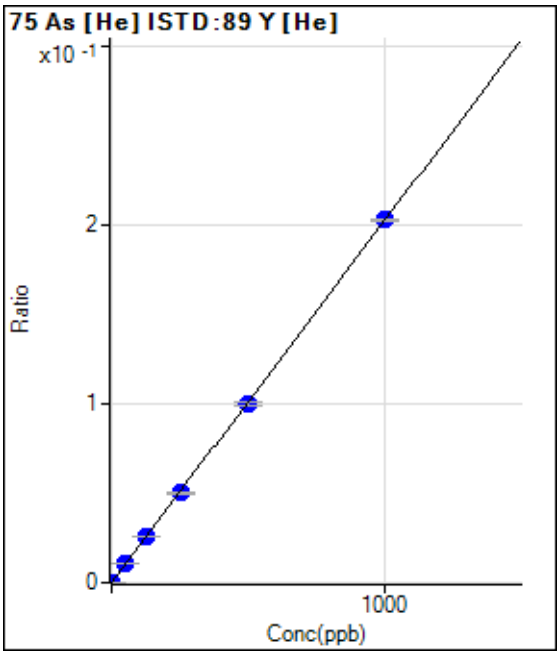


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1110.05	0.0014	P	0.4
2	☐	2.000	4.970	8661.46	0.0107	P	2.1
3	☐	500.000	538.721	799673.54	1.0156	P	0.6
4	☐	1250.000	1301.877	1851880.06	2.4522	A	1.6
5	☐	2500.000	2560.844	3522989.19	4.8223	A	0.6
6	☐	5000.000	5038.399	6888452.81	9.4864	A	0.6
7	☐	10000.000	9957.168	13744946.32	18.7463	A	0.7
8	☐			5117.60	0.0068	P	2.1

y = 0.0019 * x + 0.0014
R = 1.0000
DL = 0.007831
BEC = 0.7336

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	45.56	0.0000	P	39.9
2	☐	1.000	1.081	1200.06	0.0002	P	8.0
3	☐	50.000	51.903	54190.54	0.0105	P	1.2
4	☐	125.000	125.823	127381.75	0.0255	P	0.7
5	☐	250.000	247.241	242319.58	0.0501	P	0.7
6	☐	500.000	495.537	482294.50	0.1003	P	1.8
7	☐	1000.000	1002.723	969545.46	0.2030	P	0.3
8	☐			612.24	0.0001	P	11.3

y = 2.0246E-004 * x + 8.6872E-006
R = 1.0000
DL = 0.05142
BEC = 0.04291

Weight: <None>
Min Conc: 0

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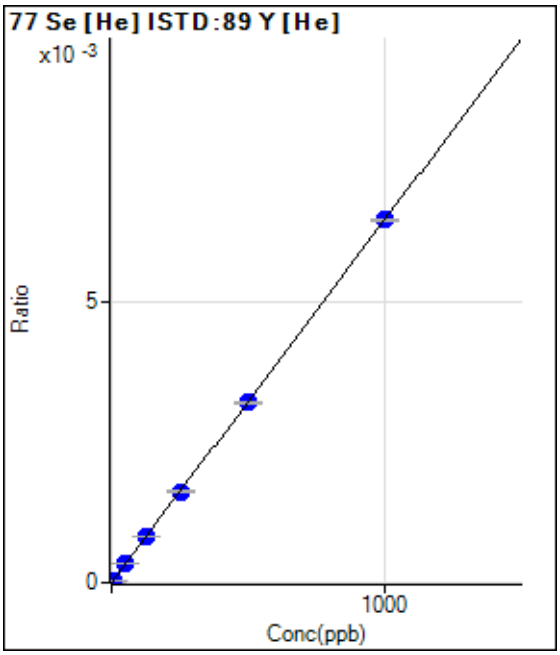
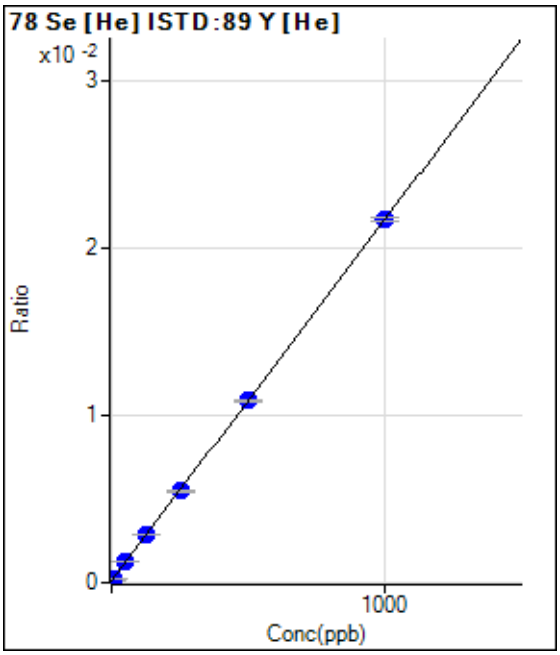


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1.11	0.0000	P	173.
2	☐	5.000	5.341	183.34	0.0000	P	23.9
3	☐	50.000	52.321	1744.56	0.0003	P	2.7
4	☐	125.000	126.630	4095.05	0.0008	P	2.3
5	☐	250.000	251.262	7866.60	0.0016	P	1.1
6	☐	500.000	497.286	15464.82	0.0032	P	1.4
7	☐	1000.000	1000.720	30911.15	0.0065	P	0.9
8	☐			7.78	0.0000	P	24.0

y = 6.4677E-006 * x + 2.1352E-007
R = 1.0000
DL = 0.1715
BEC = 0.03301

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	603.35	0.0001	P	3.7
2	☐	5.000	4.941	1170.06	0.0002	P	2.3
3	☐	50.000	52.176	6396.99	0.0012	P	1.7
4	☐	125.000	127.411	14324.83	0.0029	P	2.1
5	☐	250.000	249.295	26606.16	0.0055	P	1.9
6	☐	500.000	499.849	52425.66	0.0109	P	1.3
7	☐	1000.000	999.842	103630.34	0.0217	P	0.9
8	☐			588.91	0.0001	P	5.1

y = 2.1588E-005 * x + 1.1515E-004
R = 1.0000
DL = 0.5922
BEC = 5.334

Weight: <None>
Min Conc: 0

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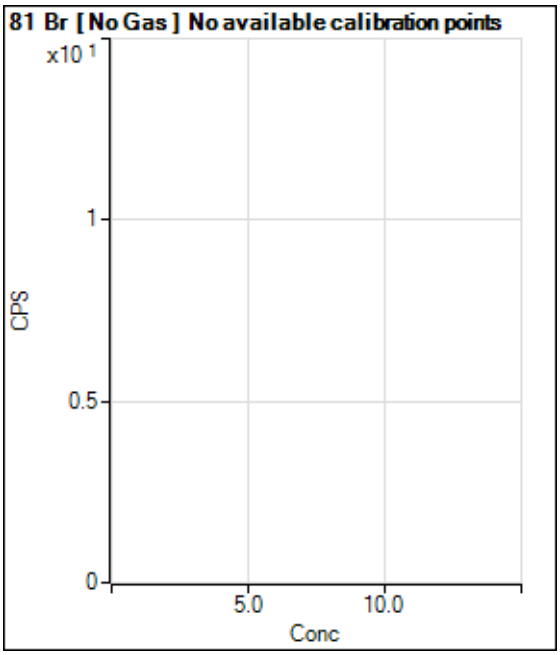
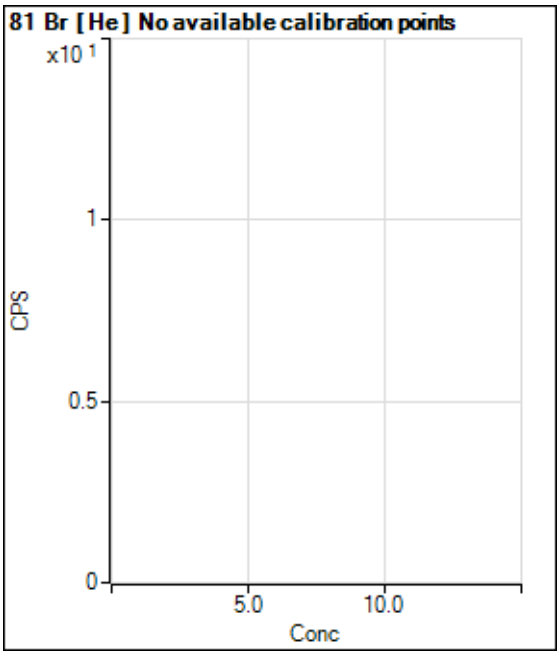


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			16222.34		P	2.0
2	☐			15439.27		P	3.7
3	☐			14479.42		P	1.8
4	☐			13614.15		P	1.3
5	☐			12832.37		P	3.5
6	☐			12434.21		P	1.6
7	☐			12870.16		P	2.0
8	☐			14714.08		P	3.4



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			218.89		P	6.9
2	☐			104.45		P	28.8
3	☐			98.89		P	10.3
4	☐			91.11		P	9.2
5	☐			84.44		P	28.0
6	☐			82.22		P	9.4
7	☐			122.22		P	20.1
8	☐			153.34		P	3.8

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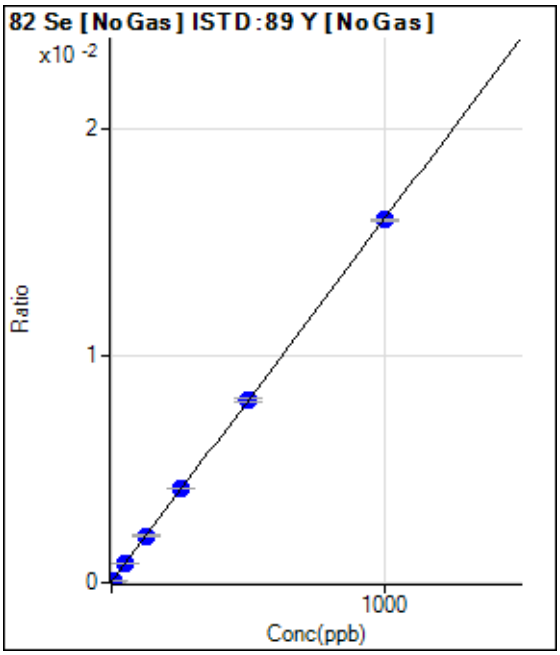
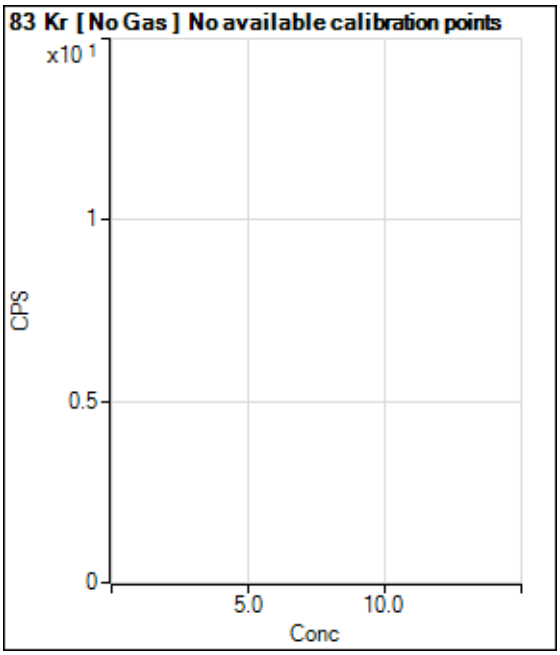


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	710.82	0.0000	P	8.1
2	☐	5.000	5.277	2256.36	0.0001	P	2.2
3	☐	50.000	52.626	15915.41	0.0009	P	0.5
4	☐	125.000	126.965	36189.29	0.0021	P	3.1
5	☐	250.000	255.908	68171.08	0.0041	P	0.6
6	☐	500.000	501.201	131571.47	0.0080	P	2.3
7	☐	1000.000	997.544	261227.62	0.0160	P	0.4
8	☐			867.26	0.0001	P	8.8

y = 1.5974E-005 * x + 3.9077E-005
R = 1.0000
DL = 0.5916
BEC = 2.446

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			293.34		P	9.8
2	☐			275.56		P	6.0
3	☐			281.11		P	8.4
4	☐			272.23		P	6.7
5	☐			222.23		P	6.8
6	☐			260.01		P	6.8
7	☐			276.67		P	27.7
8	☐			334.45		P	12.1

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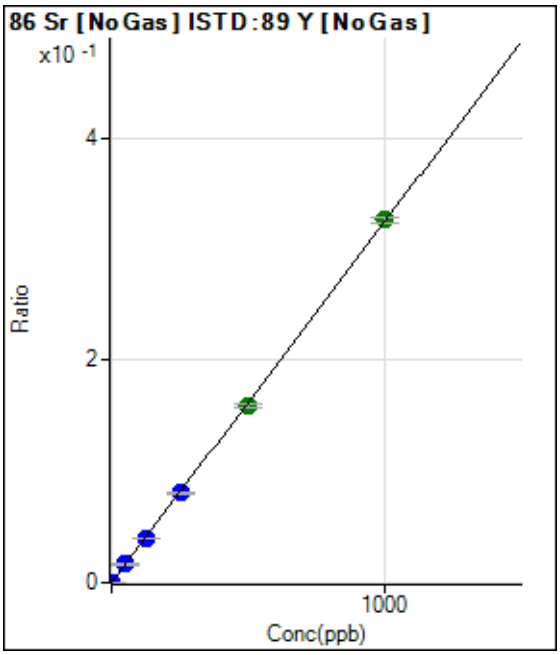
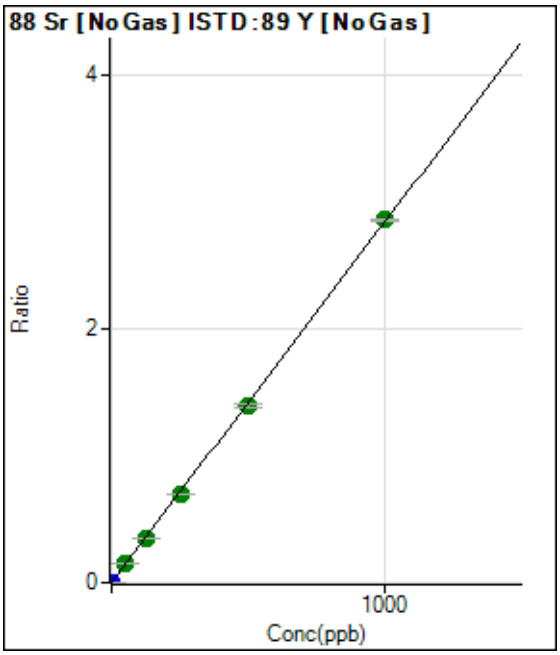


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	505.57	0.0000	P	4.1
2	☐	1.000	1.018	6551.51	0.0004	P	2.4
3	☐	50.000	50.628	297746.88	0.0165	P	0.8
4	☐	125.000	122.899	698786.33	0.0399	P	2.4
5	☐	250.000	248.154	1330751.48	0.0806	P	0.4
6	☐	500.000	490.552	2603821.06	0.1592	A	2.9
7	☐	1000.000	1005.417	5336423.81	0.3263	A	1.4
8	☐			18790.95	0.0011	P	0.7

y = 3.2453E-004 * x + 2.7802E-005
R = 0.9999
DL = 0.01046
BEC = 0.08567

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	864.48	0.0000	P	16.6
2	☐	1.000	0.995	52596.93	0.0029	P	2.0
3	☐	50.000	50.787	2613818.92	0.1445	A	0.3
4	☐	125.000	121.641	6057217.48	0.3460	A	2.4
5	☐	250.000	245.891	11551488.44	0.6993	A	0.4
6	☐	500.000	489.138	22749259.38	1.3911	A	2.5
7	☐	1000.000	1006.839	46825604.30	2.8633	A	0.8
8	☐			160982.04	0.0097	P	1.2

y = 0.0028 * x + 4.7506E-005
R = 0.9999
DL = 0.008341
BEC = 0.01671

Weight: <None>
Min Conc: 0

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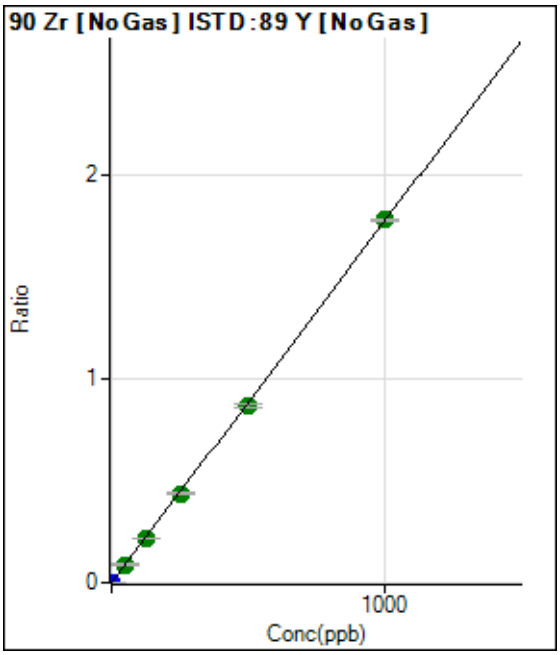
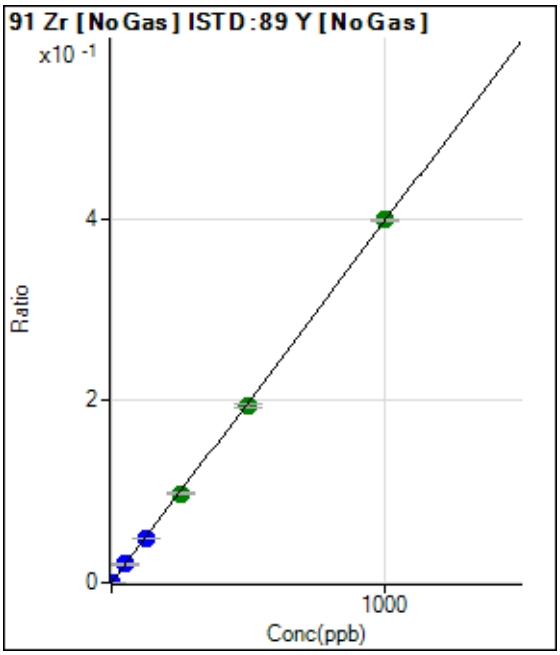


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	934.48	0.0001	P	7.2
2	☐	1.000	0.966	32289.91	0.0018	P	2.2
3	☐	50.000	50.553	1624360.74	0.0898	A	0.9
4	☐	125.000	121.829	3786665.05	0.2163	A	3.1
5	☐	250.000	247.570	7259929.61	0.4395	A	0.4
6	☐	500.000	492.164	14288351.03	0.8737	A	2.2
7	☐	1000.000	1004.894	29172979.01	1.7838	A	0.3
8	☐			18715.38	0.0011	P	2.1

y = 0.0018 * x + 5.1382E-005
R = 0.9999
DL = 0.006269
BEC = 0.02895

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	172.23	0.0000	P	18.6
2	☐	1.000	0.969	7208.49	0.0004	P	1.8
3	☐	50.000	50.702	364355.35	0.0201	P	1.2
4	☐	125.000	123.107	855850.61	0.0489	P	2.9
5	☐	250.000	247.606	1624067.37	0.0983	A	0.4
6	☐	500.000	491.927	3194336.24	0.1953	A	2.3
7	☐	1000.000	1004.837	6524563.38	0.3990	A	0.4
8	☐			3879.44	0.0002	P	3.0

y = 3.9704E-004 * x + 9.4697E-006
R = 0.9999
DL = 0.01333
BEC = 0.02385

Weight: <None>
Min Conc: 0

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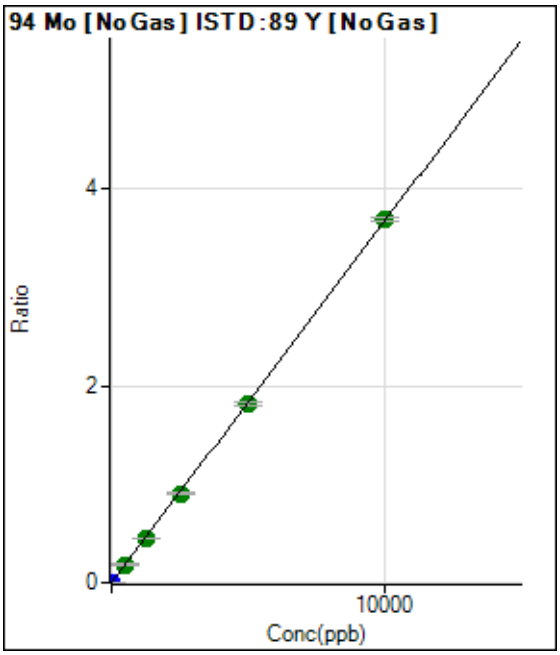
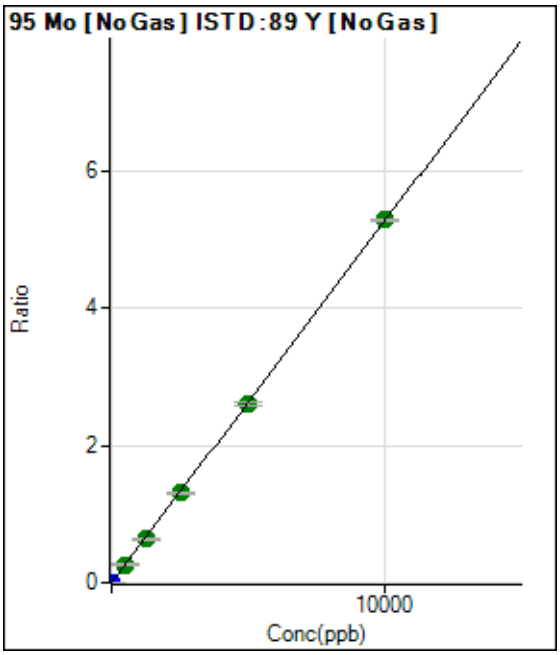


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	475.57	0.0000	P	5.9
2	☐	5.000	5.746	39053.16	0.0021	P	1.8
3	☐	500.000	504.735	3353455.61	0.1854	A	0.5
4	☐	1250.000	1215.086	7811801.13	0.4462	A	2.4
5	☐	2500.000	2473.025	14999911.03	0.9081	A	1.0
6	☐	5000.000	4945.544	29697627.06	1.8160	A	2.6
7	☐	10000.000	10038.099	60275576.32	3.6859	A	1.1
8	☐			18491.76	0.0011	P	2.2

y = 3.6719E-004 * x + 2.6151E-005
R = 1.0000
DL = 0.01254
BEC = 0.07122

Weight: <None>
Min Conc: 0



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1	☐	0.000	0.000	273.34	0.0000	P	5.0
2	☐	5.000	4.854	47050.96	0.0026	P	2.7
3	☐	500.000	503.228	4798756.98	0.2653	A	1.2
4	☐	1250.000	1214.885	11210306.22	0.6403	A	2.9
5	☐	2500.000	2481.582	21606073.71	1.3080	A	1.0
6	☐	5000.000	4935.206	42539914.09	2.6012	A	2.5
7	☐	10000.000	10041.229	86548647.60	5.2925	A	0.9
8	☐			19827.98	0.0012	P	1.2

y = 5.2707E-004 * x + 1.5028E-005
R = 1.0000
DL = 0.00431
BEC = 0.02851

Weight: <None>
Min Conc: 0

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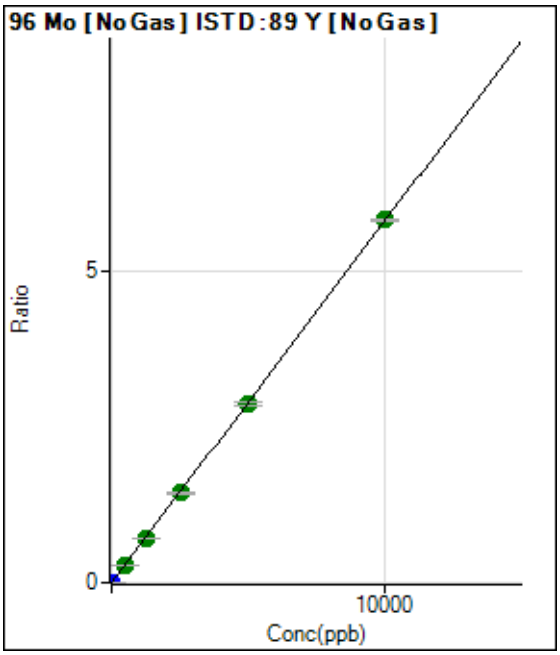
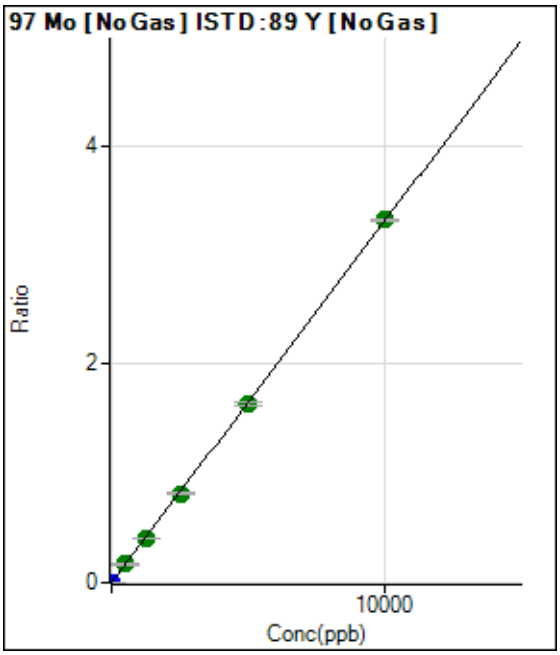


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	450.01	0.0000	P	4.9
2	☐	5.000	4.955	52960.96	0.0029	P	2.6
3	☐	500.000	501.790	5263153.29	0.2909	A	0.6
4	☐	1250.000	1214.147	12323004.68	0.7039	A	2.6
5	☐	2500.000	2477.769	23727222.15	1.4364	A	0.6
6	☐	5000.000	4934.324	46781974.31	2.8605	A	2.1
7	☐	10000.000	10042.788	95209656.36	5.8220	A	0.6
8	☐			34646.53	0.0021	P	2.5

y = 5.7971E-004 * x + 2.4742E-005
R = 1.0000
DL = 0.006302
BEC = 0.04268

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	213.34	0.0000	P	8.0
2	☐	5.000	4.849	29503.13	0.0016	P	2.3
3	☐	500.000	506.234	3026274.29	0.1673	A	1.6
4	☐	1250.000	1214.994	7028613.99	0.4015	A	2.5
5	☐	2500.000	2471.439	13489033.55	0.8166	A	0.8
6	☐	5000.000	4941.946	26704785.43	1.6329	A	2.3
7	☐	10000.000	10040.231	54251029.75	3.3174	A	0.8
8	☐			12382.00	0.0007	P	1.2

y = 3.3041E-004 * x + 1.1729E-005
R = 1.0000
DL = 0.008532
BEC = 0.0355

Weight: <None>
Min Conc: 0

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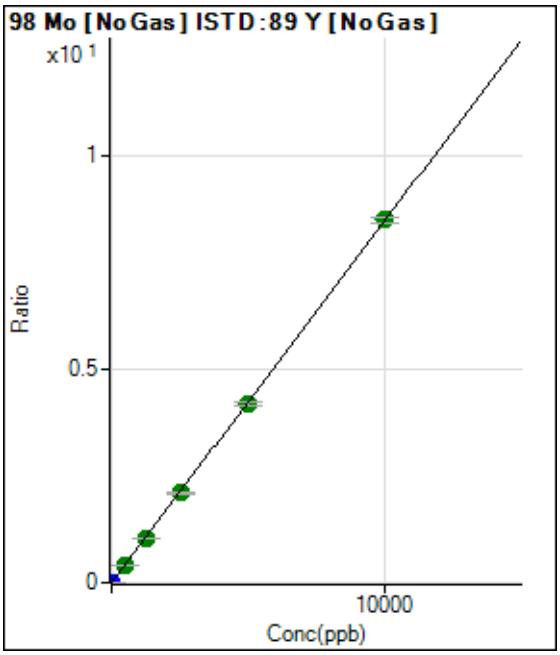
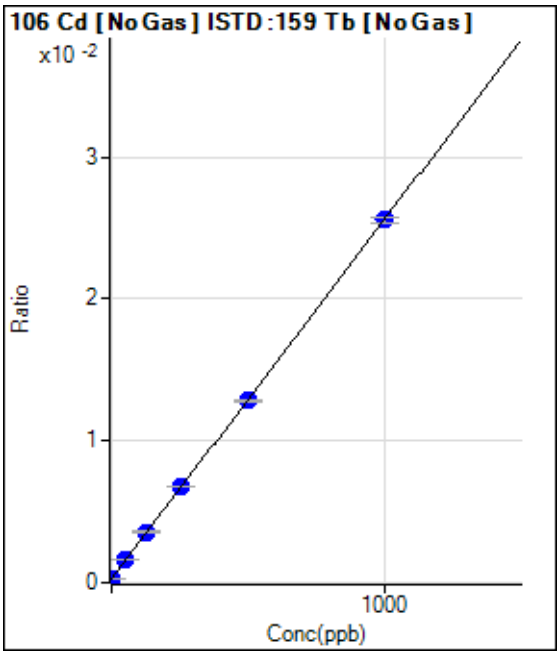


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	483.35	0.0000	P	8.1
2	☐	5.000	4.919	76830.50	0.0042	P	1.7
3	☐	500.000	500.295	7682867.52	0.4247	A	1.2
4	☐	1250.000	1219.844	18126806.12	1.0354	A	2.9
5	☐	2500.000	2475.132	34703861.70	2.1009	A	1.1
6	☐	5000.000	4950.770	68722277.31	4.2023	A	2.5
7	☐	10000.000	10034.587	139283906.81	8.5174	A	1.5
8	☐			30554.25	0.0018	P	2.5

y = 8.4880E-004 * x + 2.6578E-005
R = 1.0000
DL = 0.007573
BEC = 0.03131

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5092.05	0.0003	P	4.9
2	☐	1.000	1.318	5747.85	0.0003	P	0.5
3	☐	50.000	54.898	31417.31	0.0017	P	0.8
4	☐	125.000	129.391	67019.05	0.0035	P	3.1
5	☐	250.000	257.841	124780.13	0.0068	P	0.7
6	☐	500.000	496.081	236788.60	0.0128	P	1.3
7	☐	1000.000	999.205	469737.13	0.0256	P	1.3
8	☐			4926.44	0.0003	P	0.9

y = 2.5326E-005 * x + 2.6776E-004
R = 0.9999
DL = 1.565
BEC = 10.57

Weight: <None>
Min Conc: 0

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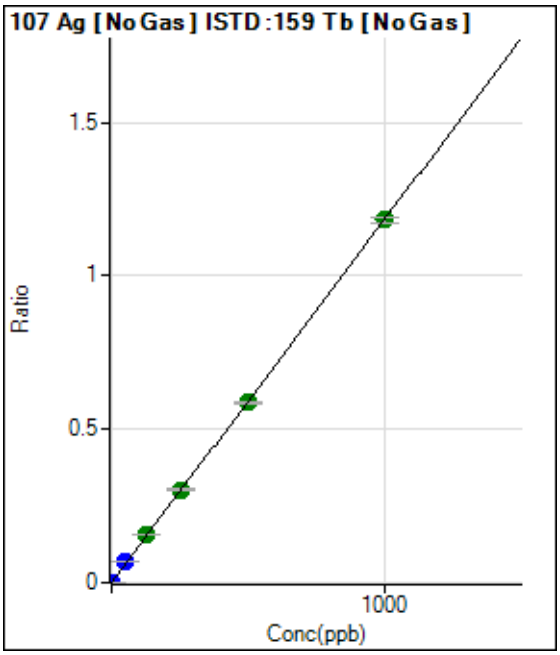
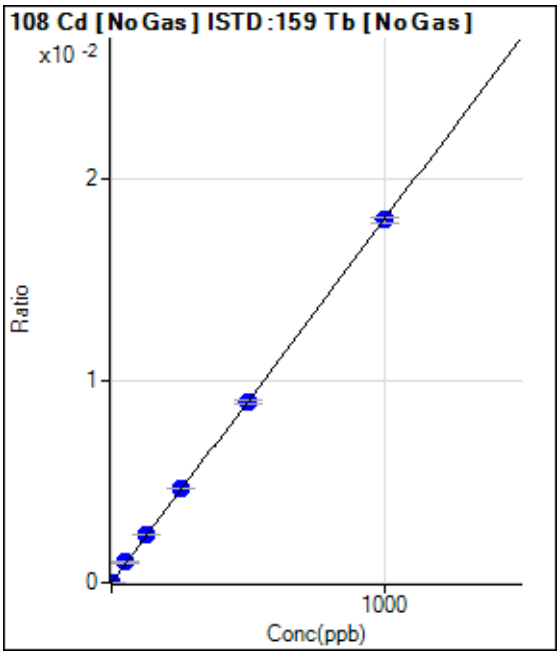


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	111.11	0.0000	P	5.3
2	☐	1.000	1.062	24087.83	0.0013	P	1.9
3	☐	50.000	56.822	1274127.20	0.0673	P	1.4
4	☐	125.000	132.931	2974390.65	0.1573	A	3.1
5	☐	250.000	256.552	5573292.21	0.3036	A	1.0
6	☐	500.000	495.480	10820732.06	0.5864	A	1.3
7	☐	1000.000	999.290	21721833.84	1.1826	A	1.5
8	☐			6442.61	0.0004	P	9.2

y = 0.0012 * x + 5.8426E-006
R = 0.9999
DL = 0.0007788
BEC = 0.004937

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	26.67	0.0000	P	45.6
2	☐	1.000	0.859	321.12	0.0000	P	11.6
3	☐	50.000	55.742	19004.76	0.0010	P	2.3
4	☐	125.000	131.663	44764.41	0.0024	P	3.1
5	☐	250.000	257.567	84993.63	0.0046	P	0.7
6	☐	500.000	497.550	165031.16	0.0089	P	2.0
7	☐	1000.000	998.214	329541.74	0.0179	P	1.4
8	☐			173.34	0.0000	P	4.5

y = 1.7972E-005 * x + 1.4053E-006
R = 0.9999
DL = 0.107
BEC = 0.0782

Weight: <None>
Min Conc: 0

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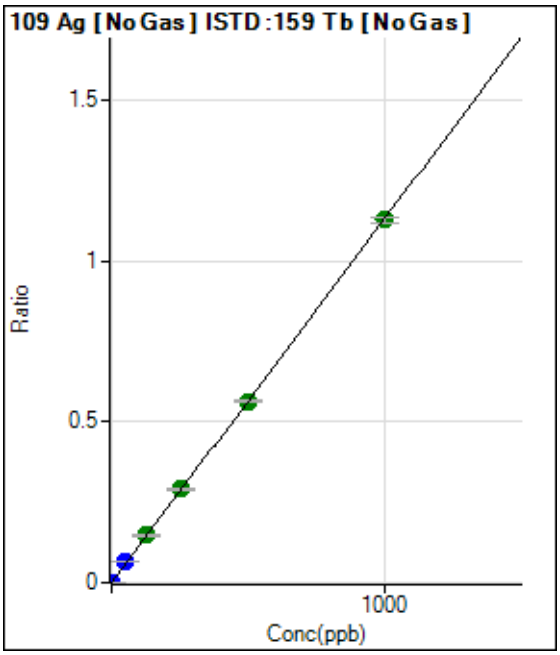
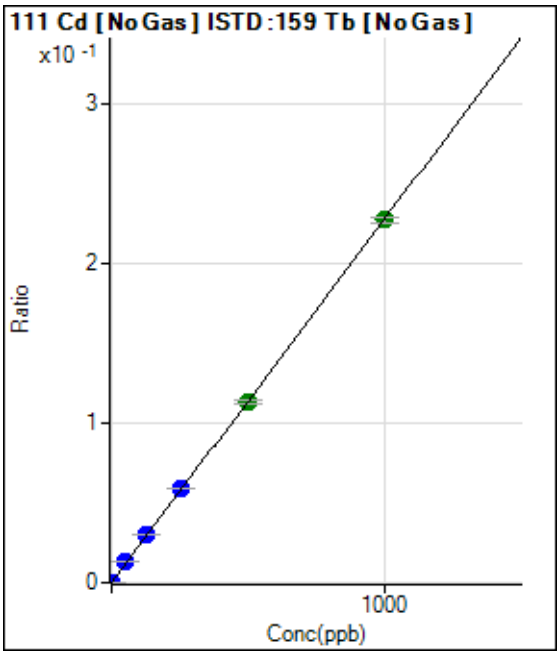


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	60.00	0.0000	P	6.3
2	☐	1.000	1.048	22710.09	0.0012	P	4.1
3	☐	50.000	56.615	1214534.88	0.0641	P	1.9
4	☐	125.000	131.497	2815058.36	0.1489	A	3.2
5	☐	250.000	256.643	5334214.92	0.2906	A	0.4
6	☐	500.000	499.453	10436000.68	0.5655	A	1.8
7	☐	1000.000	997.470	20745339.41	1.1294	A	1.5
8	☐			5822.34	0.0003	P	10.7

y = 0.0011 * x + 3.1552E-006
R = 1.0000
DL = 0.0005245
BEC = 0.002786

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1060.86	0.0001	P	5.5
2	☐	1.000	1.173	6170.23	0.0003	P	3.1
3	☐	50.000	56.013	242979.97	0.0128	P	1.6
4	☐	125.000	132.220	570901.10	0.0302	P	3.4
5	☐	250.000	259.948	1088803.04	0.0593	P	0.5
6	☐	500.000	496.473	2089585.23	0.1132	A	1.7
7	☐	1000.000	998.073	4180186.85	0.2276	A	1.8
8	☐			2109.58	0.0001	P	4.5

y = 2.2797E-004 * x + 5.5784E-005
R = 0.9999
DL = 0.04002
BEC = 0.2447

Weight: <None>
Min Conc: 0

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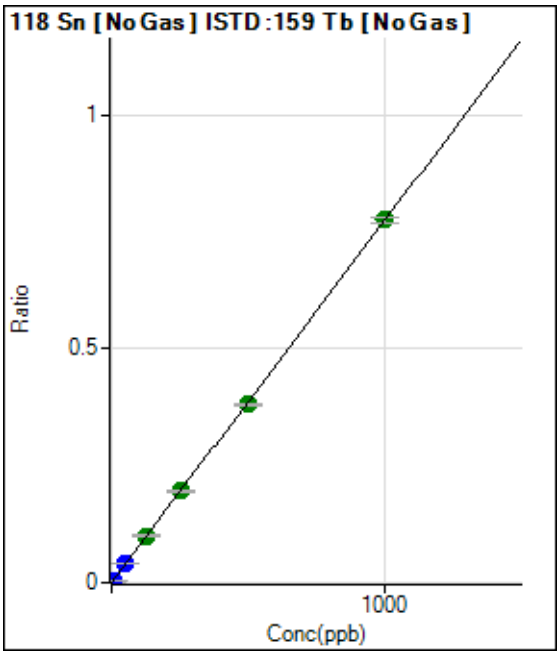
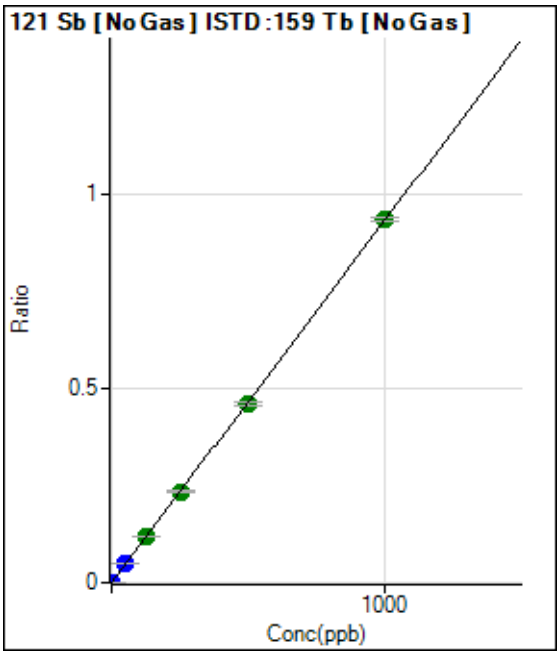


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3491.68	0.0002	P	8.0
2	☐	5.000	5.372	82752.38	0.0043	P	2.2
3	☐	50.000	54.377	799834.66	0.0422	P	1.8
4	☐	125.000	128.036	1874619.52	0.0992	A	3.4
5	☐	250.000	253.106	3594700.12	0.1958	A	1.1
6	☐	500.000	492.504	7028913.09	0.3809	A	1.3
7	☐	1000.000	1002.371	14235453.26	0.7750	A	1.7
8	☐			7207.42	0.0004	P	1.7

y = 7.7301E-004 * x + 1.8361E-004
R = 0.9999
DL = 0.05711
BEC = 0.2375

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	25.56	0.0000	P	70.9
2	☐	2.000	2.113	37538.95	0.0020	P	1.6
3	☐	50.000	53.627	945044.36	0.0499	P	1.8
4	☐	125.000	127.944	2250196.69	0.1190	A	2.5
5	☐	250.000	251.504	4294130.46	0.2339	A	0.8
6	☐	500.000	492.491	8453201.40	0.4581	A	2.0
7	☐	1000.000	1002.829	17133690.02	0.9328	A	1.2
8	☐			8867.25	0.0005	P	4.2

y = 9.3015E-004 * x + 1.3381E-006
R = 0.9999
DL = 0.003062
BEC = 0.001439

Weight: <None>
Min Conc: 0

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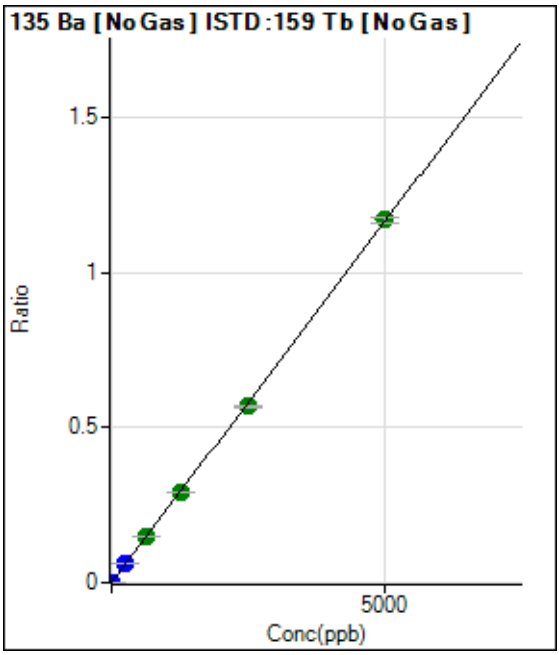
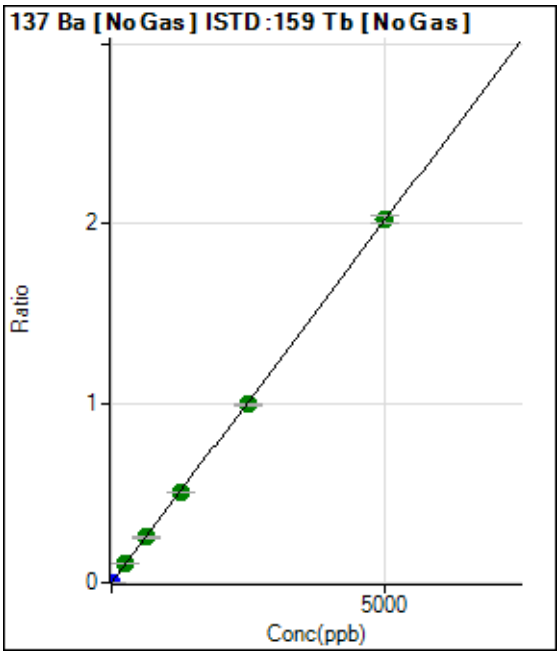


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	166.67	0.0000	P	25.1
2	☐	10.000	10.248	45618.34	0.0024	P	2.6
3	☐	250.000	263.398	1159951.50	0.0612	P	1.6
4	☐	625.000	635.057	2790889.92	0.1476	A	2.5
5	☐	1250.000	1247.570	5322312.94	0.2900	A	0.8
6	☐	2500.000	2443.973	10482172.62	0.5680	A	0.9
7	☐	5000.000	5026.694	21457889.40	1.1683	A	1.9
8	☐			9966.90	0.0005	P	2.2

y = 2.3241E-004 * x + 8.7697E-006
R = 0.9999
DL = 0.02842
BEC = 0.03773

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	288.89	0.0000	P	21.0
2	☐	10.000	10.244	79019.98	0.0041	P	2.2
3	☐	250.000	264.053	2014955.74	0.1064	A	2.0
4	☐	625.000	630.521	4801266.25	0.2539	A	3.0
5	☐	1250.000	1253.594	9267891.46	0.5049	A	0.5
6	☐	2500.000	2466.117	18328452.78	0.9932	A	1.2
7	☐	5000.000	5014.650	37095039.72	2.0196	A	1.9
8	☐			17786.77	0.0010	P	1.9

y = 4.0274E-004 * x + 1.5204E-005
R = 1.0000
DL = 0.02382
BEC = 0.03775

Weight: <None>
Min Conc: 0

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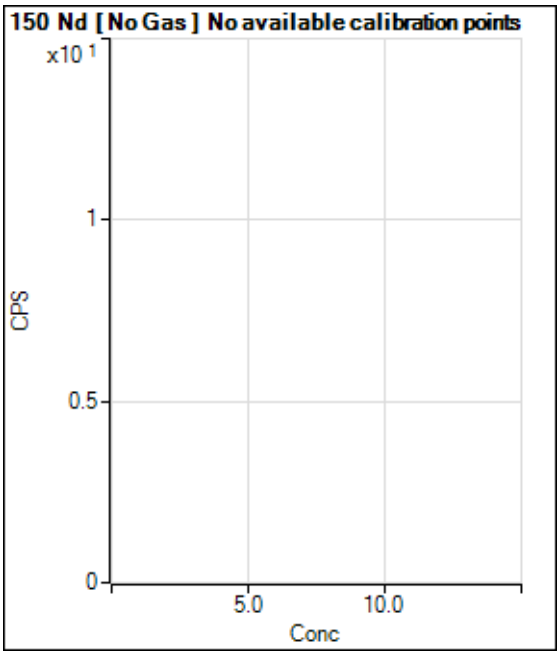
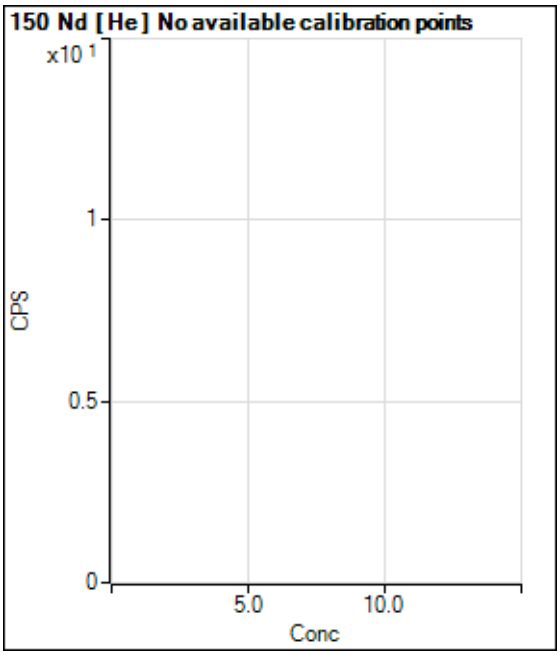


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			8.89		P	43.3
2	☐			6.67		P	50.0
3	☐			70.00		P	12.6
4	☐			150.00		P	8.0
5	☐			308.89		P	1.2
6	☐			534.46		P	8.1
7	☐			1090.05		P	2.9
8	☐			347.79		P	11.4



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1	☐			4.44		P	43.4
2	☐			6.67		P	173.
3	☐			21.11		P	48.2
4	☐			41.11		P	16.9
5	☐			84.44		P	6.0
6	☐			132.22		P	10.2
7	☐			313.34		P	6.4
8	☐			234.45		P	14.9

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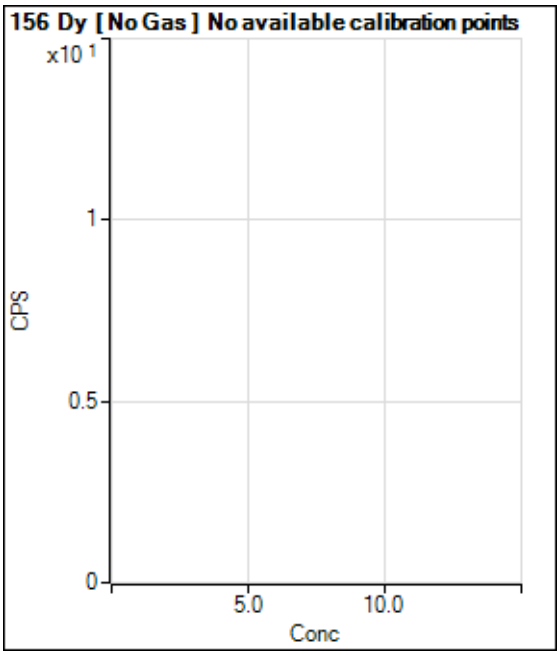
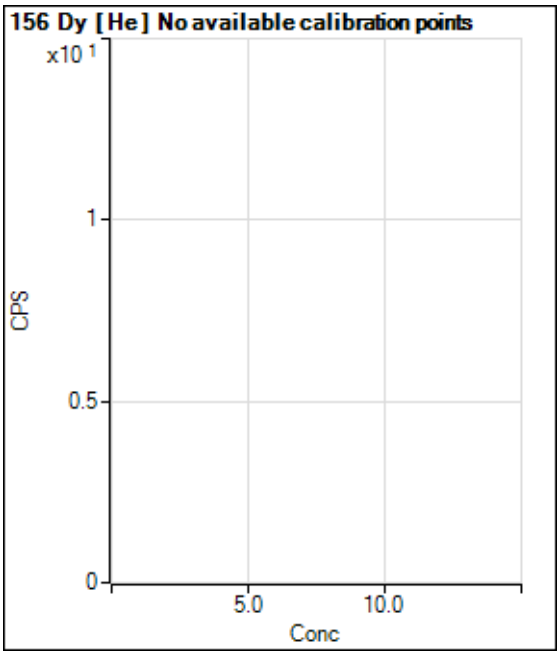


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			17.78		P	21.7
2	☐			17.78		P	28.6
3	☐			48.89		P	20.8
4	☐			78.89		P	23.3
5	☐			107.78		P	28.7
6	☐			194.45		P	4.9
7	☐			387.79		P	9.5
8	☐			734.47		P	3.5



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			11.11		P	34.6
2	☐			11.11		P	17.3
3	☐			75.56		P	11.1
4	☐			142.22		P	32.0
5	☐			295.56		P	4.3
6	☐			622.25		P	12.1
7	☐			1225.62		P	5.8
8	☐			630.02		P	4.5

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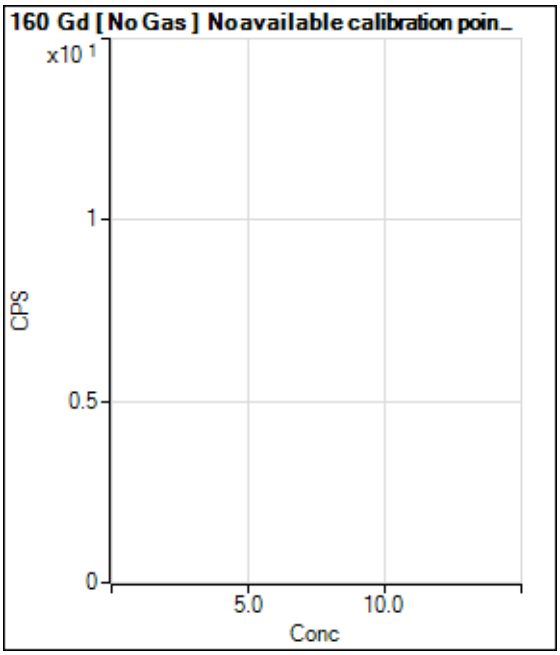
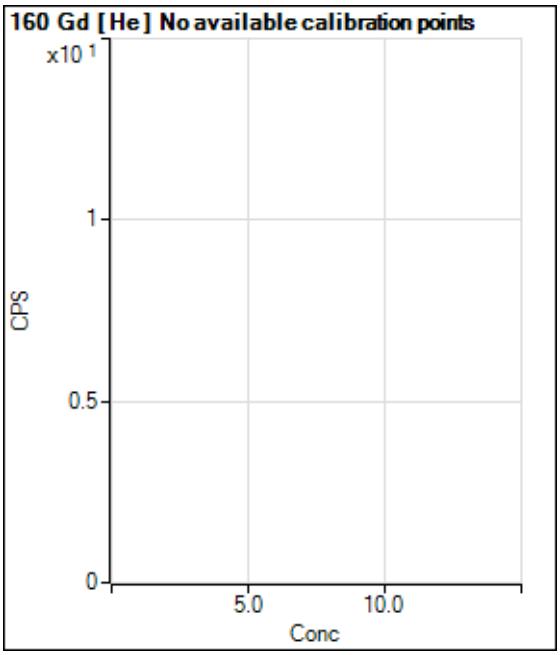


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			72.22		P	11.6
2	☐			74.44		P	6.8
3	☐			97.78		P	17.5
4	☐			104.45		P	15.1
5	☐			115.56		P	9.3
6	☐			163.34		P	23.2
7	☐			276.67		P	7.3
8	☐			726.69		P	5.3



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			795.59		P	5.1
2	☐			808.92		P	3.5
3	☐			836.70		P	13.4
4	☐			808.92		P	2.3
5	☐			786.70		P	4.9
6	☐			884.48		P	4.0
7	☐			855.59		P	10.3
8	☐			1193.40		P	6.9

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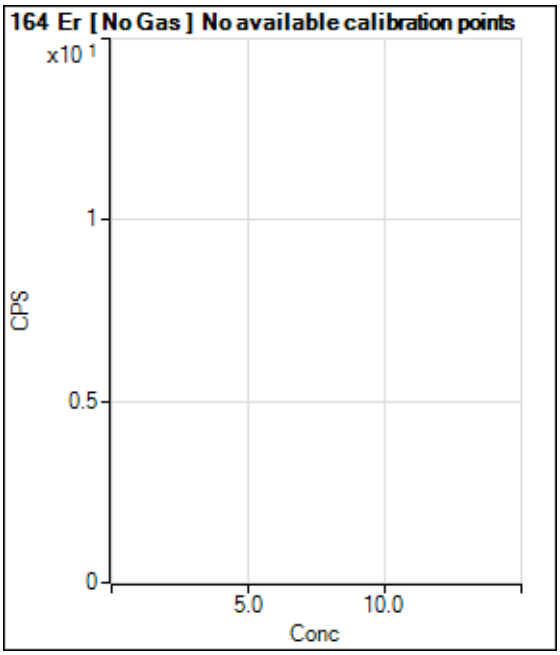
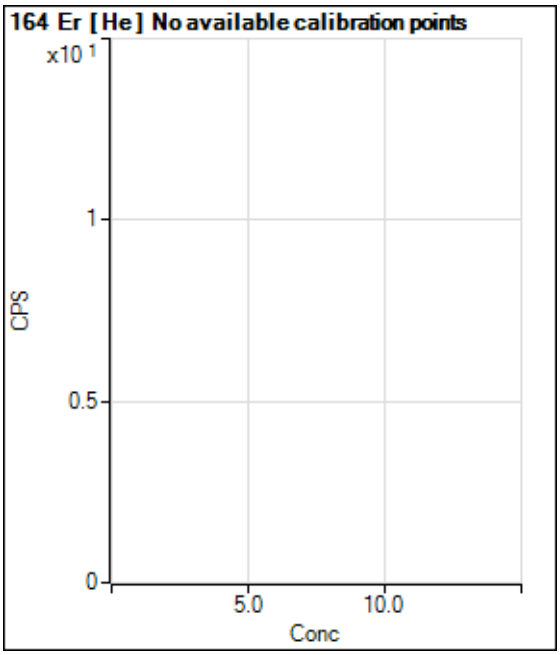


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			71.11		P	33.3
2	☐			85.56		P	9.0
3	☐			85.55		P	12.5
4	☐			101.11		P	24.7
5	☐			185.56		P	8.5
6	☐			184.45		P	1.0
7	☐			324.45		P	4.2
8	☐			812.26		P	4.2



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐			54.45		P	12.7
2	☐			38.89		P	44.0
3	☐			56.67		P	50.3
4	☐			61.11		P	28.0
5	☐			96.67		P	39.8
6	☐			151.12		P	22.1
7	☐			233.34		P	2.5
8	☐			557.80		P	5.9

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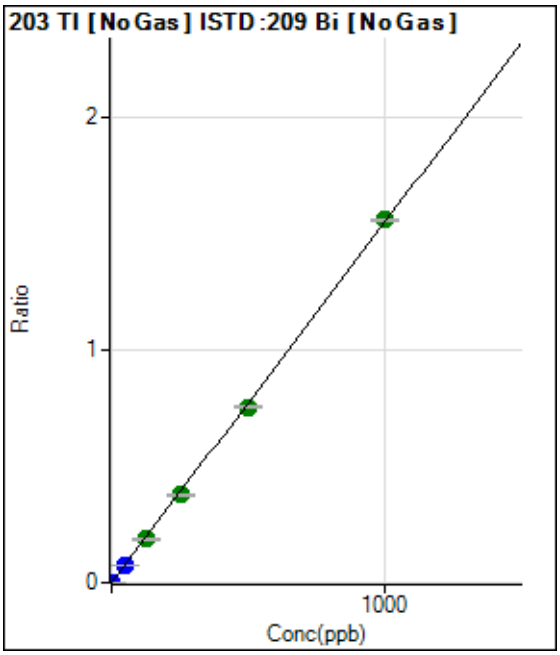
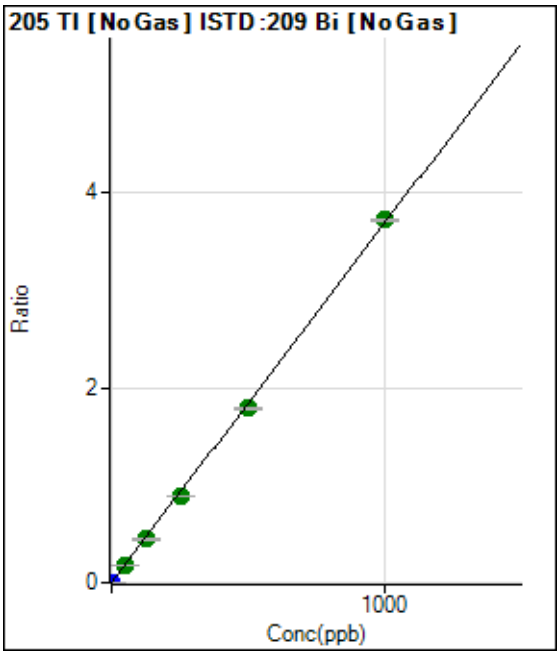


	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	544.46	0.0000	P	5.0
2	☐	1.000	0.974	17563.66	0.0016	P	1.7
3	☐	50.000	50.296	873196.07	0.0779	P	1.4
4	☐	125.000	121.176	2137187.92	0.1876	A	2.5
5	☐	250.000	243.337	4206162.68	0.3767	A	0.8
6	☐	500.000	488.017	8361447.72	0.7555	A	1.6
7	☐	1000.000	1008.121	16900286.56	1.5607	A	0.2
8	☐			2905.90	0.0003	P	14.3

y = 0.0015 * x + 4.8545E-005
R = 0.9999
DL = 0.004711
BEC = 0.03136

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1246.74	0.0001	P	7.3
2	☐	1.000	0.960	41150.90	0.0036	P	1.0
3	☐	50.000	49.561	2046703.44	0.1826	A	1.0
4	☐	125.000	120.513	5055875.62	0.4439	A	2.2
5	☐	250.000	241.392	9925014.30	0.8890	A	0.5
6	☐	500.000	485.934	19804563.32	1.7894	A	1.1
7	☐	1000.000	1009.768	40264955.23	3.7183	A	0.3
8	☐			6950.75	0.0007	P	13.3

y = 0.0037 * x + 1.1118E-004
R = 0.9998
DL = 0.006567
BEC = 0.03019

Weight: <None>
Min Conc: 0

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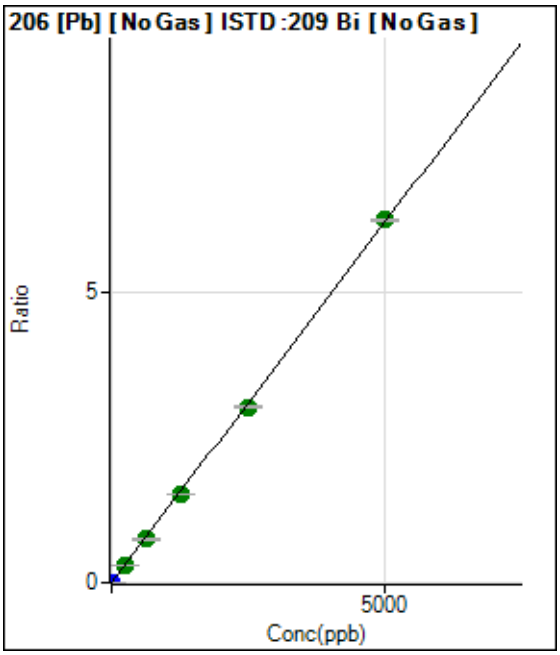

	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
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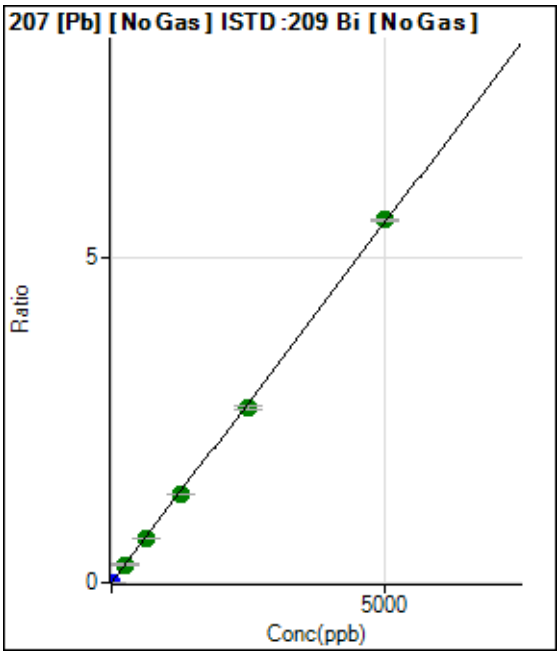
2	☐	1.000	0.970	14871.56	0.0013	P	1.2
3	☐	250.000	251.537	3491032.34	0.3115	A	1.0
4	☐	625.000	604.061	8518206.82	0.7478	A	1.8
5	☐	1250.000	1220.373	16866419.06	1.5107	A	0.6
6	☐	2500.000	2437.716	33396469.51	3.0175	A	1.1
7	☐	5000.000	5041.089	67571862.88	6.2400	A	0.4
8	☐			14740.30	0.0015	P	2.0

y = 0.0012 * x + 1.1732E-004
R = 0.9999
DL = 0.005728
BEC = 0.09478

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
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2	☐	1.000	0.969	13184.26	0.0012	P	0.9
3	☐	250.000	253.145	3133025.61	0.2795	A	0.8
4	☐	625.000	609.403	7663208.29	0.6728	A	2.0
5	☐	1250.000	1221.008	15048668.53	1.3479	A	0.6
6	☐	2500.000	2431.592	29705281.50	2.6841	A	1.8
7	☐	5000.000	5043.245	60282830.77	5.5669	A	0.6
8	☐			12767.20	0.0013	P	0.8

y = 0.0011 * x + 9.9066E-005
R = 0.9998
DL = 0.009562
BEC = 0.08975

Weight: <None>
Min Conc: 0

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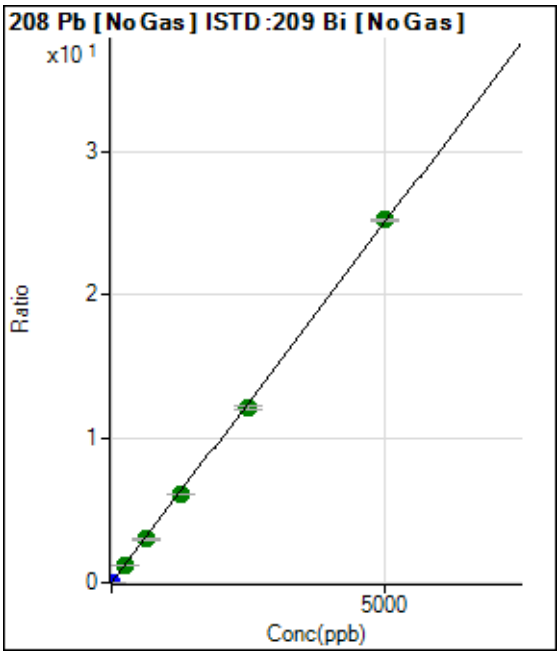

	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
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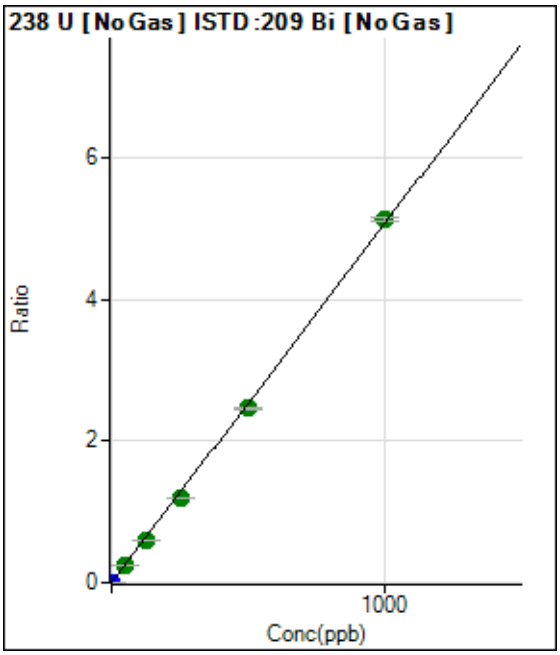
2	☐	1.000	0.969	59758.32	0.0053	P	1.0
3	☐	250.000	251.145	14091234.72	1.2572	A	0.6
4	☐	625.000	604.360	34452890.94	3.0247	A	2.1
5	☐	1250.000	1217.634	68032911.49	6.0936	A	0.2
6	☐	2500.000	2436.812	134956336.60	12.1944	A	1.7
7	☐	5000.000	5042.208	273236795.93	25.2319	A	0.5
8	☐			58428.25	0.0058	P	0.9

y = 0.0050 * x + 4.4566E-004
R = 0.9999
DL = 0.0028
BEC = 0.08906

Weight: <None>
Min Conc: 0



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	128.89	0.0000	P	30.8
2	☐	1.000	0.900	51582.78	0.0046	P	2.6
3	☐	50.000	48.124	2733601.21	0.2439	A	1.0
4	☐	125.000	116.304	6713753.86	0.5894	A	1.5
5	☐	250.000	238.092	13471044.80	1.2066	A	0.1
6	☐	500.000	486.210	27269854.59	2.4640	A	1.3
7	☐	1000.000	1011.053	55480828.62	5.1237	A	1.1
8	☐			7531.09	0.0008	P	3.7

y = 0.0051 * x + 1.1499E-005
R = 0.9998
DL = 0.002098
BEC = 0.002269

Weight: <None>
Min Conc: 0

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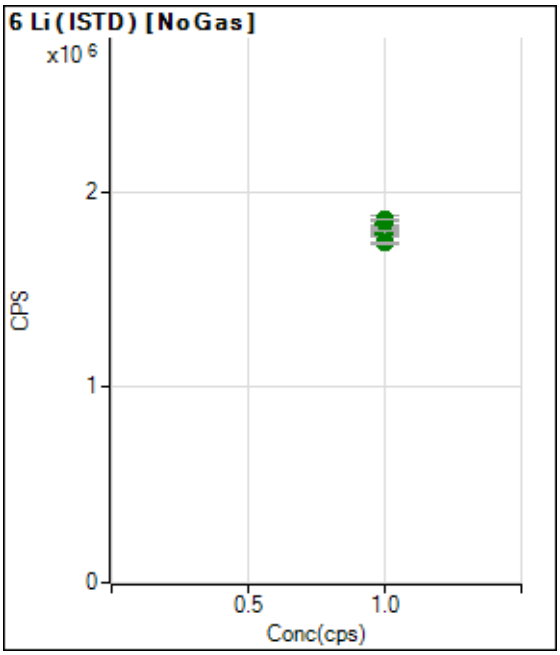

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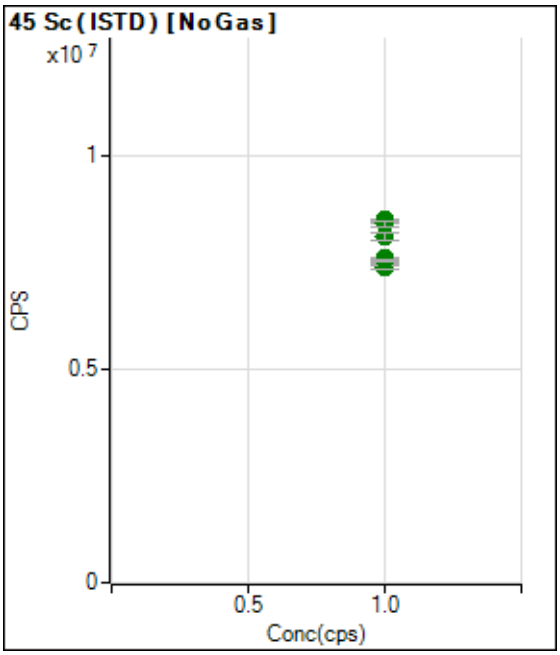
2	☐	1.000		1843204.36		A	1.1
3	☐	1.000		1855446.92		A	0.4
4	☐	1.000		1834101.08		A	2.5
5	☐	1.000		1805605.41		A	1.5
6	☐	1.000		1794248.55		A	1.6
7	☐	1.000		1784791.66		A	1.4
8	☐	1.000		1736692.92		A	0.5



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1	☐	1.000		8484832.09		A	0.6
2	☐	1.000		8461587.58		A	1.0
3	☐	1.000		8388798.97		A	1.5
4	☐	1.000		8096873.35		A	2.2
5	☐	1.000		7585782.80		A	0.7
6	☐	1.000		7431642.88		A	0.7
7	☐	1.000		7370569.82		A	0.8
8	☐	1.000		7551070.03		A	0.6

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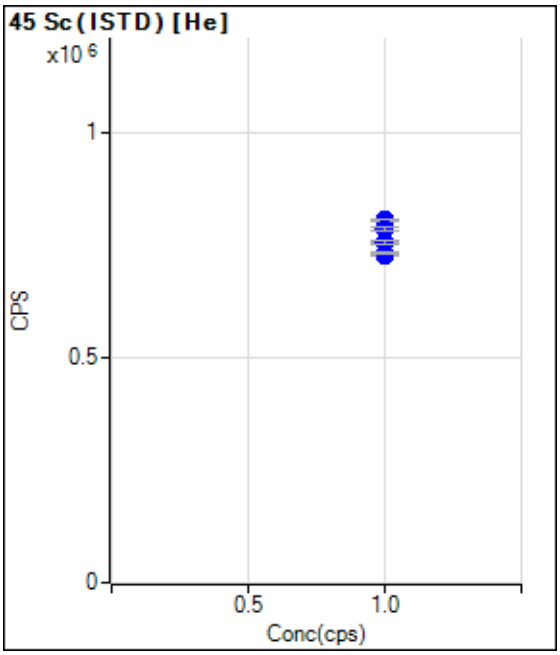

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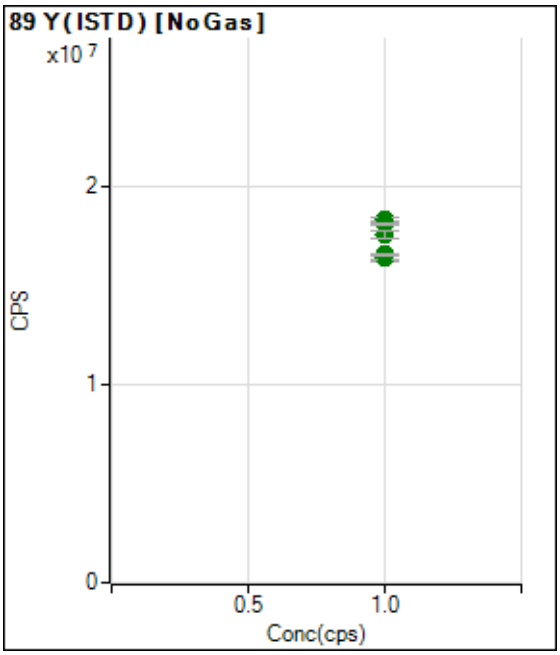
2	☐	1.000		806717.15		P	0.6
3	☐	1.000		787463.84		P	1.1
4	☐	1.000		755228.11		P	0.6
5	☐	1.000		730574.16		P	0.6
6	☐	1.000		726146.26		P	0.4
7	☐	1.000		733224.29		P	0.5
8	☐	1.000		756843.20		P	0.7



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2	☐	1.000		18286214.03		A	1.5
3	☐	1.000		18092095.29		A	0.9
4	☐	1.000		17513499.32		A	2.1
5	☐	1.000		16518528.23		A	0.5
6	☐	1.000		16358486.42		A	1.8
7	☐	1.000		16354122.67		A	1.1
8	☐	1.000		16550268.23		A	0.6

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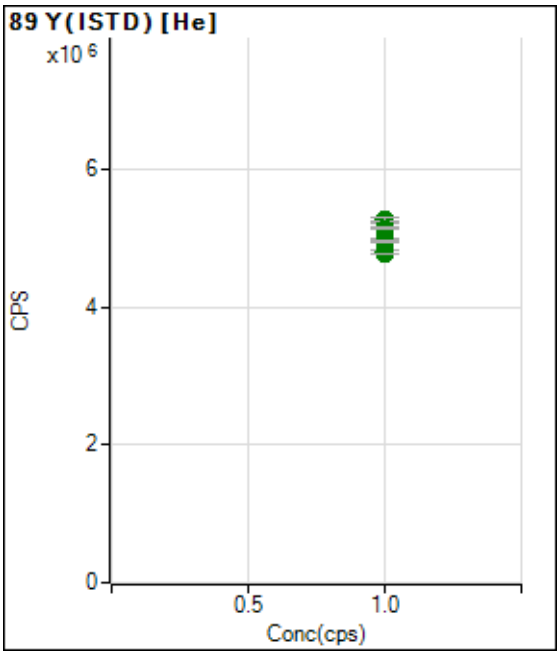

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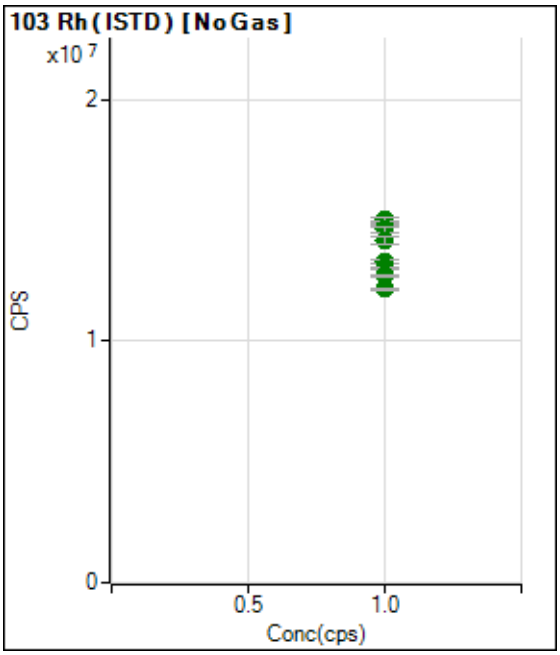
2	☐	1.000		5273783.81		A	1.2
3	☐	1.000		5152823.01		A	0.9
4	☐	1.000		4998834.37		A	0.3
5	☐	1.000		4840107.15		A	0.2
6	☐	1.000		4807497.78		A	1.1
7	☐	1.000		4775676.32		A	0.2
8	☐	1.000		4965659.75		A	0.7



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2	☐	1.000		15010244.08		A	1.2
3	☐	1.000		14619049.51		A	1.6
4	☐	1.000		14189588.82		A	2.2
5	☐	1.000		13300776.61		A	1.3
6	☐	1.000		13014506.47		A	1.1
7	☐	1.000		12715393.42		A	0.6
8	☐	1.000		12142777.32		A	0.5

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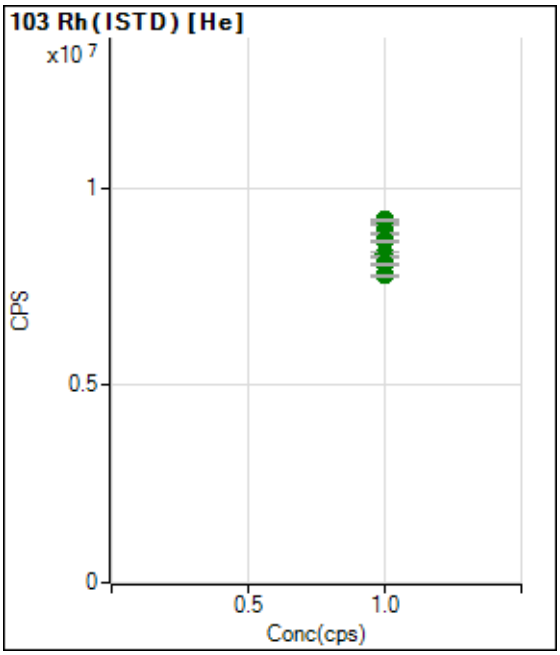

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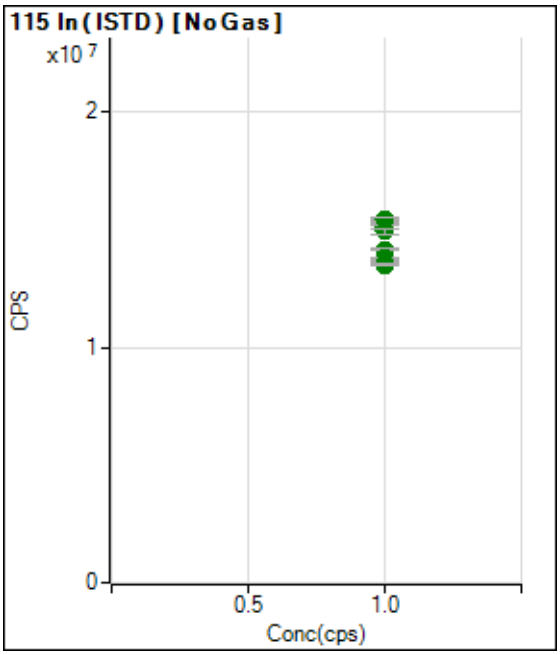
2	☐	1.000		9191562.16		A	0.3
3	☐	1.000		8849077.99		A	0.4
4	☐	1.000		8653807.93		A	0.6
5	☐	1.000		8311323.70		A	1.2
6	☐	1.000		8244126.41		A	0.5
7	☐	1.000		8071507.03		A	0.3
8	☐	1.000		7774435.02		A	0.4



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3	☐	1.000		15127435.12		A	1.3
4	☐	1.000		14910645.78		A	1.9
5	☐	1.000		14165966.52		A	0.9
6	☐	1.000		13765992.79		A	0.5
7	☐	1.000		13551516.09		A	1.0
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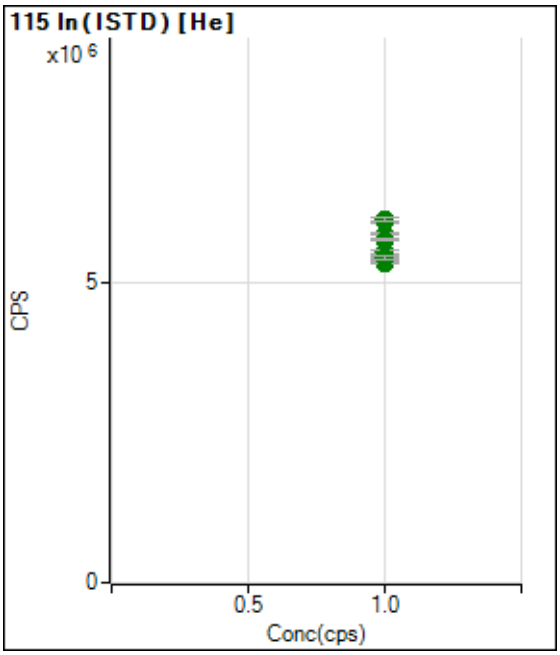

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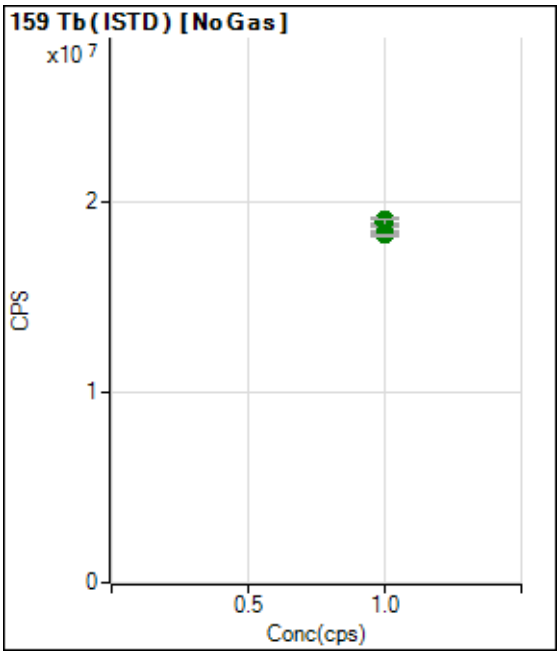
3	☐	1.000		5805356.89		A	0.6
4	☐	1.000		5701175.46		A	0.5
5	☐	1.000		5503078.21		A	1.3
6	☐	1.000		5423025.40		A	0.4
7	☐	1.000		5317639.32		A	0.6
8	☐	1.000		5415549.26		A	1.1



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2	☐	1.000		19088134.72		A	1.6
3	☐	1.000		18948583.75		A	1.4
4	☐	1.000		18914491.38		A	2.1
5	☐	1.000		18356188.20		A	0.7
6	☐	1.000		18455030.42		A	0.9
7	☐	1.000		18369557.51		A	1.0
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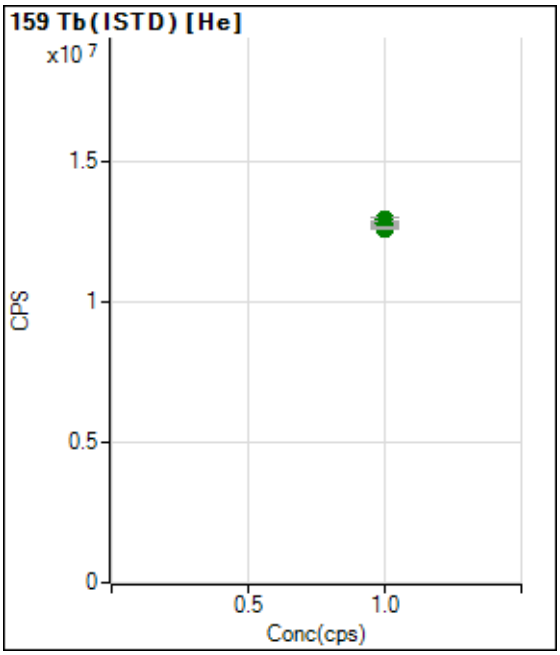

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3	☐	1.000		12821016.75		A	1.1
4	☐	1.000		12832571.06		A	0.5
5	☐	1.000		12772284.39		A	0.2
6	☐	1.000		12834655.23		A	0.8
7	☐	1.000		12706889.95		A	0.5
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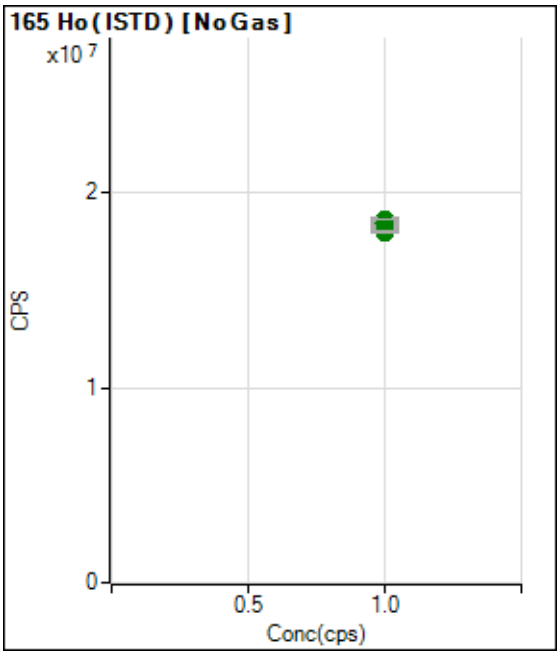

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3	☐	1.000		18399378.48		A	1.2
4	☐	1.000		18448294.17		A	2.0
5	☐	1.000		18019319.45		A	0.5
6	☐	1.000		18112670.98		A	1.5
7	☐	1.000		18109290.29		A	0.3
8	☐	1.000		17981326.95		A	1.1

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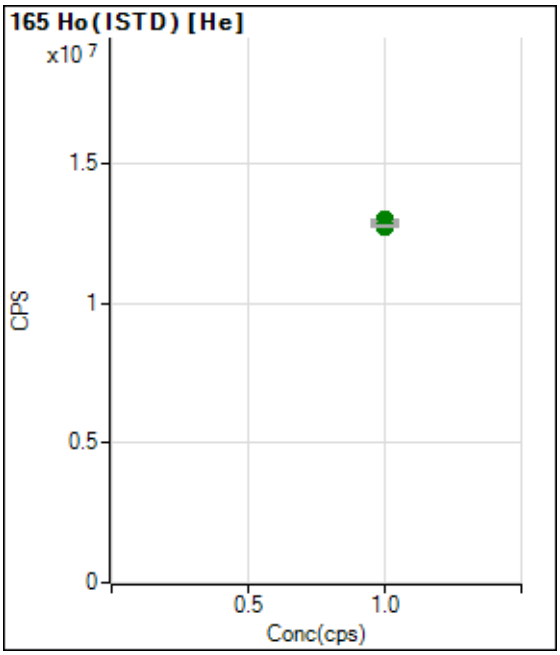

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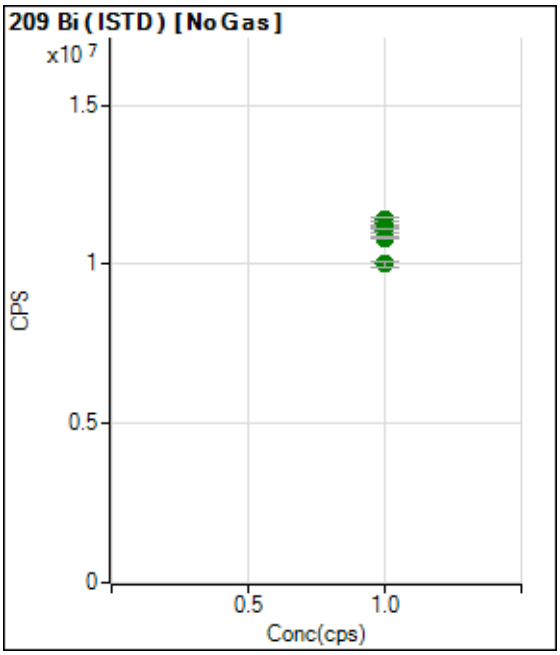
3	☐	1.000		12826609.11		A	1.0
4	☐	1.000		12917031.20		A	1.4
5	☐	1.000		12773957.31		A	0.7
6	☐	1.000		12901634.81		A	0.5
7	☐	1.000		12929689.11		A	0.8
8	☐	1.000		12783577.73		A	0.5



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2	☐	1.000		11285653.58		A	0.8
3	☐	1.000		11208829.83		A	0.8
4	☐	1.000		11392003.03		A	1.0
5	☐	1.000		11164715.25		A	0.3
6	☐	1.000		11068452.75		A	1.1
7	☐	1.000		10828878.87		A	0.8
8	☐	1.000		10002004.30		A	2.1

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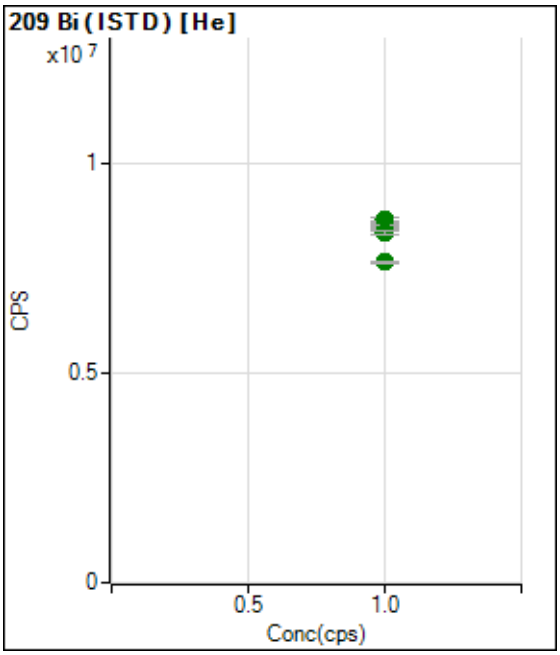

	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		8538213.14		A	1.6
2	☐	1.000		8662745.15		A	1.1
3	☐	1.000		8539142.65		A	1.7
4	☐	1.000		8611166.05		A	0.1
5	☐	1.000		8543825.36		A	1.0
6	☐	1.000		8535181.40		A	0.3
7	☐	1.000		8361817.51		A	0.8
8	☐	1.000		7652495.93		A	0.5

Reviewed By:Mohan
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ClientSampleId :TUNE001

US EPA Tune Check Report

Operator Name Jaswal

Acq/Data Batch D:\Agilent\ICPMH\1\DATA\P7120324 MS.b

Acq. Date-Time 2024-12-03 12:30:55

Report Comment ---

Instrument Name G8403A JP14410463

[No Gas]

Sensitivity

Mass	Conc. [ug/l]	Count	CPS	Resp (Required) [cps/ug/l]	Resp (Flag)	RSD%	RSD% (Required)
9		9785	97850.77			0.375	5.000
24		85340	853395.43			0.687	5.000
25		10401	104006.26			0.255	5.000
26		11581	115814.04			0.263	5.000
59		140436	1404358.17			0.426	5.000
113		19379	193790.34			0.528	5.000
115		232662	2326624.86			0.633	5.000
206		49793	497933.32			0.333	5.000
207		42746	427464.68			0.209	5.000
208		104249	1042494.41			0.857	5.000
220		0	2.10			61.630	

Mass	RSD% (Flag)
9	
24	
25	
26	
59	
113	
115	
206	
207	
208	
220	

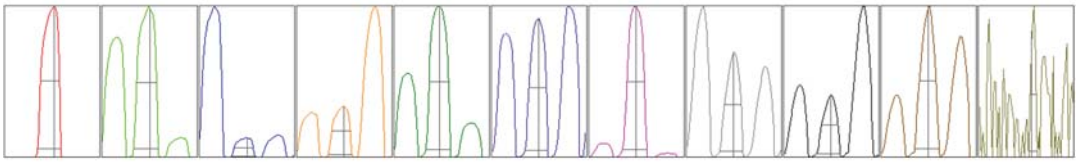
Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
9	9822	9818	9734	9785	9766
24	85551	85094	84441	85923	85690
25	10428	10357	10403	10401	10414
26	11541	11590	11592	11621	11563
59	140632	139643	140874	139986	141044
113	19489	19421	19409	19361	19215
115	234532	232553	231450	233720	231057
206	49828	49802	49942	49882	49513
207	42757	42597	42803	42825	42751
208	103221	103733	104415	105607	104271

US EPA Tune Check Report

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
220	0	0	0	0	0

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)
9	17312.01	9.10	8.90 - 9.10	
24	140668.84	24.05	23.90 - 24.10	
25	17551.11	25.05	24.90 - 25.10	
26	20426.81	26.00	25.90 - 26.10	
59	236950.10	58.95	58.90 - 59.10	
113	36811.96	113.00	112.90 - 113.10	
115	436700.41	115.00	114.90 - 115.10	
206	98847.68	206.00	205.90 - 206.10	
207	86053.09	207.00	206.90 - 207.10	
208	206535.10	208.00	207.90 - 208.10	
220	0.50	220.20	-	

Mass	W-50%	W-5%	W-5% (Required)	W-5% (Flag)
9	0.59	0.733	0.900	
24	0.63	0.781	0.900	
25	0.61	0.748	0.900	
26	0.59	0.745	0.900	
59	0.61	0.783	0.900	
113	0.54	0.730	0.900	
115	0.54	0.778	0.900	
206	0.52	0.738	0.900	
207	0.52	0.747	0.900	
208	0.52	0.775	0.900	
220	0.18	0.243		

Integration Time [sec] 0.1
Acquisition Time [sec] 256.770000000002
Y Axis Linear

Tune Parameters

Plasma Parameters

Plasma Mode --- Nebulizer Gas 0.82 L/min Dilution Gas 0.40 L/min

US EPA Tune Check Report

RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.9
RF Matching	1.80 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	9.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	7.8 V	Deflect	16.2 V
Extract 2	-130.0 V	Cell Entrance	-30 V	Plate Bias	-35 V
Omega Bias	-60 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	No	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	---	OctP RF	190 V		

QP Parameters

Mass Gain	136	Axis Gain	0.9976	QP Bias	-3.0 V
Mass Offset	130	Axis Offset	0.12		

Hardware Settings

Torch

Torch H	0.1 mm	Torch V	0.4 mm		

EM

Discriminator	4.8 mV	Analog HV	2230 V	Pulse HV	1000 V

[He]

Sensitivity

Mass	Conc. [ug/l]	Count	CPS	Resp (Required) [cps/ug/l]	Resp (Flag)	RSD%	RSD% (Required)
59		49437	494366.05			0.497	
89		56711	567109.93			0.594	
205		50736	507356.40			0.762	

Mass	RSD% (Flag)
59	
89	
205	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
59	49816	49536	49349	49200	49281
89	57234	56722	56763	56369	56466
205	51279	50958	50593	50285	50564

Integration Time [sec] 0.1

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.82 L/min	Dilution Gas	0.40 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.80 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	9.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	8.2 V	Deflect	3.8 V

US EPA Tune Check Report

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ClientSampleId :TUNE001

Extract 2	-130.0 V	Cell Entrance	-40 V	Plate Bias	-60
Omega Bias	-70 V	Cell Exit	-60 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	3.9 mL/min	OctP Bias	-18.0 V		
H2 Flow	---	OctP RF	200 V		

QP Parameters

Mass Gain	136	Axis Gain	0.9976	QP Bias	-13.0 V
Mass Offset	130	Axis Offset	0.12		

Hardware Settings

Torch

Torch H	0.1 mm	Torch V	0.4 mm		

EM

Discriminator	4.8 mV	Analog HV	2230 V	Pulse HV	1000 V

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S00	Instrumnet Name :	P7
Client Sample ID :	S0	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:12:15	DataFile Name :	004CALB.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	0.02	0.06	-0.08	0.00	N/A	ppb
Antimony	121-1	0.00	0.00	0.00	0.00	N/A	ppb
Arsenic	75-2	-0.01	-0.01	0.02	0.00	N/A	ppb
Barium	135-1	0.01	0.00	-0.01	0.00	N/A	ppb
Barium	137-1	0.01	0.00	-0.01	0.00	N/A	ppb
Beryllium	9-1	-0.01	0.02	0.00	0.00	N/A	ppb
Bismuth	209-1				100		%
Bismuth	209-2				100		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	0.03	0.01	-0.04	0.00	N/A	ppb
Cadmium	106-1	0.43	0.15	-0.58	0.00	N/A	ppb
Cadmium	111-1	0.01	0.00	-0.01	0.00	N/A	ppb
Calcium	43-1	0.23	-0.50	0.27	0.00	N/A	ppb
Calcium	44-1	1.18	-0.51	-0.67	0.00	N/A	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	0.01	-0.01	0.00	0.00	N/A	ppb
Cobalt	59-2	-0.01	0.00	0.00	0.00	N/A	ppb
Copper	63-2	0.00	0.00	0.00	0.00	N/A	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				100		%
Holmium	165-2				100		%
Indium	115-1				100		%
Indium	115-2				100		%
Iron	56-2	0.05	0.00	-0.06	0.00	N/A	ppb
Iron	57-2	-0.02	0.61	-0.59	0.00	N/A	ppb
Iron	54-2	0.17	-0.08	-0.09	0.00	N/A	ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S00	Instrumnet Name :	P7
Client Sample ID :	S0	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:12:15	DataFile Name :	004CALB.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	0.00	0.00	0.00	0.00	N/A	ppb
Lead	207-1	0.00	0.00	0.00	0.00	N/A	ppb
Lead	208-1	0.00	0.00	0.00	0.00	N/A	ppb
Lithium	6-1				100		%
Magnesium	24-2	-0.07	-0.02	0.09	0.00	N/A	ppb
Manganese	55-2	0.00	0.01	-0.01	0.00	N/A	ppb
Molybdenum	94-1	0.00	0.00	0.00	0.00	N/A	ppb
Molybdenum	95-1	0.00	0.00	0.00	0.00	N/A	ppb
Molybdenum	96-1	0.00	0.00	0.00	0.00	N/A	ppb
Molybdenum	97-1	0.00	0.00	0.00	0.00	N/A	ppb
Molybdenum	98-1	0.00	0.00	0.00	0.00	N/A	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	-0.01	0.03	-0.02	0.00	N/A	ppb
Phosphorus	31-2	-17.89	-16.77	-15.04	-16.56		ppb
Potassium	39-2	0.89	-1.34	0.45	0.00	N/A	ppb
Rhodium	103-1				100		%
Rhodium	103-2				100		%
Scandium	45-1				100		%
Scandium	45-2				100		%
Selenium	82-1	0.18	0.04	-0.21	0.00	N/A	ppb
Selenium	77-2	0.07	-0.03	-0.03	0.00	N/A	ppb
Selenium	78-2	0.13	0.10	-0.23	0.00	N/A	ppb
Silicon	28-1	-0.17	0.07	0.10	0.00	N/A	ppb
Silver	107-1	0.00	0.00	0.00	0.00	N/A	ppb
Silver	109-1	0.00	0.00	0.00	0.00	N/A	ppb
Sodium	23-2	-0.05	0.26	-0.21	0.00	N/A	ppb
Strontium	86-1	0.00	0.00	0.00	0.00	N/A	ppb
Strontium	88-1	0.00	0.00	0.00	0.00	N/A	ppb
Sulfur	34-1	-56.07	-11.83	25.99	-13.97		ppb
Terbium	159-1				100		%
Terbium	159-2				100		%
Thallium	203-1	0.00	0.00	0.00	0.00	N/A	ppb
Thallium	205-1	0.00	0.00	0.00	0.00	N/A	ppb
Tin	118-1	0.02	-0.01	-0.01	0.00	N/A	ppb
Titanium	47-1	0.01	0.00	-0.01	0.00	N/A	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S00	Instrumnet Name :	P7
Client Sample ID :	S0	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:12:15	DataFile Name :	004CALB.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	0.00	0.00	0.00	0.00	N/A	ppb
Vanadium	51-2	0.00	0.00	0.00	0.00	N/A	ppb
Yttrium	89-1				100		%
Yttrium	89-2				100		%
Zinc	66-2	0.00	0.00	0.00	0.00	N/A	ppb
Zirconium	90-1	0.00	0.00	0.00	0.00	N/A	ppb
Zirconium	91-1	0.00	0.00	0.00	0.00	N/A	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S02	Instrumnet Name :	P7
Client Sample ID :	S02	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:15:31	DataFile Name :	005CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	18.45	19.51	19.55	19.17	3.26	ppb
Antimony	121-1	2.08	2.13	2.14	2.11	1.57	ppb
Arsenic	75-2	1.16	1.10	0.98	1.08	8.35	ppb
Barium	135-1	9.95	10.34	10.46	10.25	2.61	ppb
Barium	137-1	9.99	10.35	10.40	10.24	2.19	ppb
Beryllium	9-1	1.07	1.05	1.02	1.04	2.16	ppb
Bismuth	209-1				101		%
Bismuth	209-2				101		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	0.74	0.96	0.88	0.86	12.64	ppb
Cadmium	106-1	1.30	1.26	1.39	1.32	4.79	ppb
Cadmium	111-1	1.18	1.13	1.21	1.17	3.72	ppb
Calcium	43-1	512.79	535.73	525.64	524.72	2.19	ppb
Calcium	44-1	515.35	526.55	528.47	523.45	1.35	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	2.17	2.10	2.09	2.12	2.02	ppb
Cobalt	59-2	1.10	1.07	1.09	1.09	1.38	ppb
Copper	63-2	2.01	1.98	2.03	2.01	1.34	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				101		%
Holmium	165-2				101		%
Indium	115-1				100		%
Indium	115-2				101		%
Iron	56-2	55.86	55.64	56.21	55.90	0.51	ppb
Iron	57-2	58.23	58.38	58.86	58.49	0.56	ppb
Iron	54-2	56.95	58.04	54.93	56.64	2.79	ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S02	Instrumnet Name :	P7
Client Sample ID :	S02	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:15:31	DataFile Name :	005CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	0.96	0.96	0.98	0.97	1.36	ppb
Lead	207-1	0.96	0.97	0.97	0.97	0.95	ppb
Lead	208-1	0.96	0.97	0.98	0.97	1.07	ppb
Lithium	6-1				100		%
Magnesium	24-2	502.03	492.48	504.92	499.81	1.30	ppb
Manganese	55-2	1.05	1.02	1.04	1.04	1.35	ppb
Molybdenum	94-1	5.62	5.81	5.80	5.75	1.84	ppb
Molybdenum	95-1	4.70	4.90	4.96	4.85	2.73	ppb
Molybdenum	96-1	4.84	4.93	5.09	4.95	2.60	ppb
Molybdenum	97-1	4.73	4.87	4.95	4.85	2.34	ppb
Molybdenum	98-1	4.82	4.96	4.98	4.92	1.67	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	1.05	1.04	1.09	1.06	2.08	ppb
Phosphorus	31-2	16.38	17.53	15.79	16.56	5.35	ppb
Potassium	39-2	534.89	531.00	531.93	532.61	0.38	ppb
Rhodium	103-1				101		%
Rhodium	103-2				101		%
Scandium	45-1				100		%
Scandium	45-2				100		%
Selenium	82-1	5.46	5.24	5.13	5.28	3.26	ppb
Selenium	77-2	5.46	6.56	4.00	5.34	24.05	ppb
Selenium	78-2	5.21	4.78	4.83	4.94	4.75	ppb
Silicon	28-1	7.23	7.52	1.02	5.26	69.79	ppb
Silver	107-1	1.04	1.07	1.08	1.06	1.94	ppb
Silver	109-1	1.00	1.06	1.08	1.05	4.07	ppb
Sodium	23-2	487.95	485.12	489.78	487.61	0.48	ppb
Strontium	86-1	1.00	1.05	1.01	1.02	2.58	ppb
Strontium	88-1	0.98	0.99	1.02	0.99	2.08	ppb
Sulfur	34-1	-24.84	53.38	13.36	13.97	280.04	ppb
Terbium	159-1				100		%
Terbium	159-2				100		%
Thallium	203-1	0.95	0.98	0.99	0.97	1.79	ppb
Thallium	205-1	0.96	0.95	0.97	0.96	0.98	ppb
Tin	118-1	5.24	5.48	5.39	5.37	2.28	ppb
Titanium	47-1	5.11	5.11	4.97	5.06	1.58	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S02	Instrumnet Name :	P7
Client Sample ID :	S02	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:15:31	DataFile Name :	005CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	0.87	0.92	0.91	0.90	2.59	ppb
Vanadium	51-2	5.07	5.13	5.12	5.11	0.71	ppb
Yttrium	89-1				101		%
Yttrium	89-2				101		%
Zinc	66-2	4.87	4.95	5.10	4.97	2.37	ppb
Zirconium	90-1	0.94	0.98	0.98	0.97	2.22	ppb
Zirconium	91-1	0.95	0.98	0.98	0.97	1.85	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S03	Instrumnet Name :	P7
Client Sample ID :	S03	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:18:47	DataFile Name :	006CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	1022.77	1044.45	1035.02	1034.08	1.05	ppb
Antimony	121-1	52.51	54.12	54.25	53.63	1.81	ppb
Arsenic	75-2	51.41	52.58	51.71	51.90	1.17	ppb
Barium	135-1	258.69	264.75	266.76	263.40	1.59	ppb
Barium	137-1	258.19	265.47	268.50	264.05	2.01	ppb
Beryllium	9-1	49.31	50.50	50.99	50.27	1.72	ppb
Bismuth	209-1				100		%
Bismuth	209-2				100		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	54.28	56.36	56.59	55.74	2.28	ppb
Cadmium	106-1	54.63	54.58	55.48	54.90	0.92	ppb
Cadmium	111-1	54.95	56.43	56.66	56.01	1.65	ppb
Calcium	43-1	5392.69	5532.26	5539.88	5488.28	1.51	ppb
Calcium	44-1	5090.09	5155.39	5187.43	5144.30	0.96	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	51.71	52.27	52.27	52.09	0.62	ppb
Cobalt	59-2	52.72	53.27	52.90	52.96	0.52	ppb
Copper	63-2	528.84	528.14	528.44	528.47	0.07	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				100		%
Holmium	165-2				100		%
Indium	115-1				98		%
Indium	115-2				97		%
Iron	56-2	2717.52	2725.74	2732.74	2725.33	0.28	ppb
Iron	57-2	2785.90	2844.56	2817.03	2815.83	1.04	ppb
Iron	54-2	2876.93	2907.39	2898.54	2894.29	0.54	ppb
Krypton	83-1						cps

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S03	Instrumnet Name :	P7
Client Sample ID :	S03	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:18:47	DataFile Name :	006CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	250.61	254.47	249.53	251.54	1.03	ppb
Lead	207-1	250.89	255.04	253.51	253.14	0.83	ppb
Lead	208-1	249.57	252.50	251.37	251.14	0.59	ppb
Lithium	6-1				101		%
Magnesium	24-2	5243.89	5249.13	5309.22	5267.41	0.69	ppb
Manganese	55-2	517.45	521.01	521.06	519.84	0.40	ppb
Molybdenum	94-1	502.66	507.50	504.05	504.73	0.49	ppb
Molybdenum	95-1	499.34	510.41	499.93	503.23	1.24	ppb
Molybdenum	96-1	498.24	503.76	503.37	501.79	0.61	ppb
Molybdenum	97-1	503.38	515.39	499.92	506.23	1.60	ppb
Molybdenum	98-1	494.74	506.62	499.52	500.30	1.19	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	52.96	53.76	53.74	53.49	0.85	ppb
Phosphorus	31-2	1015.55	1028.39	1066.83	1036.92	2.57	ppb
Potassium	39-2	2651.38	2685.63	2643.39	2660.13	0.84	ppb
Rhodium	103-1				99		%
Rhodium	103-2				97		%
Scandium	45-1				99		%
Scandium	45-2				98		%
Selenium	82-1	52.40	52.89	52.59	52.63	0.47	ppb
Selenium	77-2	50.71	53.33	52.92	52.32	2.69	ppb
Selenium	78-2	51.12	53.07	52.33	52.18	1.89	ppb
Silicon	28-1	57.09	58.37	58.43	57.96	1.31	ppb
Silver	107-1	55.90	57.09	57.47	56.82	1.45	ppb
Silver	109-1	55.42	56.90	57.52	56.61	1.91	ppb
Sodium	23-2	5248.62	5275.31	5357.14	5293.69	1.07	ppb
Strontium	86-1	50.26	51.06	50.56	50.63	0.80	ppb
Strontium	88-1	50.68	50.94	50.74	50.79	0.27	ppb
Sulfur	34-1	821.55	894.69	919.08	878.44	5.78	ppb
Terbium	159-1				100		%
Terbium	159-2				99		%
Thallium	203-1	49.64	51.01	50.23	50.30	1.37	ppb
Thallium	205-1	49.22	50.14	49.32	49.56	1.01	ppb
Tin	118-1	53.26	54.91	54.96	54.38	1.77	ppb
Titanium	47-1	497.03	507.42	512.93	505.79	1.60	ppb

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S03	Instrumnet Name :	P7
Client Sample ID :	S03	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:18:47	DataFile Name :	006CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	47.60	48.51	48.27	48.12	0.98	ppb
Vanadium	51-2	50.85	51.34	51.68	51.29	0.82	ppb
Yttrium	89-1				99		%
Yttrium	89-2				98		%
Zinc	66-2	534.83	540.80	540.53	538.72	0.63	ppb
Zirconium	90-1	50.03	50.93	50.70	50.55	0.93	ppb
Zirconium	91-1	50.20	51.37	50.53	50.70	1.19	ppb

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S04	Instrumnet Name :	P7
Client Sample ID :	S04	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:21:42	DataFile Name :	007CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	2571.89	2499.61	2491.01	2520.84	1.76	ppb
Antimony	121-1	124.25	130.01	129.57	127.94	2.50	ppb
Arsenic	75-2	126.65	125.80	125.01	125.82	0.65	ppb
Barium	135-1	617.43	648.24	639.50	635.06	2.50	ppb
Barium	137-1	608.56	643.56	639.44	630.52	3.03	ppb
Beryllium	9-1	116.65	124.43	123.40	121.49	3.48	ppb
Bismuth	209-1				102		%
Bismuth	209-2				101		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	127.33	135.54	132.12	131.66	3.13	ppb
Cadmium	106-1	124.60	132.87	130.71	129.39	3.31	ppb
Cadmium	111-1	126.95	134.96	134.75	132.22	3.45	ppb
Calcium	43-1	12700.30	13295.34	13399.68	13131.77	2.87	ppb
Calcium	44-1	11996.51	12546.64	12740.07	12427.74	3.10	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	128.26	127.97	127.44	127.89	0.33	ppb
Cobalt	59-2	130.60	128.09	127.04	128.58	1.42	ppb
Copper	63-2	1320.39	1305.57	1270.00	1298.65	1.99	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				100		%
Holmium	165-2				100		%
Indium	115-1				97		%
Indium	115-2				95		%
Iron	56-2	6686.86	6743.40	6694.12	6708.13	0.46	ppb
Iron	57-2	6960.77	7019.43	6912.76	6964.32	0.77	ppb
Iron	54-2	6802.87	6932.31	6807.49	6847.56	1.07	ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S04	Instrumnet Name :	P7
Client Sample ID :	S04	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:21:42	DataFile Name :	007CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	591.46	611.41	609.31	604.06	1.81	ppb
Lead	207-1	595.81	619.26	613.14	609.40	2.00	ppb
Lead	208-1	589.93	612.46	610.69	604.36	2.07	ppb
Lithium	6-1				99		%
Magnesium	24-2	13011.15	12842.75	12871.67	12908.52	0.70	ppb
Manganese	55-2	1278.45	1277.57	1263.64	1273.22	0.65	ppb
Molybdenum	94-1	1181.43	1227.34	1236.49	1215.09	2.43	ppb
Molybdenum	95-1	1174.53	1229.28	1240.85	1214.88	2.92	ppb
Molybdenum	96-1	1177.92	1225.99	1238.53	1214.15	2.63	ppb
Molybdenum	97-1	1179.83	1230.17	1234.98	1214.99	2.51	ppb
Molybdenum	98-1	1178.82	1234.76	1245.95	1219.84	2.95	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	131.16	129.61	128.81	129.86	0.92	ppb
Phosphorus	31-2	2503.50	2476.32	2513.86	2497.89	0.78	ppb
Potassium	39-2	6377.14	6288.04	6364.43	6343.21	0.76	ppb
Rhodium	103-1				96		%
Rhodium	103-2				95		%
Scandium	45-1				95		%
Scandium	45-2				94		%
Selenium	82-1	122.34	129.69	128.86	126.96	3.17	ppb
Selenium	77-2	129.44	123.56	126.89	126.63	2.33	ppb
Selenium	78-2	130.26	124.73	127.25	127.41	2.18	ppb
Silicon	28-1	124.86	131.01	135.07	130.31	3.94	ppb
Silver	107-1	128.32	136.35	134.12	132.93	3.12	ppb
Silver	109-1	126.62	134.46	133.41	131.50	3.24	ppb
Sodium	23-2	13093.95	12944.43	12740.85	12926.41	1.37	ppb
Strontium	86-1	119.56	124.55	124.59	122.90	2.35	ppb
Strontium	88-1	118.31	122.97	123.65	121.64	2.39	ppb
Sulfur	34-1	2045.43	2218.83	2256.73	2173.66	5.18	ppb
Terbium	159-1				99		%
Terbium	159-2				99		%
Thallium	203-1	117.73	122.53	123.26	121.18	2.48	ppb
Thallium	205-1	117.55	121.50	122.48	120.51	2.17	ppb
Tin	118-1	123.16	129.52	131.43	128.04	3.38	ppb
Titanium	47-1	1179.94	1242.13	1252.42	1224.83	3.20	ppb

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S04	Instrumnet Name :	P7
Client Sample ID :	S04	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:21:42	DataFile Name :	007CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	114.28	117.66	116.97	116.30	1.54	ppb
Vanadium	51-2	125.17	124.50	124.40	124.69	0.33	ppb
Yttrium	89-1				96		%
Yttrium	89-2				95		%
Zinc	66-2	1319.86	1306.44	1279.34	1301.88	1.59	ppb
Zirconium	90-1	117.72	122.54	125.23	121.83	3.12	ppb
Zirconium	91-1	119.00	124.58	125.75	123.11	2.93	ppb

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S05	Instrumnet Name :	P7
Client Sample ID :	S05	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:24:30	DataFile Name :	008CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	5035.41	5189.02	5147.61	5124.01	1.55	ppb
Antimony	121-1	251.61	249.50	253.40	251.50	0.78	ppb
Arsenic	75-2	248.99	247.41	245.32	247.24	0.74	ppb
Barium	135-1	1237.82	1247.51	1257.37	1247.57	0.78	ppb
Barium	137-1	1256.66	1257.73	1246.39	1253.59	0.50	ppb
Beryllium	9-1	245.51	251.90	245.63	247.68	1.48	ppb
Bismuth	209-1				100		%
Bismuth	209-2				100		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	257.81	255.71	259.18	257.57	0.68	ppb
Cadmium	106-1	255.77	258.99	258.76	257.84	0.70	ppb
Cadmium	111-1	259.91	258.72	261.22	259.95	0.48	ppb
Calcium	43-1	26511.59	26511.02	26638.92	26553.84	0.28	ppb
Calcium	44-1	25210.99	25013.37	24784.41	25002.92	0.85	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	254.27	251.95	250.30	252.17	0.79	ppb
Cobalt	59-2	254.09	252.49	257.07	254.55	0.91	ppb
Copper	63-2	2538.02	2555.77	2536.96	2543.58	0.42	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				98		%
Holmium	165-2				99		%
Indium	115-1				92		%
Indium	115-2				92		%
Iron	56-2	13121.45	13288.00	13034.45	13147.97	0.98	ppb
Iron	57-2	13014.44	13179.76	13287.56	13160.59	1.05	ppb
Iron	54-2	13326.99	13594.52	13147.44	13356.32	1.68	ppb
Krypton	83-1						cps

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S05	Instrumnet Name :	P7
Client Sample ID :	S05	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:24:30	DataFile Name :	008CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	1228.37	1214.74	1218.00	1220.37	0.58	ppb
Lead	207-1	1227.71	1221.20	1214.11	1221.01	0.56	ppb
Lead	208-1	1220.80	1216.37	1215.73	1217.63	0.23	ppb
Lithium	6-1				98		%
Magnesium	24-2	25972.48	26105.05	26049.51	26042.35	0.26	ppb
Manganese	55-2	2501.99	2529.21	2472.30	2501.17	1.14	ppb
Molybdenum	94-1	2454.10	2501.07	2463.90	2473.02	1.00	ppb
Molybdenum	95-1	2491.10	2499.34	2454.31	2481.58	0.97	ppb
Molybdenum	96-1	2471.24	2495.35	2466.72	2477.77	0.62	ppb
Molybdenum	97-1	2474.44	2489.94	2449.94	2471.44	0.82	ppb
Molybdenum	98-1	2478.37	2500.09	2446.93	2475.13	1.08	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	253.43	255.83	253.41	254.22	0.55	ppb
Phosphorus	31-2	5003.76	5022.95	5043.54	5023.42	0.40	ppb
Potassium	39-2	12930.14	12876.86	12665.40	12824.13	1.09	ppb
Rhodium	103-1				90		%
Rhodium	103-2				91		%
Scandium	45-1				89		%
Scandium	45-2				91		%
Selenium	82-1	257.42	255.85	254.46	255.91	0.58	ppb
Selenium	77-2	254.38	248.69	250.71	251.26	1.15	ppb
Selenium	78-2	254.51	248.66	244.71	249.29	1.98	ppb
Silicon	28-1	261.36	259.97	264.83	262.05	0.95	ppb
Silver	107-1	258.53	253.70	257.42	256.55	0.99	ppb
Silver	109-1	255.69	256.58	257.65	256.64	0.38	ppb
Sodium	23-2	25973.13	26264.65	26346.30	26194.69	0.75	ppb
Strontium	86-1	248.40	248.98	247.08	248.15	0.39	ppb
Strontium	88-1	244.69	246.47	246.50	245.89	0.42	ppb
Sulfur	34-1	4598.54	4615.24	4588.25	4600.68	0.30	ppb
Terbium	159-1				96		%
Terbium	159-2				99		%
Thallium	203-1	241.87	242.72	245.42	243.34	0.76	ppb
Thallium	205-1	241.89	240.13	242.16	241.39	0.46	ppb
Tin	118-1	252.86	250.53	255.94	253.11	1.07	ppb
Titanium	47-1	2451.32	2458.88	2490.40	2466.87	0.84	ppb

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S05	Instrumnet Name :	P7
Client Sample ID :	S05	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:24:30	DataFile Name :	008CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	237.97	237.91	238.39	238.09	0.11	ppb
Vanadium	51-2	244.77	246.34	246.27	245.79	0.36	ppb
Yttrium	89-1				91		%
Yttrium	89-2				92		%
Zinc	66-2	2546.56	2576.54	2559.43	2560.84	0.59	ppb
Zirconium	90-1	247.08	248.75	246.88	247.57	0.42	ppb
Zirconium	91-1	248.02	248.42	246.38	247.61	0.44	ppb

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S06	Instrumnet Name :	P7
Client Sample ID :	S06	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:27:14	DataFile Name :	009CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	10334.06	10360.61	10259.73	10318.13	0.51	ppb
Antimony	121-1	483.61	502.74	491.12	492.49	1.96	ppb
Arsenic	75-2	486.37	496.16	504.09	495.54	1.79	ppb
Barium	135-1	2422.96	2465.74	2443.22	2443.97	0.88	ppb
Barium	137-1	2437.51	2495.91	2464.94	2466.12	1.18	ppb
Beryllium	9-1	477.57	498.29	489.99	488.62	2.13	ppb
Bismuth	209-1				99		%
Bismuth	209-2				100		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	485.97	502.21	504.47	497.55	2.03	ppb
Cadmium	106-1	488.60	501.69	497.96	496.08	1.36	ppb
Cadmium	111-1	487.78	505.04	496.60	496.47	1.74	ppb
Calcium	43-1	49942.82	51160.67	50090.43	50397.98	1.32	ppb
Calcium	44-1	49131.31	50957.82	50173.74	50087.62	1.83	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	499.69	503.30	498.39	500.46	0.51	ppb
Cobalt	59-2	502.47	510.35	495.28	502.70	1.50	ppb
Copper	63-2	5043.89	5077.08	5035.13	5052.03	0.44	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				99		%
Holmium	165-2				100		%
Indium	115-1				89		%
Indium	115-2				90		%
Iron	56-2	26325.26	26186.37	26272.54	26261.39	0.27	ppb
Iron	57-2	26370.95	26661.28	26119.37	26383.86	1.03	ppb
Iron	54-2	26400.65	26643.31	26695.21	26579.72	0.59	ppb
Krypton	83-1						cps

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On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S06	Instrumnet Name :	P7
Client Sample ID :	S06	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:27:14	DataFile Name :	009CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	2406.16	2451.66	2455.33	2437.72	1.12	ppb
Lead	207-1	2381.39	2458.38	2455.00	2431.59	1.79	ppb
Lead	208-1	2389.10	2459.48	2461.86	2436.81	1.70	ppb
Lithium	6-1				97		%
Magnesium	24-2	52160.18	52341.43	51970.66	52157.42	0.36	ppb
Manganese	55-2	4991.08	5007.74	4998.64	4999.15	0.17	ppb
Molybdenum	94-1	4801.64	5039.88	4995.11	4945.54	2.56	ppb
Molybdenum	95-1	4793.61	5002.10	5009.91	4935.21	2.49	ppb
Molybdenum	96-1	4814.06	5009.98	4978.93	4934.32	2.13	ppb
Molybdenum	97-1	4823.88	5052.52	4949.44	4941.95	2.32	ppb
Molybdenum	98-1	4806.64	5022.87	5022.79	4950.77	2.52	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	497.20	502.24	497.46	498.96	0.57	ppb
Phosphorus	31-2	10091.57	10071.54	10103.52	10088.88	0.16	ppb
Potassium	39-2	25301.36	25707.49	25313.89	25440.91	0.91	ppb
Rhodium	103-1				88		%
Rhodium	103-2				91		%
Scandium	45-1				88		%
Scandium	45-2				90		%
Selenium	82-1	488.36	510.15	505.09	501.20	2.28	ppb
Selenium	77-2	503.61	498.03	490.22	497.29	1.35	ppb
Selenium	78-2	492.19	503.36	503.99	499.85	1.33	ppb
Silicon	28-1	501.69	515.52	513.25	510.15	1.45	ppb
Silver	107-1	488.84	501.91	495.69	495.48	1.32	ppb
Silver	109-1	489.07	504.45	504.85	499.45	1.80	ppb
Sodium	23-2	52481.14	53368.59	52644.18	52831.30	0.89	ppb
Strontium	86-1	474.14	498.94	498.57	490.55	2.90	ppb
Strontium	88-1	475.33	494.22	497.87	489.14	2.47	ppb
Sulfur	34-1	9093.63	9362.47	9399.15	9285.08	1.80	ppb
Terbium	159-1				97		%
Terbium	159-2				99		%
Thallium	203-1	479.44	493.88	490.73	488.02	1.56	ppb
Thallium	205-1	479.53	489.47	488.80	485.93	1.14	ppb
Tin	118-1	485.05	496.75	495.71	492.50	1.32	ppb
Titanium	47-1	4909.61	4952.89	5017.68	4960.06	1.10	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S06	Instrumnet Name :	P7
Client Sample ID :	S06	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:27:14	DataFile Name :	009CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	479.82	486.89	491.92	486.21	1.25	ppb
Vanadium	51-2	497.74	497.52	498.82	498.03	0.14	ppb
Yttrium	89-1				90		%
Yttrium	89-2				92		%
Zinc	66-2	5011.35	5067.32	5036.52	5038.40	0.56	ppb
Zirconium	90-1	479.71	499.59	497.20	492.16	2.21	ppb
Zirconium	91-1	479.78	502.23	493.77	491.93	2.30	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S07	Instrumnet Name :	P7
Client Sample ID :	S07	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:29:59	DataFile Name :	010CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	20307.25	20367.88	20389.92	20355.02	0.21	ppb
Antimony	121-1	991.40	1015.99	1001.10	1002.83	1.24	ppb
Arsenic	75-2	1006.15	1000.82	1001.20	1002.72	0.30	ppb
Barium	135-1	4972.68	5135.43	4971.97	5026.69	1.87	ppb
Barium	137-1	4923.91	5117.70	5002.33	5014.65	1.94	ppb
Beryllium	9-1	1005.42	995.39	1019.28	1006.70	1.19	ppb
Bismuth	209-1				97		%
Bismuth	209-2				98		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	985.68	1013.42	995.54	998.21	1.41	ppb
Cadmium	106-1	990.48	1014.90	992.24	999.21	1.36	ppb
Cadmium	111-1	991.15	1018.38	984.69	998.07	1.79	ppb
Calcium	43-1	103309.11	104026.42	103995.97	103777.17	0.39	ppb
Calcium	44-1	101110.04	102363.68	103811.19	102428.30	1.32	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	989.81	999.36	1007.11	998.76	0.87	ppb
Cobalt	59-2	991.09	999.98	999.69	996.92	0.51	ppb
Copper	63-2	9950.29	10007.52	9908.94	9955.58	0.50	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				99		%
Holmium	165-2				100		%
Indium	115-1				88		%
Indium	115-2				89		%
Iron	56-2	52144.90	52659.35	52404.96	52403.07	0.49	ppb
Iron	57-2	51422.66	52880.67	52310.18	52204.50	1.41	ppb
Iron	54-2	52074.65	53095.31	53207.59	52792.51	1.18	ppb
Krypton	83-1						cps

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S07	Instrumnet Name :	P7
Client Sample ID :	S07	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:29:59	DataFile Name :	010CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	5024.44	5038.01	5060.81	5041.09	0.36	ppb
Lead	207-1	5026.23	5024.10	5079.41	5043.24	0.62	ppb
Lead	208-1	5013.16	5048.73	5064.74	5042.21	0.52	ppb
Lithium	6-1				97		%
Magnesium	24-2	101947.54	102965.50	102928.38	102613.80	0.56	ppb
Manganese	55-2	9891.60	10022.28	10074.83	9996.24	0.94	ppb
Molybdenum	94-1	10145.54	9923.66	10045.10	10038.10	1.11	ppb
Molybdenum	95-1	10072.20	9942.24	10109.25	10041.23	0.87	ppb
Molybdenum	96-1	10043.36	9985.12	10099.89	10042.79	0.57	ppb
Molybdenum	97-1	10036.67	9963.86	10120.16	10040.23	0.78	ppb
Molybdenum	98-1	9990.14	9912.81	10200.82	10034.59	1.49	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	994.90	990.89	1010.25	998.68	1.02	ppb
Phosphorus	31-2	19893.48	19995.58	19955.32	19948.12	0.26	ppb
Potassium	39-2	50350.98	50718.20	50836.13	50635.10	0.50	ppb
Rhodium	103-1				86		%
Rhodium	103-2				89		%
Scandium	45-1				87		%
Scandium	45-2				91		%
Selenium	82-1	1001.51	993.04	998.08	997.54	0.43	ppb
Selenium	77-2	996.44	994.89	1010.83	1000.72	0.88	ppb
Selenium	78-2	1005.56	1005.10	988.87	999.84	0.95	ppb
Silicon	28-1	999.22	985.29	988.18	990.90	0.74	ppb
Silver	107-1	987.31	1016.41	994.15	999.29	1.52	ppb
Silver	109-1	991.35	1014.00	987.06	997.47	1.45	ppb
Sodium	23-2	103455.13	105488.62	105415.88	104786.54	1.10	ppb
Strontium	86-1	994.74	1000.67	1020.84	1005.42	1.36	ppb
Strontium	88-1	1001.49	1002.93	1016.09	1006.84	0.80	ppb
Sulfur	34-1	20161.11	20593.51	20757.86	20504.16	1.50	ppb
Terbium	159-1				97		%
Terbium	159-2				98		%
Thallium	203-1	1007.88	1010.69	1005.79	1008.12	0.24	ppb
Thallium	205-1	1012.88	1010.02	1006.40	1009.77	0.32	ppb
Tin	118-1	988.58	1021.26	997.27	1002.37	1.69	ppb
Titanium	47-1	9984.75	9942.54	10166.04	10031.11	1.18	ppb

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S07	Instrumnet Name :	P7
Client Sample ID :	S07	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:29:59	DataFile Name :	010CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	1014.89	998.69	1019.58	1011.05	1.08	ppb
Vanadium	51-2	996.32	1002.67	1007.04	1002.01	0.54	ppb
Yttrium	89-1				90		%
Yttrium	89-2				91		%
Zinc	66-2	9896.23	9946.37	10028.91	9957.17	0.67	ppb
Zirconium	90-1	1001.46	1006.51	1006.72	1004.89	0.30	ppb
Zirconium	91-1	1005.72	1000.45	1008.34	1004.84	0.40	ppb

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S08	Instrumnet Name :	P7
Client Sample ID :	S08	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:32:43	DataFile Name :	011CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	100266.17	99011.70	100392.50	99890.12	0.76	ppb
Antimony	121-1	0.51	0.55	0.50	0.52	4.25	ppb
Arsenic	75-2	0.49	0.62	0.58	0.57	12.20	ppb
Barium	135-1	2.30	2.37	2.26	2.31	2.26	ppb
Barium	137-1	2.43	2.36	2.35	2.38	1.93	ppb
Beryllium	9-1	0.20	0.21	0.17	0.19	11.47	ppb
Bismuth	209-1				89		%
Bismuth	209-2				90		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	0.48	0.44	0.43	0.45	5.25	ppb
Cadmium	106-1	-0.01	0.08	0.17	0.08	118.20	ppb
Cadmium	111-1	0.28	0.27	0.24	0.26	8.74	ppb
Calcium	43-1	501791.38	500080.79	495446.96	499106.38	0.66	ppb
Calcium	44-1	500344.98	501706.80	496465.53	499505.77	0.54	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	1.39	1.58	1.35	1.44	8.41	ppb
Cobalt	59-2	2.62	2.61	2.63	2.62	0.48	ppb
Copper	63-2	2.21	2.14	2.12	2.16	2.11	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				98		%
Holmium	165-2				99		%
Indium	115-1				88		%
Indium	115-2				90		%
Iron	56-2	247254.40	250083.04	250703.99	249347.14	0.74	ppb
Iron	57-2	246397.14	249315.99	252386.86	249366.67	1.20	ppb
Iron	54-2	248512.25	247218.34	251934.89	249221.83	0.98	ppb
Krypton	83-1						cps

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S08	Instrumnet Name :	P7
Client Sample ID :	S08	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:32:43	DataFile Name :	011CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	1.07	1.12	1.10	1.10	2.17	ppb
Lead	207-1	1.06	1.07	1.07	1.07	0.85	ppb
Lead	208-1	1.07	1.09	1.08	1.08	0.94	ppb
Lithium	6-1				94		%
Magnesium	24-2	499285.82	498065.18	500238.48	499196.49	0.22	ppb
Manganese	55-2	5.69	5.57	5.68	5.64	1.15	ppb
Molybdenum	94-1	3.03	2.90	2.99	2.97	2.27	ppb
Molybdenum	95-1	2.27	2.25	2.22	2.24	1.18	ppb
Molybdenum	96-1	3.65	3.58	3.47	3.57	2.54	ppb
Molybdenum	97-1	2.26	2.22	2.21	2.23	1.19	ppb
Molybdenum	98-1	2.20	2.14	2.09	2.14	2.55	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	2.74	2.74	2.79	2.75	1.14	ppb
Phosphorus	31-2	-6.70	-7.67	-8.17	-7.51		ppb
Potassium	39-2	248566.20	249651.66	251208.19	249808.68	0.53	ppb
Rhodium	103-1				82		%
Rhodium	103-2				85		%
Scandium	45-1				89		%
Scandium	45-2				94		%
Selenium	82-1	1.02	0.98	0.50	0.83	34.59	ppb
Selenium	77-2	0.18	0.28	0.18	0.21	27.76	ppb
Selenium	78-2	0.38	0.25	-0.15	0.16	175.72	ppb
Silicon	28-1	1.93	1.72	1.37	1.67	16.94	ppb
Silver	107-1	0.32	0.29	0.27	0.29	9.34	ppb
Silver	109-1	0.30	0.29	0.25	0.28	10.81	ppb
Sodium	23-2	499768.19	494298.35	501992.18	498686.24	0.79	ppb
Strontium	86-1	3.44	3.39	3.41	3.41	0.72	ppb
Strontium	88-1	3.36	3.40	3.45	3.40	1.25	ppb
Sulfur	34-1	-540.79	-411.62	-288.70	-413.70		ppb
Terbium	159-1				96		%
Terbium	159-2				98		%
Thallium	203-1	0.18	0.16	0.13	0.16	17.23	ppb
Thallium	205-1	0.18	0.16	0.13	0.16	15.78	ppb
Tin	118-1	0.28	0.28	0.26	0.27	3.17	ppb
Titanium	47-1	1.68	1.73	1.64	1.68	2.86	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S08	Instrumnet Name :	P7
Client Sample ID :	S08	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:32:43	DataFile Name :	011CALS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	0.15	0.15	0.14	0.15	3.77	ppb
Vanadium	51-2	0.34	0.33	0.33	0.33	1.17	ppb
Yttrium	89-1				91		%
Yttrium	89-2				95		%
Zinc	66-2	2.89	2.77	2.91	2.86	2.65	ppb
Zirconium	90-1	0.60	0.62	0.60	0.61	2.16	ppb
Zirconium	91-1	0.58	0.55	0.56	0.57	3.07	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICV001	Instrumnet Name :	P7
Client Sample ID :	ICV001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:47:27	DataFile Name :	012ICV.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	546.19	551.86	549.87	549.31	0.52	ppb
Antimony	121-1	199.27	203.15	201.69	201.37	0.97	ppb
Arsenic	75-2	200.32	202.69	203.54	202.18	0.82	ppb
Barium	135-1	98.42	102.55	100.77	100.58	2.06	ppb
Barium	137-1	98.41	101.69	101.20	100.43	1.76	ppb
Beryllium	9-1	96.72	97.83	99.03	97.86	1.18	ppb
Bismuth	209-1				103		%
Bismuth	209-2				103		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	153.77	162.46	157.28	157.84	2.77	ppb
Cadmium	106-1	158.55	160.89	161.90	160.45	1.07	ppb
Cadmium	111-1	105.32	110.20	107.51	107.68	2.27	ppb
Calcium	43-1	2277.93	2307.61	2346.73	2310.76	1.49	ppb
Calcium	44-1	2043.31	2108.34	2109.41	2087.02	1.81	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	102.18	102.40	101.93	102.17	0.23	ppb
Cobalt	59-2	102.89	103.61	103.55	103.35	0.39	ppb
Copper	63-2	98.61	98.59	97.90	98.37	0.41	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				99		%
Holmium	165-2				101		%
Indium	115-1				94		%
Indium	115-2				95		%
Iron	56-2	2073.24	2053.31	2058.71	2061.76	0.50	ppb
Iron	57-2	2137.11	2132.11	2150.39	2139.87	0.44	ppb
Iron	54-2	2229.04	2223.14	2229.18	2227.12	0.15	ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICV001	Instrumnet Name :	P7
Client Sample ID :	ICV001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:47:27	DataFile Name :	012ICV.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	206.97	211.80	214.22	210.99	1.75	ppb
Lead	207-1	199.70	206.87	205.38	203.98	1.85	ppb
Lead	208-1	202.47	208.08	208.96	206.51	1.70	ppb
Lithium	6-1				105		%
Magnesium	24-2	1141.89	1147.47	1155.38	1148.25	0.59	ppb
Manganese	55-2	100.01	100.10	100.17	100.09	0.08	ppb
Molybdenum	94-1	4881.58	5002.20	5078.41	4987.40	1.99	ppb
Molybdenum	95-1	4952.18	5054.94	5107.11	5038.07	1.56	ppb
Molybdenum	96-1	4908.03	5032.48	5084.91	5008.47	1.81	ppb
Molybdenum	97-1	4915.06	5016.90	5082.86	5004.94	1.69	ppb
Molybdenum	98-1	4929.50	5052.99	5026.91	5003.13	1.30	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	103.96	104.39	104.47	104.28	0.26	ppb
Phosphorus	31-2	-16.59	-17.02	-16.14	-16.58		ppb
Potassium	39-2	1992.66	1945.63	1933.80	1957.36	1.59	ppb
Rhodium	103-1				95		%
Rhodium	103-2				96		%
Scandium	45-1				94		%
Scandium	45-2				95		%
Selenium	82-1	206.09	211.01	214.79	210.63	2.07	ppb
Selenium	77-2	197.46	211.09	205.19	204.58	3.34	ppb
Selenium	78-2	211.83	210.19	206.34	209.46	1.34	ppb
Silicon	28-1	86.18	92.64	95.43	91.42	5.19	ppb
Silver	107-1	50.98	52.90	52.45	52.11	1.93	ppb
Silver	109-1	50.31	52.58	51.62	51.50	2.21	ppb
Sodium	23-2	2050.35	2078.75	2038.40	2055.83	1.01	ppb
Strontium	86-1	491.59	498.42	498.36	496.12	0.79	ppb
Strontium	88-1	485.23	495.49	497.65	492.79	1.35	ppb
Sulfur	34-1	-227.12	-175.78	-145.02	-182.64		ppb
Terbium	159-1				99		%
Terbium	159-2				101		%
Thallium	203-1	205.67	211.71	210.67	209.35	1.54	ppb
Thallium	205-1	202.99	210.71	211.92	208.54	2.32	ppb
Tin	118-1	496.22	512.94	501.70	503.62	1.69	ppb
Titanium	47-1	4909.06	5038.41	5074.98	5007.48	1.74	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICV001	Instrumnet Name :	P7
Client Sample ID :	ICV001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:47:27	DataFile Name :	012ICV.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	485.54	500.56	497.74	494.61	1.61	ppb
Vanadium	51-2	97.01	97.12	96.90	97.01	0.11	ppb
Yttrium	89-1				95		%
Yttrium	89-2				95		%
Zinc	66-2	206.48	207.49	208.10	207.35	0.39	ppb
Zirconium	90-1	475.23	481.80	485.25	480.76	1.06	ppb
Zirconium	91-1	480.01	487.80	496.31	488.04	1.67	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICB001	Instrumnet Name :	P7
Client Sample ID :	ICB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:58:15	DataFile Name :	015CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	0.04	0.00	0.05	0.03	90.30	ppb
Antimony	121-1	0.01	0.01	0.01	0.01	5.89	ppb
Arsenic	75-2	0.00	0.02	0.01	0.01	86.26	ppb
Barium	135-1	0.00	-0.01	-0.01	-0.01		ppb
Barium	137-1	-0.01	0.00	-0.01	-0.01		ppb
Beryllium	9-1	-0.03	0.01	0.01	0.00		ppb
Bismuth	209-1				103		%
Bismuth	209-2				105		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	-0.01	-0.02	0.01	-0.01		ppb
Cadmium	106-1	-0.93	-0.83	-0.70	-0.82		ppb
Cadmium	111-1	-0.02	-0.02	-0.02	-0.02		ppb
Calcium	43-1	-3.50	-2.05	-2.38	-2.65		ppb
Calcium	44-1	0.46	-0.54	-0.95	-0.34		ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	0.00	-0.01	0.01	0.00		ppb
Cobalt	59-2	-0.02	-0.02	-0.02	-0.02		ppb
Copper	63-2	-0.01	-0.02	0.00	-0.01		ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				101		%
Holmium	165-2				102		%
Indium	115-1				98		%
Indium	115-2				98		%
Iron	56-2	-0.32	-0.31	-0.36	-0.33		ppb
Iron	57-2	-1.26	-0.51	-0.81	-0.86		ppb
Iron	54-2	-0.46	-0.53	-0.27	-0.42		ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICB001	Instrumnet Name :	P7
Client Sample ID :	ICB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:58:15	DataFile Name :	015CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	0.02	0.02	0.02	0.02	7.85	ppb
Lead	207-1	0.01	0.02	0.02	0.02	53.54	ppb
Lead	208-1	0.02	0.02	0.02	0.02	4.58	ppb
Lithium	6-1				104		%
Magnesium	24-2	-1.52	-1.42	-1.31	-1.42		ppb
Manganese	55-2	0.01	-0.02	-0.02	-0.01		ppb
Molybdenum	94-1	0.03	0.03	0.03	0.03	10.08	ppb
Molybdenum	95-1	0.02	0.02	0.02	0.02	9.26	ppb
Molybdenum	96-1	0.01	0.01	0.01	0.01	24.20	ppb
Molybdenum	97-1	0.01	0.02	0.02	0.01	51.24	ppb
Molybdenum	98-1	0.02	0.02	0.01	0.02	13.70	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	-0.06	-0.06	-0.03	-0.05		ppb
Phosphorus	31-2	-20.33	-16.87	-18.36	-18.52		ppb
Potassium	39-2	-5.62	-5.35	-3.97	-4.98		ppb
Rhodium	103-1				96		%
Rhodium	103-2				99		%
Scandium	45-1				95		%
Scandium	45-2				97		%
Selenium	82-1	0.79	0.06	0.03	0.29	146.87	ppb
Selenium	77-2	0.07	0.07	0.07	0.07	0.85	ppb
Selenium	78-2	-0.47	-0.51	-0.26	-0.42		ppb
Silicon	28-1	-2.16	-1.95	-1.78	-1.97		ppb
Silver	107-1	0.01	0.01	0.01	0.01	26.25	ppb
Silver	109-1	0.01	0.01	0.01	0.01	15.23	ppb
Sodium	23-2	7.52	6.72	7.65	7.30	6.89	ppb
Strontium	86-1	0.00	0.01	0.02	0.01	89.82	ppb
Strontium	88-1	0.00	0.00	0.00	0.00		ppb
Sulfur	34-1	-230.29	-198.27	-142.36	-190.31		ppb
Terbium	159-1				99		%
Terbium	159-2				102		%
Thallium	203-1	0.00	-0.01	-0.01	-0.01		ppb
Thallium	205-1	0.00	-0.01	0.00	0.00		ppb
Tin	118-1	-0.02	-0.03	-0.02	-0.02		ppb
Titanium	47-1	0.01	0.00	0.01	0.01	79.72	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICB001	Instrumnet Name :	P7
Client Sample ID :	ICB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:58:15	DataFile Name :	015CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	0.00	0.00	0.00	0.00		ppb
Vanadium	51-2	0.00	0.00	0.00	0.00		ppb
Yttrium	89-1				96		%
Yttrium	89-2				97		%
Zinc	66-2	-0.08	-0.04	-0.07	-0.06		ppb
Zirconium	90-1	0.00	0.00	0.00	0.00	5.99	ppb
Zirconium	91-1	0.01	0.00	0.00	0.00	237.68	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICSA001	Instrumnet Name :	P7
Client Sample ID :	ICSA001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:26:39	DataFile Name :	021ICSA.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	86230.38	84775.83	86953.45	85986.55	1.29	ppb
Antimony	121-1	1.05	1.06	1.09	1.07	1.99	ppb
Arsenic	75-2	0.33	0.36	0.33	0.34	4.76	ppb
Barium	135-1	1.34	1.39	1.33	1.35	2.21	ppb
Barium	137-1	1.32	1.35	1.33	1.33	1.42	ppb
Beryllium	9-1	0.30	0.24	0.24	0.26	12.68	ppb
Bismuth	209-1				106		%
Bismuth	209-2				101		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	7.97	8.36	7.56	7.96	4.97	ppb
Cadmium	106-1	-1.96	-2.26	-1.82	-2.01		ppb
Cadmium	111-1	0.30	0.31	0.33	0.31	4.36	ppb
Calcium	43-1	93069.30	95162.47	93618.29	93950.02	1.16	ppb
Calcium	44-1	93049.27	95160.75	94172.29	94127.44	1.12	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	19.20	19.29	19.37	19.29	0.43	ppb
Cobalt	59-2	1.20	1.18	1.22	1.20	1.54	ppb
Copper	63-2	6.82	6.96	7.08	6.95	1.84	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				110		%
Holmium	165-2				106		%
Indium	115-1				103		%
Indium	115-2				97		%
Iron	56-2	98919.38	99451.92	98620.33	98997.21	0.43	ppb
Iron	57-2	98310.78	98655.77	98998.23	98654.93	0.35	ppb
Iron	54-2	98950.48	98868.72	98609.37	98809.52	0.18	ppb
Krypton	83-1						cps

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICSA001	Instrumnet Name :	P7
Client Sample ID :	ICSA001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:26:39	DataFile Name :	021ICSA.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	6.61	5.56	5.30	5.82	11.93	ppb
Lead	207-1	6.06	5.05	4.78	5.29	12.76	ppb
Lead	208-1	6.24	5.27	4.89	5.47	12.72	ppb
Lithium	6-1				88		%
Magnesium	24-2	88379.76	88839.85	90740.20	89319.94	1.40	ppb
Manganese	55-2	7.50	7.56	7.52	7.52	0.40	ppb
Molybdenum	94-1	1469.85	1476.04	1489.58	1478.49	0.68	ppb
Molybdenum	95-1	1796.03	1821.08	1810.54	1809.22	0.70	ppb
Molybdenum	96-1	1762.56	1769.70	1757.08	1763.11	0.36	ppb
Molybdenum	97-1	1790.73	1807.47	1791.17	1796.46	0.53	ppb
Molybdenum	98-1	1790.90	1806.39	1817.07	1804.79	0.73	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	5.32	5.16	5.14	5.21	1.91	ppb
Phosphorus	31-2	91939.54	90487.55	90075.69	90834.26	1.08	ppb
Potassium	39-2	93891.02	92951.46	93791.68	93544.72	0.55	ppb
Rhodium	103-1				97		%
Rhodium	103-2				97		%
Scandium	45-1				95		%
Scandium	45-2				98		%
Selenium	82-1	-0.13	-0.39	-0.15	-0.22		ppb
Selenium	77-2	-0.03	0.07	0.76	0.26	163.59	ppb
Selenium	78-2	-0.12	0.37	-1.19	-0.31		ppb
Silicon	28-1	-0.66	-0.38	-0.51	-0.52		ppb
Silver	107-1	0.02	0.02	0.02	0.02	1.23	ppb
Silver	109-1	0.02	0.02	0.02	0.02	4.30	ppb
Sodium	23-2	95178.20	95154.60	95221.51	95184.77	0.04	ppb
Strontium	86-1	32.20	32.17	32.14	32.17	0.10	ppb
Strontium	88-1	31.51	32.59	32.30	32.13	1.74	ppb
Sulfur	34-1	86262.93	88349.45	87264.81	87292.40	1.20	ppb
Terbium	159-1				109		%
Terbium	159-2				104		%
Thallium	203-1	0.08	0.08	0.07	0.08	9.54	ppb
Thallium	205-1	0.09	0.08	0.07	0.08	8.87	ppb
Tin	118-1	0.20	0.17	0.14	0.17	16.26	ppb
Titanium	47-1	1844.16	1875.59	1842.34	1854.03	1.01	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICSA001	Instrumnet Name :	P7
Client Sample ID :	ICSA001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:26:39	DataFile Name :	021ICSA.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	0.01	0.01	0.01	0.01	6.21	ppb
Vanadium	51-2	0.18	0.18	0.20	0.19	6.53	ppb
Yttrium	89-1				103		%
Yttrium	89-2				99		%
Zinc	66-2	10.79	10.22	10.69	10.57	2.85	ppb
Zirconium	90-1	0.08	0.08	0.07	0.08	7.39	ppb
Zirconium	91-1	0.08	0.08	0.07	0.08	5.63	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICSAB001	Instrumnet Name :	P7
Client Sample ID :	ICSAB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:29:42	DataFile Name :	022ICSB.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	89101.88	89664.76	89406.06	89390.90	0.32	ppb
Antimony	121-1	20.50	20.67	21.04	20.73	1.34	ppb
Arsenic	75-2	20.17	19.49	19.79	19.82	1.71	ppb
Barium	135-1	20.37	20.54	21.18	20.70	2.08	ppb
Barium	137-1	20.40	20.72	21.13	20.75	1.76	ppb
Beryllium	9-1	18.95	19.16	19.04	19.05	0.55	ppb
Bismuth	209-1				107		%
Bismuth	209-2				103		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	23.91	23.65	25.32	24.30	3.69	ppb
Cadmium	106-1	15.02	15.39	15.74	15.38	2.35	ppb
Cadmium	111-1	19.47	19.80	20.05	19.77	1.49	ppb
Calcium	43-1	98090.84	98813.57	99574.08	98826.16	0.75	ppb
Calcium	44-1	98284.63	97781.62	98710.79	98259.01	0.47	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	39.52	40.03	39.78	39.77	0.64	ppb
Cobalt	59-2	20.87	21.37	21.07	21.10	1.19	ppb
Copper	63-2	25.58	25.90	25.85	25.78	0.66	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				113		%
Holmium	165-2				107		%
Indium	115-1				104		%
Indium	115-2				98		%
Iron	56-2	103140.21	102861.12	102294.52	102765.29	0.42	ppb
Iron	57-2	100799.17	102351.61	102581.06	101910.62	0.95	ppb
Iron	54-2	102209.01	102850.97	101680.43	102246.80	0.57	ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICSAB001	Instrumnet Name :	P7
Client Sample ID :	ICSAB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:29:42	DataFile Name :	022ICSB.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	25.90	25.32	25.40	25.54	1.22	ppb
Lead	207-1	24.32	23.93	24.22	24.16	0.84	ppb
Lead	208-1	24.73	24.27	24.35	24.45	1.00	ppb
Lithium	6-1				85		%
Magnesium	24-2	92542.57	92828.97	93781.49	93051.01	0.70	ppb
Manganese	55-2	26.88	27.00	26.88	26.92	0.26	ppb
Molybdenum	94-1	1506.63	1545.39	1550.95	1534.32	1.57	ppb
Molybdenum	95-1	1825.44	1882.07	1890.65	1866.05	1.90	ppb
Molybdenum	96-1	1792.12	1841.72	1844.23	1826.02	1.61	ppb
Molybdenum	97-1	1849.50	1873.39	1880.85	1867.91	0.88	ppb
Molybdenum	98-1	1838.90	1881.59	1884.14	1868.21	1.36	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	25.02	24.75	24.54	24.77	0.96	ppb
Phosphorus	31-2	95387.73	93637.97	95620.25	94881.98	1.14	ppb
Potassium	39-2	96955.92	97467.62	98513.38	97645.64	0.81	ppb
Rhodium	103-1				98		%
Rhodium	103-2				98		%
Scandium	45-1				95		%
Scandium	45-2				98		%
Selenium	82-1	19.35	19.31	18.90	19.18	1.31	ppb
Selenium	77-2	20.70	17.39	18.46	18.85	8.95	ppb
Selenium	78-2	19.89	19.07	18.96	19.31	2.65	ppb
Silicon	28-1	-0.03	0.02	0.29	0.10	179.68	ppb
Silver	107-1	18.12	18.49	18.92	18.51	2.17	ppb
Silver	109-1	18.14	18.38	18.83	18.45	1.90	ppb
Sodium	23-2	97328.50	98018.23	97854.45	97733.72	0.37	ppb
Strontium	86-1	33.09	33.51	33.57	33.39	0.78	ppb
Strontium	88-1	32.43	33.24	33.76	33.14	2.01	ppb
Sulfur	34-1	88981.61	88442.54	90669.66	89364.60	1.30	ppb
Terbium	159-1				112		%
Terbium	159-2				105		%
Thallium	203-1	19.89	19.93	20.02	19.95	0.34	ppb
Thallium	205-1	19.89	19.79	19.99	19.89	0.48	ppb
Tin	118-1	0.12	0.12	0.11	0.12	4.66	ppb
Titanium	47-1	1922.38	1957.16	1932.82	1937.45	0.92	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICSAB001	Instrumnet Name :	P7
Client Sample ID :	ICSAB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:29:42	DataFile Name :	022ICSB.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	0.01	0.02	0.02	0.01	9.95	ppb
Vanadium	51-2	19.52	19.47	19.40	19.46	0.31	ppb
Yttrium	89-1				104		%
Yttrium	89-2				101		%
Zinc	66-2	30.53	30.72	30.90	30.72	0.61	ppb
Zirconium	90-1	0.01	0.02	0.02	0.02	7.41	ppb
Zirconium	91-1	0.02	0.02	0.03	0.02	18.73	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCV001	Instrumnet Name :	P7
Client Sample ID :	CCV001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:32:44	DataFile Name :	023CCV.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	49541.48	49722.00	50080.86	49781.45	0.55	ppb
Antimony	121-1	518.67	541.25	534.56	531.49	2.18	ppb
Arsenic	75-2	528.52	532.72	531.13	530.79	0.40	ppb
Barium	135-1	2479.85	2577.02	2547.48	2534.78	1.97	ppb
Barium	137-1	2508.63	2574.02	2543.16	2541.94	1.29	ppb
Beryllium	9-1	481.08	488.63	483.33	484.35	0.80	ppb
Bismuth	209-1				106		%
Bismuth	209-2				98		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	509.37	522.48	519.09	516.98	1.32	ppb
Cadmium	106-1	506.29	518.84	515.80	513.64	1.27	ppb
Cadmium	111-1	509.28	527.04	527.59	521.30	2.00	ppb
Calcium	43-1	248920.63	256622.50	253241.90	252928.34	1.53	ppb
Calcium	44-1	248118.49	255722.84	252033.21	251958.18	1.51	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	506.18	514.60	514.98	511.92	0.97	ppb
Cobalt	59-2	533.01	538.04	541.53	537.53	0.80	ppb
Copper	63-2	5163.67	5160.42	5234.25	5186.11	0.80	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				115		%
Holmium	165-2				106		%
Indium	115-1				103		%
Indium	115-2				95		%
Iron	56-2	128145.67	128041.31	130717.15	128968.04	1.18	ppb
Iron	57-2	128106.64	128600.35	128324.56	128343.85	0.19	ppb
Iron	54-2	126706.74	127678.32	129036.66	127807.24	0.92	ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCV001	Instrumnet Name :	P7
Client Sample ID :	CCV001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:32:44	DataFile Name :	023CCV.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	2554.63	2582.89	2607.63	2581.72	1.03	ppb
Lead	207-1	2540.40	2561.58	2579.65	2560.55	0.77	ppb
Lead	208-1	2531.39	2563.46	2594.75	2563.20	1.24	ppb
Lithium	6-1				85		%
Magnesium	24-2	249572.92	247320.70	249721.07	248871.56	0.54	ppb
Manganese	55-2	5040.48	5071.08	5123.93	5078.50	0.83	ppb
Molybdenum	94-1	4976.92	5111.64	5113.46	5067.34	1.55	ppb
Molybdenum	95-1	4996.93	5080.53	5124.84	5067.43	1.28	ppb
Molybdenum	96-1	5018.77	5072.29	5127.88	5072.98	1.08	ppb
Molybdenum	97-1	5015.77	5085.60	5119.17	5073.52	1.04	ppb
Molybdenum	98-1	5033.96	5101.70	5120.48	5085.38	0.89	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	517.85	530.60	535.82	528.09	1.75	ppb
Phosphorus	31-2	9677.67	9839.75	9907.09	9808.17	1.20	ppb
Potassium	39-2	125525.93	126229.20	127270.08	126341.74	0.69	ppb
Rhodium	103-1				98		%
Rhodium	103-2				95		%
Scandium	45-1				97		%
Scandium	45-2				100		%
Selenium	82-1	503.04	511.19	511.00	508.41	0.91	ppb
Selenium	77-2	488.71	500.81	493.39	494.30	1.23	ppb
Selenium	78-2	500.29	501.02	503.80	501.70	0.37	ppb
Silicon	28-1	483.70	499.70	495.63	493.01	1.69	ppb
Silver	107-1	511.78	520.68	517.92	516.79	0.88	ppb
Silver	109-1	510.75	522.67	523.89	519.10	1.40	ppb
Sodium	23-2	246632.89	247230.01	247445.18	247102.69	0.17	ppb
Strontium	86-1	499.94	504.86	503.59	502.80	0.51	ppb
Strontium	88-1	501.57	501.49	507.12	503.39	0.64	ppb
Sulfur	34-1	8073.09	8518.06	8365.83	8318.99	2.72	ppb
Terbium	159-1				112		%
Terbium	159-2				104		%
Thallium	203-1	513.26	515.78	522.28	517.11	0.90	ppb
Thallium	205-1	513.45	516.12	522.20	517.26	0.87	ppb
Tin	118-1	496.46	517.22	512.13	508.60	2.13	ppb
Titanium	47-1	4912.73	5057.21	5057.55	5009.16	1.67	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCV001	Instrumnet Name :	P7
Client Sample ID :	CCV001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:32:44	DataFile Name :	023CCV.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	508.75	519.06	527.97	518.59	1.85	ppb
Vanadium	51-2	508.09	509.61	520.57	512.76	1.33	ppb
Yttrium	89-1				106		%
Yttrium	89-2				102		%
Zinc	66-2	5175.99	5137.05	5167.67	5160.24	0.40	ppb
Zirconium	90-1	502.97	515.03	511.60	509.86	1.22	ppb
Zirconium	91-1	502.07	509.68	515.64	509.13	1.34	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCB001	Instrumnet Name :	P7
Client Sample ID :	CCB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:36:30	DataFile Name :	024CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	7.10	7.88	6.55	7.18	9.33	ppb
Antimony	121-1	0.12	0.11	0.11	0.11	7.52	ppb
Arsenic	75-2	0.01	0.03	0.03	0.02	40.76	ppb
Barium	135-1	0.15	0.14	0.13	0.14	7.40	ppb
Barium	137-1	0.16	0.14	0.14	0.15	8.02	ppb
Beryllium	9-1	0.07	0.05	0.08	0.06	25.56	ppb
Bismuth	209-1				114		%
Bismuth	209-2				109		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	-0.01	-0.02	0.04	0.00	803.36	ppb
Cadmium	106-1	-1.62	-1.54	-1.59	-1.58		ppb
Cadmium	111-1	0.03	0.01	0.01	0.01	99.84	ppb
Calcium	43-1	19.43	19.38	15.90	18.24	11.10	ppb
Calcium	44-1	20.56	18.97	17.19	18.91	8.91	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	0.05	0.03	0.07	0.05	40.92	ppb
Cobalt	59-2	0.01	0.02	0.01	0.01	51.84	ppb
Copper	63-2	0.32	0.36	0.26	0.31	16.96	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				112		%
Holmium	165-2				106		%
Indium	115-1				108		%
Indium	115-2				102		%
Iron	56-2	13.11	14.01	11.11	12.74	11.69	ppb
Iron	57-2	11.11	12.63	9.11	10.95	16.14	ppb
Iron	54-2	13.09	12.95	11.30	12.45	8.02	ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCB001	Instrumnet Name :	P7
Client Sample ID :	CCB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:36:30	DataFile Name :	024CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	0.68	0.67	0.63	0.66	3.98	ppb
Lead	207-1	0.66	0.64	0.64	0.64	1.65	ppb
Lead	208-1	0.66	0.65	0.64	0.65	2.17	ppb
Lithium	6-1				92		%
Magnesium	24-2	15.12	16.03	12.68	14.61	11.87	ppb
Manganese	55-2	0.25	0.26	0.22	0.24	8.03	ppb
Molybdenum	94-1	0.50	0.43	0.44	0.46	8.07	ppb
Molybdenum	95-1	0.53	0.45	0.43	0.47	11.59	ppb
Molybdenum	96-1	0.50	0.42	0.42	0.45	9.68	ppb
Molybdenum	97-1	0.52	0.42	0.43	0.45	11.64	ppb
Molybdenum	98-1	0.50	0.43	0.44	0.46	8.02	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	-0.01	-0.04	-0.02	-0.02		ppb
Phosphorus	31-2	-11.71	-13.51	-13.40	-12.87		ppb
Potassium	39-2	14.81	13.72	13.66	14.06	4.62	ppb
Rhodium	103-1				105		%
Rhodium	103-2				105		%
Scandium	45-1				98		%
Scandium	45-2				100		%
Selenium	82-1	0.23	0.04	-0.23	0.01	1709.03	ppb
Selenium	77-2	-0.03	-0.03	0.16	0.03	355.72	ppb
Selenium	78-2	0.26	0.22	-0.54	-0.02		ppb
Silicon	28-1	-2.68	-2.09	-2.54	-2.44		ppb
Silver	107-1	0.10	0.08	0.08	0.09	11.54	ppb
Silver	109-1	0.10	0.08	0.07	0.08	14.38	ppb
Sodium	23-2	39.83	40.52	37.37	39.24	4.22	ppb
Strontium	86-1	0.04	0.07	0.04	0.05	33.11	ppb
Strontium	88-1	0.04	0.03	0.03	0.03	10.61	ppb
Sulfur	34-1	-636.99	-510.29	-590.07	-579.12		ppb
Terbium	159-1				111		%
Terbium	159-2				106		%
Thallium	203-1	0.15	0.14	0.14	0.15	4.27	ppb
Thallium	205-1	0.15	0.14	0.15	0.15	3.34	ppb
Tin	118-1	0.04	0.03	0.03	0.04	14.90	ppb
Titanium	47-1	0.44	0.41	0.42	0.42	3.75	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCB001	Instrumnet Name :	P7
Client Sample ID :	CCB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:36:30	DataFile Name :	024CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	0.03	0.03	0.03	0.03	10.77	ppb
Vanadium	51-2	0.02	0.02	0.02	0.02	8.82	ppb
Yttrium	89-1				105		%
Yttrium	89-2				103		%
Zinc	66-2	0.30	0.39	0.37	0.35	13.07	ppb
Zirconium	90-1	0.05	0.04	0.04	0.05	8.64	ppb
Zirconium	91-1	0.07	0.04	0.04	0.05	25.93	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165237BL	Instrumnet Name :	P7
Client Sample ID :	PBW237	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:47:40	DataFile Name :	026CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	4.22	3.40	2.98	3.53	17.93	ppb
Antimony	121-1	0.01	0.02	0.02	0.01	5.26	ppb
Arsenic	75-2	0.00	0.03	-0.02	0.00	643.10	ppb
Barium	135-1	0.01	0.00	0.00	0.00	363.22	ppb
Barium	137-1	0.01	0.00	0.01	0.01	35.89	ppb
Beryllium	9-1	0.02	0.00	-0.01	0.00	753.67	ppb
Bismuth	209-1				115		%
Bismuth	209-2				111		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	-0.04	-0.03	-0.04	-0.04		ppb
Cadmium	106-1	-1.17	-1.12	-0.82	-1.04		ppb
Cadmium	111-1	-0.02	-0.03	-0.01	-0.02		ppb
Calcium	43-1	-4.14	-5.37	-4.67	-4.73		ppb
Calcium	44-1	-2.81	-3.99	-4.32	-3.71		ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	-0.04	0.00	-0.03	-0.02		ppb
Cobalt	59-2	0.00	-0.01	-0.01	-0.01		ppb
Copper	63-2	0.10	0.06	0.06	0.07	31.04	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				113		%
Holmium	165-2				108		%
Indium	115-1				109		%
Indium	115-2				104		%
Iron	56-2	5.53	4.84	4.22	4.86	13.53	ppb
Iron	57-2	4.32	3.87	3.83	4.01	6.67	ppb
Iron	54-2	5.21	5.19	2.86	4.42	30.56	ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165237BL	Instrumnet Name :	P7
Client Sample ID :	PBW237	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:47:40	DataFile Name :	026CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	0.17	0.17	0.15	0.16	5.69	ppb
Lead	207-1	0.16	0.17	0.14	0.16	8.29	ppb
Lead	208-1	0.17	0.16	0.15	0.16	3.92	ppb
Lithium	6-1				94		%
Magnesium	24-2	5.06	3.64	3.35	4.01	22.76	ppb
Manganese	55-2	0.05	0.05	0.03	0.04	28.89	ppb
Molybdenum	94-1	0.11	0.08	0.08	0.09	20.90	ppb
Molybdenum	95-1	0.12	0.08	0.08	0.09	21.05	ppb
Molybdenum	96-1	0.09	0.08	0.09	0.09	7.76	ppb
Molybdenum	97-1	0.10	0.09	0.08	0.09	9.62	ppb
Molybdenum	98-1	0.11	0.08	0.09	0.10	13.56	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	-0.05	-0.06	-0.07	-0.06		ppb
Phosphorus	31-2	-14.50	-15.16	-16.63	-15.43		ppb
Potassium	39-2	4.77	3.46	1.73	3.32	45.87	ppb
Rhodium	103-1				108		%
Rhodium	103-2				108		%
Scandium	45-1				101		%
Scandium	45-2				103		%
Selenium	82-1	0.38	0.11	-0.11	0.13	195.93	ppb
Selenium	77-2	-0.03	0.06	-0.03	0.00		ppb
Selenium	78-2	-0.70	-0.68	0.08	-0.44		ppb
Silicon	28-1	-2.87	-2.36	-2.37	-2.54		ppb
Silver	107-1	0.02	0.02	0.01	0.02	11.80	ppb
Silver	109-1	0.02	0.01	0.02	0.02	20.65	ppb
Sodium	23-2	19.35	17.56	17.44	18.12	5.90	ppb
Strontium	86-1	0.01	-0.01	0.01	0.00	239.67	ppb
Strontium	88-1	0.00	0.00	0.00	0.00		ppb
Sulfur	34-1	-510.23	-403.65	-410.40	-441.43		ppb
Terbium	159-1				112		%
Terbium	159-2				107		%
Thallium	203-1	0.14	0.15	0.15	0.15	3.76	ppb
Thallium	205-1	0.15	0.15	0.15	0.15	2.49	ppb
Tin	118-1	0.00	0.00	-0.01	0.00		ppb
Titanium	47-1	0.09	0.11	0.09	0.10	9.59	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165237BL	Instrumnet Name :	P7
Client Sample ID :	PBW237	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:47:40	DataFile Name :	026CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	0.01	0.00	0.00	0.00	26.26	ppb
Vanadium	51-2	0.01	0.01	0.00	0.01	44.94	ppb
Yttrium	89-1				107		%
Yttrium	89-2				105		%
Zinc	66-2	-0.13	-0.19	-0.16	-0.16		ppb
Zirconium	90-1	0.01	0.01	0.00	0.01	56.23	ppb
Zirconium	91-1	0.01	0.01	0.01	0.01	45.19	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165237BS	Instrumnet Name :	P7
Client Sample ID :	LCS237	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:50:57	DataFile Name :	027LCSE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	42.56	42.22	42.45	42.41	0.41	ppb
Antimony	121-1	4.22	4.24	4.21	4.22	0.35	ppb
Arsenic	75-2	2.18	2.08	2.01	2.09	4.07	ppb
Barium	135-1	19.97	20.06	20.17	20.07	0.52	ppb
Barium	137-1	20.07	20.29	20.46	20.27	0.95	ppb
Beryllium	9-1	1.97	2.10	2.03	2.03	3.10	ppb
Bismuth	209-1				115		%
Bismuth	209-2				111		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	1.76	1.73	1.72	1.74	0.98	ppb
Cadmium	106-1	1.35	0.86	0.98	1.06	24.02	ppb
Cadmium	111-1	1.80	1.92	1.83	1.85	3.40	ppb
Calcium	43-1	1026.18	1030.47	1032.68	1029.77	0.32	ppb
Calcium	44-1	1023.56	1038.27	1029.92	1030.58	0.72	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	4.31	4.16	4.27	4.25	1.84	ppb
Cobalt	59-2	2.07	2.12	2.16	2.12	2.04	ppb
Copper	63-2	4.41	4.45	4.43	4.43	0.42	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				114		%
Holmium	165-2				109		%
Indium	115-1				110		%
Indium	115-2				105		%
Iron	56-2	438.58	438.76	439.31	438.88	0.09	ppb
Iron	57-2	455.44	456.82	451.44	454.57	0.61	ppb
Iron	54-2	456.85	455.80	456.52	456.39	0.12	ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165237BS	Instrumnet Name :	P7
Client Sample ID :	LCS237	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:50:57	DataFile Name :	027LCSE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	2.15	2.21	2.12	2.16	2.18	ppb
Lead	207-1	2.11	2.11	2.10	2.11	0.24	ppb
Lead	208-1	2.12	2.17	2.12	2.13	1.35	ppb
Lithium	6-1				95		%
Magnesium	24-2	996.99	1000.14	1007.26	1001.46	0.53	ppb
Manganese	55-2	2.08	2.13	2.07	2.10	1.64	ppb
Molybdenum	94-1	11.86	11.96	11.81	11.88	0.66	ppb
Molybdenum	95-1	10.19	10.12	10.01	10.11	0.88	ppb
Molybdenum	96-1	10.27	10.07	10.24	10.19	1.03	ppb
Molybdenum	97-1	10.03	10.25	10.00	10.09	1.34	ppb
Molybdenum	98-1	10.11	10.14	9.93	10.06	1.13	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	2.12	2.15	2.02	2.10	3.30	ppb
Phosphorus	31-2	-18.01	-13.26	-18.56	-16.61		ppb
Potassium	39-2	1069.42	1072.37	1080.41	1074.07	0.53	ppb
Rhodium	103-1				109		%
Rhodium	103-2				108		%
Scandium	45-1				101		%
Scandium	45-2				104		%
Selenium	82-1	11.04	10.55	10.22	10.60	3.89	ppb
Selenium	77-2	9.18	12.27	9.86	10.44	15.60	ppb
Selenium	78-2	10.72	9.53	11.08	10.45	7.80	ppb
Silicon	28-1	0.86	1.04	1.04	0.98	10.39	ppb
Silver	107-1	2.10	2.12	2.13	2.12	0.68	ppb
Silver	109-1	2.06	2.11	2.13	2.10	1.81	ppb
Sodium	23-2	1018.08	1029.87	1034.81	1027.59	0.84	ppb
Strontium	86-1	1.98	2.10	1.99	2.02	3.14	ppb
Strontium	88-1	2.02	2.04	2.03	2.03	0.53	ppb
Sulfur	34-1	-297.15	-329.68	-301.98	-309.61		ppb
Terbium	159-1				112		%
Terbium	159-2				108		%
Thallium	203-1	2.11	2.11	2.08	2.10	0.64	ppb
Thallium	205-1	2.09	2.15	2.09	2.11	1.60	ppb
Tin	118-1	0.03	0.01	0.02	0.02	38.12	ppb
Titanium	47-1	10.12	10.41	10.17	10.24	1.51	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165237BS	Instrumnet Name :	P7
Client Sample ID :	LCS237	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:50:57	DataFile Name :	027LCSE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	1.83	1.89	1.84	1.85	1.77	ppb
Vanadium	51-2	10.08	10.14	10.05	10.09	0.44	ppb
Yttrium	89-1				109		%
Yttrium	89-2				105		%
Zinc	66-2	10.76	10.90	10.68	10.78	1.05	ppb
Zirconium	90-1	2.03	2.02	2.00	2.02	0.94	ppb
Zirconium	91-1	2.01	1.99	2.06	2.02	1.81	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165238BL	Instrumnet Name :	P7
Client Sample ID :	PBS238	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:54:10	DataFile Name :	028CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	2.88	2.65	2.57	2.70	5.85	ppb
Antimony	121-1	0.02	0.02	0.01	0.01	2.48	ppb
Arsenic	75-2	-0.01	-0.01	0.00	-0.01		ppb
Barium	135-1	0.02	0.02	0.01	0.02	57.70	ppb
Barium	137-1	0.02	0.01	0.00	0.01	86.93	ppb
Beryllium	9-1	0.03	0.00	0.01	0.01	93.57	ppb
Bismuth	209-1				114		%
Bismuth	209-2				109		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	-0.03	-0.04	-0.03	-0.03		ppb
Cadmium	106-1	-1.01	-0.71	-0.99	-0.90		ppb
Cadmium	111-1	-0.01	-0.01	-0.02	-0.01		ppb
Calcium	43-1	-0.60	0.64	-1.93	-0.63		ppb
Calcium	44-1	-1.35	-1.77	-4.06	-2.39		ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	-0.01	0.01	-0.01	0.00		ppb
Cobalt	59-2	-0.01	-0.01	0.00	-0.01		ppb
Copper	63-2	0.02	0.01	0.03	0.02	48.32	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				113		%
Holmium	165-2				107		%
Indium	115-1				111		%
Indium	115-2				103		%
Iron	56-2	2.57	2.01	2.01	2.20	14.67	ppb
Iron	57-2	1.28	0.12	1.22	0.88	74.42	ppb
Iron	54-2	2.07	1.61	1.59	1.76	15.34	ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165238BL	Instrumnet Name :	P7
Client Sample ID :	PBS238	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:54:10	DataFile Name :	028CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	0.12	0.11	0.10	0.11	8.89	ppb
Lead	207-1	0.11	0.12	0.10	0.11	7.83	ppb
Lead	208-1	0.11	0.11	0.10	0.11	8.10	ppb
Lithium	6-1				95		%
Magnesium	24-2	1.03	0.59	0.46	0.69	43.36	ppb
Manganese	55-2	0.00	0.00	-0.02	0.00		ppb
Molybdenum	94-1	0.13	0.12	0.10	0.11	11.97	ppb
Molybdenum	95-1	0.14	0.12	0.12	0.13	8.78	ppb
Molybdenum	96-1	0.12	0.11	0.08	0.10	21.55	ppb
Molybdenum	97-1	0.12	0.11	0.09	0.11	18.62	ppb
Molybdenum	98-1	0.13	0.13	0.10	0.12	14.63	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	-0.06	-0.02	-0.08	-0.05		ppb
Phosphorus	31-2	-17.29	-18.04	-17.05	-17.46		ppb
Potassium	39-2	2.20	1.35	1.96	1.83	23.85	ppb
Rhodium	103-1				108		%
Rhodium	103-2				107		%
Scandium	45-1				101		%
Scandium	45-2				103		%
Selenium	82-1	-0.33	-0.10	-0.10	-0.18		ppb
Selenium	77-2	-0.03	-0.03	-0.03	-0.03		ppb
Selenium	78-2	-0.74	-0.19	-0.40	-0.44		ppb
Silicon	28-1	-2.39	-2.25	-2.14	-2.26		ppb
Silver	107-1	0.02	0.02	0.02	0.02	7.96	ppb
Silver	109-1	0.02	0.02	0.02	0.02	13.21	ppb
Sodium	23-2	13.46	12.94	13.27	13.22	1.99	ppb
Strontium	86-1	0.00	0.01	0.00	0.00	43.15	ppb
Strontium	88-1	0.00	0.00	0.00	0.00		ppb
Sulfur	34-1	-300.93	-271.20	-242.58	-271.57		ppb
Terbium	159-1				112		%
Terbium	159-2				107		%
Thallium	203-1	0.14	0.14	0.15	0.14	1.73	ppb
Thallium	205-1	0.15	0.16	0.16	0.15	3.96	ppb
Tin	118-1	0.02	0.00	0.01	0.01	74.45	ppb
Titanium	47-1	0.17	0.14	0.12	0.14	16.36	ppb

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165238BL	Instrumnet Name :	P7
Client Sample ID :	PBS238	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:54:10	DataFile Name :	028CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	0.01	0.01	0.00	0.01	25.37	ppb
Vanadium	51-2	0.00	0.00	0.00	0.00	29.60	ppb
Yttrium	89-1				108		%
Yttrium	89-2				104		%
Zinc	66-2	-0.18	-0.19	-0.16	-0.18		ppb
Zirconium	90-1	0.01	0.01	0.01	0.01	26.12	ppb
Zirconium	91-1	0.01	0.01	0.02	0.01	32.85	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165238BS	Instrumnet Name :	P7
Client Sample ID :	LCS238	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:57:27	DataFile Name :	029LCSE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	42.65	41.17	42.31	42.05	1.84	ppb
Antimony	121-1	4.10	4.23	4.32	4.22	2.63	ppb
Arsenic	75-2	2.16	2.07	2.30	2.18	5.31	ppb
Barium	135-1	19.73	20.41	20.45	20.20	1.99	ppb
Barium	137-1	19.95	20.23	20.73	20.30	1.93	ppb
Beryllium	9-1	1.87	2.11	2.03	2.01	5.93	ppb
Bismuth	209-1				115		%
Bismuth	209-2				109		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	1.55	1.86	1.90	1.77	10.91	ppb
Cadmium	106-1	1.23	1.47	0.46	1.05	49.88	ppb
Cadmium	111-1	1.79	1.84	1.84	1.82	1.58	ppb
Calcium	43-1	1008.29	1073.76	1044.94	1042.33	3.15	ppb
Calcium	44-1	999.01	1036.54	1042.35	1025.97	2.29	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	4.25	4.27	4.33	4.29	0.95	ppb
Cobalt	59-2	2.17	2.16	2.14	2.16	0.62	ppb
Copper	63-2	4.41	4.52	4.45	4.46	1.24	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				113		%
Holmium	165-2				108		%
Indium	115-1				109		%
Indium	115-2				104		%
Iron	56-2	435.80	442.91	432.60	437.10	1.21	ppb
Iron	57-2	451.83	455.51	460.37	455.91	0.94	ppb
Iron	54-2	460.46	458.07	456.79	458.44	0.41	ppb
Krypton	83-1						cps

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165238BS	Instrumnet Name :	P7
Client Sample ID :	LCS238	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:57:27	DataFile Name :	029LCSE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	2.08	2.04	2.11	2.08	1.80	ppb
Lead	207-1	2.06	2.08	2.09	2.08	0.72	ppb
Lead	208-1	2.06	2.06	2.12	2.08	1.65	ppb
Lithium	6-1				96		%
Magnesium	24-2	1010.44	1010.62	1005.64	1008.90	0.28	ppb
Manganese	55-2	2.10	2.05	2.10	2.08	1.54	ppb
Molybdenum	94-1	11.75	11.91	11.96	11.87	0.92	ppb
Molybdenum	95-1	9.79	10.13	10.23	10.05	2.30	ppb
Molybdenum	96-1	9.98	10.33	10.15	10.15	1.72	ppb
Molybdenum	97-1	9.90	10.14	10.01	10.02	1.21	ppb
Molybdenum	98-1	9.89	10.10	10.09	10.03	1.15	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	2.11	2.10	2.16	2.12	1.56	ppb
Phosphorus	31-2	-18.50	-16.52	-15.15	-16.72		ppb
Potassium	39-2	1078.25	1082.03	1079.81	1080.03	0.18	ppb
Rhodium	103-1				108		%
Rhodium	103-2				107		%
Scandium	45-1				101		%
Scandium	45-2				104		%
Selenium	82-1	10.44	10.73	10.65	10.61	1.42	ppb
Selenium	77-2	11.68	9.24	10.81	10.57	11.73	ppb
Selenium	78-2	10.73	10.79	10.10	10.54	3.62	ppb
Silicon	28-1	0.53	6.38	1.45	2.79	112.79	ppb
Silver	107-1	2.07	2.11	2.18	2.12	2.81	ppb
Silver	109-1	2.06	2.16	2.17	2.13	2.75	ppb
Sodium	23-2	1022.51	1046.65	1049.27	1039.48	1.42	ppb
Strontium	86-1	1.95	2.08	2.00	2.01	3.39	ppb
Strontium	88-1	1.98	2.06	2.05	2.03	2.18	ppb
Sulfur	34-1	-301.87	-195.93	-208.90	-235.57		ppb
Terbium	159-1				112		%
Terbium	159-2				107		%
Thallium	203-1	2.04	2.10	2.10	2.08	1.77	ppb
Thallium	205-1	2.07	2.08	2.16	2.10	2.40	ppb
Tin	118-1	0.01	0.01	0.03	0.02	50.87	ppb
Titanium	47-1	9.73	10.32	10.16	10.07	3.01	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165238BS	Instrumnet Name :	P7
Client Sample ID :	LCS238	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:57:27	DataFile Name :	029LCSE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	1.81	1.84	1.87	1.84	1.64	ppb
Vanadium	51-2	10.12	10.21	10.17	10.17	0.45	ppb
Yttrium	89-1				108		%
Yttrium	89-2				104		%
Zinc	66-2	10.99	11.01	11.29	11.09	1.51	ppb
Zirconium	90-1	2.00	2.03	2.08	2.03	1.99	ppb
Zirconium	91-1	1.96	2.04	2.01	2.00	2.04	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165241BL	Instrumnet Name :	P7
Client Sample ID :	PBS241	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:00:41	DataFile Name :	030CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	1.12	1.55	0.98	1.22	24.44	ppb
Antimony	121-1	0.01	0.01	0.01	0.01	6.23	ppb
Arsenic	75-2	0.01	0.01	0.01	0.01	26.68	ppb
Barium	135-1	0.01	0.02	0.02	0.02	25.21	ppb
Barium	137-1	0.02	0.03	0.02	0.03	17.27	ppb
Beryllium	9-1	-0.01	0.00	0.02	0.00	428.58	ppb
Bismuth	209-1				112		%
Bismuth	209-2				107		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	-0.01	-0.02	-0.01	-0.01		ppb
Cadmium	106-1	0.01	-0.76	-1.11	-0.62		ppb
Cadmium	111-1	0.00	-0.01	-0.02	-0.01		ppb
Calcium	43-1	2.49	2.69	0.63	1.94	58.86	ppb
Calcium	44-1	2.64	3.66	2.15	2.81	27.39	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	0.04	0.00	0.03	0.02	78.10	ppb
Cobalt	59-2	0.00	-0.01	0.00	0.00		ppb
Copper	63-2	0.04	0.03	0.02	0.03	31.43	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				110		%
Holmium	165-2				105		%
Indium	115-1				108		%
Indium	115-2				103		%
Iron	56-2	2.05	2.20	1.36	1.87	24.05	ppb
Iron	57-2	1.78	1.18	0.19	1.05	76.54	ppb
Iron	54-2	2.07	1.90	1.24	1.74	25.16	ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165241BL	Instrumnet Name :	P7
Client Sample ID :	PBS241	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:00:41	DataFile Name :	030CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	0.07	0.07	0.07	0.07	1.75	ppb
Lead	207-1	0.07	0.08	0.07	0.07	7.53	ppb
Lead	208-1	0.07	0.07	0.07	0.07	4.41	ppb
Lithium	6-1				94		%
Magnesium	24-2	0.58	0.67	-0.08	0.39	105.22	ppb
Manganese	55-2	-0.01	0.02	0.02	0.01	162.09	ppb
Molybdenum	94-1	0.07	0.13	0.11	0.10	27.96	ppb
Molybdenum	95-1	0.08	0.11	0.10	0.10	16.68	ppb
Molybdenum	96-1	0.07	0.11	0.09	0.09	22.95	ppb
Molybdenum	97-1	0.07	0.11	0.08	0.09	22.96	ppb
Molybdenum	98-1	0.08	0.12	0.09	0.09	20.05	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	-0.01	-0.02	-0.02	-0.02		ppb
Phosphorus	31-2	-20.28	-18.87	-23.21	-20.78		ppb
Potassium	39-2	1.96	3.14	1.81	2.30	31.63	ppb
Rhodium	103-1				105		%
Rhodium	103-2				105		%
Scandium	45-1				100		%
Scandium	45-2				102		%
Selenium	82-1	-0.28	-0.03	-0.47	-0.26		ppb
Selenium	77-2	-0.03	-0.03	-0.03	-0.03		ppb
Selenium	78-2	0.16	-0.22	1.03	0.32	198.15	ppb
Silicon	28-1	-2.70	-2.45	-2.48	-2.55		ppb
Silver	107-1	0.01	0.02	0.01	0.02	13.43	ppb
Silver	109-1	0.02	0.03	0.01	0.02	44.99	ppb
Sodium	23-2	10.25	10.16	8.97	9.79	7.31	ppb
Strontium	86-1	0.01	0.02	0.01	0.01	63.48	ppb
Strontium	88-1	0.01	0.01	0.01	0.01	12.66	ppb
Sulfur	34-1	-162.54	-160.51	-218.31	-180.45		ppb
Terbium	159-1				110		%
Terbium	159-2				105		%
Thallium	203-1	0.14	0.14	0.13	0.13	1.51	ppb
Thallium	205-1	0.15	0.14	0.14	0.14	1.84	ppb
Tin	118-1	0.01	0.00	0.03	0.01	133.19	ppb
Titanium	47-1	0.06	0.07	0.09	0.08	17.07	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165241BL	Instrumnet Name :	P7
Client Sample ID :	PBS241	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:00:41	DataFile Name :	030CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	0.00	0.01	0.00	0.01	39.56	ppb
Vanadium	51-2	0.00	0.01	0.00	0.01	53.71	ppb
Yttrium	89-1				105		%
Yttrium	89-2				102		%
Zinc	66-2	0.11	0.12	0.09	0.11	14.31	ppb
Zirconium	90-1	0.01	0.01	0.01	0.01	38.29	ppb
Zirconium	91-1	0.01	0.01	0.02	0.02	36.37	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165241BS	Instrumnet Name :	P7
Client Sample ID :	LCS241	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:03:58	DataFile Name :	031LCSS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	9969.13	9893.53	9896.00	9919.55	0.43	ppb
Antimony	121-1	497.31	496.18	512.29	501.93	1.79	ppb
Arsenic	75-2	497.82	493.09	483.76	491.56	1.46	ppb
Barium	135-1	2455.44	2461.22	2554.42	2490.36	2.23	ppb
Barium	137-1	2418.46	2478.44	2536.29	2477.73	2.38	ppb
Beryllium	9-1	481.25	472.69	486.48	480.14	1.45	ppb
Bismuth	209-1				109		%
Bismuth	209-2				103		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	495.86	501.50	509.43	502.26	1.36	ppb
Cadmium	106-1	491.63	500.21	513.19	501.68	2.16	ppb
Cadmium	111-1	499.35	500.46	518.23	506.01	2.09	ppb
Calcium	43-1	51032.57	51044.82	50748.85	50942.08	0.33	ppb
Calcium	44-1	49554.58	50043.00	50498.52	50032.03	0.94	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	508.15	495.03	495.27	499.48	1.50	ppb
Cobalt	59-2	508.60	504.04	499.95	504.20	0.86	ppb
Copper	63-2	5102.91	5038.82	4985.55	5042.42	1.17	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				110		%
Holmium	165-2				104		%
Indium	115-1				103		%
Indium	115-2				96		%
Iron	56-2	26531.21	25920.21	26361.01	26270.81	1.20	ppb
Iron	57-2	26422.30	26247.11	26000.29	26223.23	0.81	ppb
Iron	54-2	26947.00	26416.24	26471.15	26611.46	1.10	ppb
Krypton	83-1						cps

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165241BS	Instrumnet Name :	P7
Client Sample ID :	LCS241	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:03:58	DataFile Name :	031LCSS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	2490.83	2484.82	2432.35	2469.33	1.30	ppb
Lead	207-1	2449.37	2462.49	2420.78	2444.21	0.87	ppb
Lead	208-1	2449.00	2456.56	2422.39	2442.65	0.73	ppb
Lithium	6-1				93		%
Magnesium	24-2	52027.92	50719.96	50680.43	51142.77	1.50	ppb
Manganese	55-2	5036.45	4978.01	4955.90	4990.12	0.83	ppb
Molybdenum	94-1	4878.77	4923.20	4898.75	4900.24	0.45	ppb
Molybdenum	95-1	4869.30	4950.38	4914.16	4911.28	0.83	ppb
Molybdenum	96-1	4861.08	4920.32	4903.20	4894.86	0.62	ppb
Molybdenum	97-1	4862.68	4927.87	4898.17	4896.24	0.67	ppb
Molybdenum	98-1	4885.41	4935.33	4938.09	4919.61	0.60	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	516.65	498.79	495.39	503.61	2.27	ppb
Phosphorus	31-2	9793.28	9683.93	9678.98	9718.73	0.66	ppb
Potassium	39-2	25174.64	25066.89	25073.38	25104.97	0.24	ppb
Rhodium	103-1				100		%
Rhodium	103-2				98		%
Scandium	45-1				97		%
Scandium	45-2				97		%
Selenium	82-1	496.68	495.26	498.45	496.80	0.32	ppb
Selenium	77-2	487.97	475.97	480.47	481.47	1.26	ppb
Selenium	78-2	497.57	486.51	482.65	488.91	1.58	ppb
Silicon	28-1	479.44	479.21	480.25	479.63	0.11	ppb
Silver	107-1	497.77	503.61	513.90	505.09	1.62	ppb
Silver	109-1	496.20	502.25	514.66	504.37	1.87	ppb
Sodium	23-2	52113.42	51280.40	51553.14	51648.99	0.82	ppb
Strontium	86-1	482.45	490.34	492.36	488.38	1.07	ppb
Strontium	88-1	483.83	487.43	492.37	487.88	0.88	ppb
Sulfur	34-1	8758.80	8798.01	8751.03	8769.28	0.29	ppb
Terbium	159-1				108		%
Terbium	159-2				104		%
Thallium	203-1	497.59	496.91	485.29	493.26	1.40	ppb
Thallium	205-1	495.60	496.48	483.78	491.95	1.44	ppb
Tin	118-1	505.20	503.64	513.23	507.36	1.01	ppb
Titanium	47-1	4794.88	4916.51	4934.12	4881.84	1.55	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165241BS	Instrumnet Name :	P7
Client Sample ID :	LCS241	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:03:58	DataFile Name :	031LCSS.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	469.84	480.37	478.89	476.37	1.20	ppb
Vanadium	51-2	501.76	490.42	490.56	494.24	1.32	ppb
Yttrium	89-1				102		%
Yttrium	89-2				99		%
Zinc	66-2	5096.87	5037.24	5063.98	5066.03	0.59	ppb
Zirconium	90-1	485.31	491.17	492.89	489.79	0.81	ppb
Zirconium	91-1	483.56	491.59	489.79	488.31	0.86	ppb

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	P4917-04	Instrumnet Name :	P7
Client Sample ID :	MX1010	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:12:17	DataFile Name :	033SMPL.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	823.34	824.60	814.79	820.91	0.65	ppb
Antimony	121-1	12.73	12.88	12.94	12.85	0.83	ppb
Arsenic	75-2	13.64	13.29	13.27	13.40	1.57	ppb
Barium	135-1	1514.25	1526.84	1542.38	1527.82	0.92	ppb
Barium	137-1	1525.09	1541.88	1535.94	1534.30	0.55	ppb
Beryllium	9-1	15.64	15.72	16.55	15.97	3.16	ppb
Bismuth	209-1				113		%
Bismuth	209-2				110		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	35.45	36.01	35.57	35.68	0.81	ppb
Cadmium	106-1	32.83	34.57	34.29	33.90	2.76	ppb
Cadmium	111-1	40.41	40.75	41.69	40.95	1.62	ppb
Calcium	43-1	14.06	12.47	10.01	12.18	16.76	ppb
Calcium	44-1	12.12	10.72	11.61	11.48	6.18	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	95.74	94.45	95.24	95.14	0.68	ppb
Cobalt	59-2	0.25	0.24	0.23	0.24	3.41	ppb
Copper	63-2	1520.40	1515.08	1503.20	1512.89	0.58	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				110		%
Holmium	165-2				107		%
Indium	115-1				106		%
Indium	115-2				102		%
Iron	56-2	1299.07	1280.48	1275.99	1285.18	0.95	ppb
Iron	57-2	1336.09	1340.45	1315.34	1330.63	1.01	ppb
Iron	54-2	1414.99	1405.39	1398.65	1406.34	0.58	ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	P4917-04	Instrumnet Name :	P7
Client Sample ID :	MX1010	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:12:17	DataFile Name :	033SMPL.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	78.35	78.83	79.29	78.82	0.59	ppb
Lead	207-1	74.15	73.91	74.66	74.24	0.52	ppb
Lead	208-1	76.10	76.26	75.89	76.08	0.24	ppb
Lithium	6-1				95		%
Magnesium	24-2	1.73	3.52	1.86	2.37	42.18	ppb
Manganese	55-2	451.36	438.26	445.97	445.19	1.48	ppb
Molybdenum	94-1	50.85	51.99	51.13	51.32	1.16	ppb
Molybdenum	95-1	61.96	62.50	61.53	62.00	0.79	ppb
Molybdenum	96-1	60.81	61.40	60.91	61.04	0.51	ppb
Molybdenum	97-1	62.04	62.81	61.80	62.22	0.85	ppb
Molybdenum	98-1	61.92	63.18	62.15	62.42	1.07	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	472.62	473.47	467.89	471.33	0.64	ppb
Phosphorus	31-2	-19.27	-16.35	-15.92	-17.18		ppb
Potassium	39-2	4.26	4.85	2.70	3.94	28.11	ppb
Rhodium	103-1				104		%
Rhodium	103-2				105		%
Scandium	45-1				97		%
Scandium	45-2				101		%
Selenium	82-1	70.90	71.85	69.90	70.88	1.38	ppb
Selenium	77-2	67.35	73.39	70.06	70.26	4.31	ppb
Selenium	78-2	69.11	68.35	67.53	68.33	1.16	ppb
Silicon	28-1	12.12	11.72	11.54	11.80	2.51	ppb
Silver	107-1	93.83	93.35	96.18	94.45	1.60	ppb
Silver	109-1	93.32	94.85	94.80	94.32	0.92	ppb
Sodium	23-2	38.85	38.53	36.59	37.99	3.23	ppb
Strontium	86-1	0.05	0.06	0.07	0.06	21.05	ppb
Strontium	88-1	0.06	0.06	0.06	0.06	0.88	ppb
Sulfur	34-1	-773.56	-777.18	-809.49	-786.75		ppb
Terbium	159-1				109		%
Terbium	159-2				107		%
Thallium	203-1	7.29	7.30	7.32	7.31	0.22	ppb
Thallium	205-1	7.28	7.32	7.39	7.33	0.76	ppb
Tin	118-1	0.01	0.01	0.03	0.02	48.27	ppb
Titanium	47-1	0.28	0.30	0.38	0.32	16.66	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	P4917-04	Instrumnet Name :	P7
Client Sample ID :	MX1010	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:12:17	DataFile Name :	033SMPL.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	0.01	0.01	0.01	0.01	9.25	ppb
Vanadium	51-2	577.78	561.95	562.11	567.28	1.60	ppb
Yttrium	89-1				104		%
Yttrium	89-2				103		%
Zinc	66-2	433.56	433.35	429.26	432.06	0.56	ppb
Zirconium	90-1	0.05	0.05	0.05	0.05	2.73	ppb
Zirconium	91-1	0.05	0.06	0.07	0.06	14.61	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	P4917-01	Instrumnet Name :	P7
Client Sample ID :	MX1007	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:15:21	DataFile Name :	034SMPL.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	15097.68	15467.24	15210.45	15258.46	1.24	ppb
Antimony	121-1	148.29	155.45	158.79	154.17	3.48	ppb
Arsenic	75-2	454.18	451.03	453.39	452.87	0.36	ppb
Barium	135-1	902.55	933.61	946.36	927.51	2.43	ppb
Barium	137-1	888.85	934.00	944.28	922.38	3.20	ppb
Beryllium	9-1	346.50	348.36	345.70	346.86	0.39	ppb
Bismuth	209-1				118		%
Bismuth	209-2				112		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	241.26	249.02	250.84	247.04	2.06	ppb
Cadmium	106-1	235.77	248.35	250.88	245.00	3.30	ppb
Cadmium	111-1	274.91	285.28	292.10	284.10	3.05	ppb
Calcium	43-1	14188.53	14624.77	14908.60	14573.96	2.49	ppb
Calcium	44-1	13314.68	13748.91	14018.78	13694.12	2.59	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	614.60	623.90	607.64	615.38	1.33	ppb
Cobalt	59-2	446.78	445.33	445.19	445.77	0.20	ppb
Copper	63-2	316.11	314.21	310.80	313.70	0.86	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				116		%
Holmium	165-2				110		%
Indium	115-1				108		%
Indium	115-2				102		%
Iron	56-2	19781.97	20054.70	19605.41	19814.02	1.14	ppb
Iron	57-2	19587.61	19709.43	19566.52	19621.19	0.39	ppb
Iron	54-2	20204.88	20478.67	19993.97	20225.84	1.20	ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	P4917-01	Instrumnet Name :	P7
Client Sample ID :	MX1007	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:15:21	DataFile Name :	034SMPL.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	370.83	382.98	399.91	384.57	3.80	ppb
Lead	207-1	357.48	365.45	378.34	367.09	2.87	ppb
Lead	208-1	361.01	369.51	385.74	372.09	3.38	ppb
Lithium	6-1				106		%
Magnesium	24-2	4510.84	4641.71	4589.23	4580.59	1.44	ppb
Manganese	55-2	1054.38	1063.95	1038.95	1052.43	1.20	ppb
Molybdenum	94-1	113.55	118.17	118.88	116.87	2.48	ppb
Molybdenum	95-1	109.14	113.61	113.59	112.11	2.29	ppb
Molybdenum	96-1	109.03	113.92	115.31	112.76	2.93	ppb
Molybdenum	97-1	109.23	113.61	112.94	111.92	2.11	ppb
Molybdenum	98-1	108.72	114.69	113.02	112.14	2.75	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	292.19	296.08	292.18	293.48	0.77	ppb
Phosphorus	31-2	544.38	559.98	543.16	549.17	1.71	ppb
Potassium	39-2	3554.19	3560.41	3511.03	3541.88	0.76	ppb
Rhodium	103-1				106		%
Rhodium	103-2				106		%
Scandium	45-1				101		%
Scandium	45-2				103		%
Selenium	82-1	249.20	255.36	256.54	253.70	1.55	ppb
Selenium	77-2	252.64	259.15	258.82	256.87	1.43	ppb
Selenium	78-2	244.95	246.50	249.06	246.84	0.84	ppb
Silicon	28-1	967.27	1001.17	1002.79	990.41	2.03	ppb
Silver	107-1	124.28	127.91	131.92	128.04	2.98	ppb
Silver	109-1	124.04	128.28	130.62	127.65	2.61	ppb
Sodium	23-2	1212.34	1223.81	1208.51	1214.88	0.66	ppb
Strontium	86-1	510.68	527.74	534.38	524.27	2.33	ppb
Strontium	88-1	509.25	533.06	531.25	524.52	2.53	ppb
Sulfur	34-1	-917.59	-923.58	-951.72	-930.96		ppb
Terbium	159-1				114		%
Terbium	159-2				110		%
Thallium	203-1	421.90	434.55	449.63	435.36	3.19	ppb
Thallium	205-1	422.00	433.59	447.97	434.52	3.00	ppb
Tin	118-1	239.65	245.58	254.12	246.45	2.95	ppb
Titanium	47-1	586.82	618.87	621.00	608.90	3.15	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	P4917-01	Instrumnet Name :	P7
Client Sample ID :	MX1007	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:15:21	DataFile Name :	034SMPL.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	402.90	418.23	435.13	418.75	3.85	ppb
Vanadium	51-2	299.50	298.80	295.74	298.01	0.67	ppb
Yttrium	89-1				113		%
Yttrium	89-2				109		%
Zinc	66-2	989.56	1016.38	992.84	999.60	1.46	ppb
Zirconium	90-1	13.59	14.27	14.24	14.03	2.72	ppb
Zirconium	91-1	13.76	14.46	14.40	14.21	2.71	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCV002	Instrumnet Name :	P7
Client Sample ID :	CCV002	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:18:05	DataFile Name :	035CCV.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	49665.66	50073.45	49650.08	49796.39	0.48	ppb
Antimony	121-1	518.08	525.75	525.58	523.14	0.84	ppb
Arsenic	75-2	525.11	528.13	528.00	527.08	0.32	ppb
Barium	135-1	2486.88	2519.76	2504.76	2503.80	0.66	ppb
Barium	137-1	2460.45	2509.31	2500.87	2490.21	1.05	ppb
Beryllium	9-1	480.03	492.50	493.06	488.53	1.51	ppb
Bismuth	209-1				107		%
Bismuth	209-2				101		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	504.99	514.47	513.65	511.04	1.03	ppb
Cadmium	106-1	505.61	510.32	510.77	508.90	0.56	ppb
Cadmium	111-1	506.95	511.06	518.37	512.13	1.13	ppb
Calcium	43-1	251226.62	251722.03	246532.80	249827.15	1.15	ppb
Calcium	44-1	249249.46	246176.06	248351.58	247925.70	0.64	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	507.41	514.69	509.14	510.41	0.75	ppb
Cobalt	59-2	531.77	540.95	533.85	535.52	0.90	ppb
Copper	63-2	5102.01	5213.28	5097.65	5137.64	1.28	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				113		%
Holmium	165-2				107		%
Indium	115-1				100		%
Indium	115-2				95		%
Iron	56-2	129253.30	128669.31	126195.47	128039.36	1.27	ppb
Iron	57-2	128125.03	128629.29	128281.88	128345.40	0.20	ppb
Iron	54-2	127424.54	129281.25	126569.82	127758.54	1.09	ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCV002	Instrumnet Name :	P7
Client Sample ID :	CCV002	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:18:05	DataFile Name :	035CCV.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	2570.37	2552.79	2633.39	2585.51	1.64	ppb
Lead	207-1	2521.96	2522.67	2598.00	2547.54	1.72	ppb
Lead	208-1	2544.02	2536.52	2598.25	2559.60	1.32	ppb
Lithium	6-1				90		%
Magnesium	24-2	252689.74	257086.49	252872.25	254216.16	0.98	ppb
Manganese	55-2	5046.96	5079.23	4977.26	5034.49	1.04	ppb
Molybdenum	94-1	4985.10	5057.33	5110.80	5051.08	1.25	ppb
Molybdenum	95-1	4991.05	5025.59	5091.29	5035.98	1.01	ppb
Molybdenum	96-1	5033.72	5032.47	5036.19	5034.12	0.04	ppb
Molybdenum	97-1	5041.92	5075.51	5065.28	5060.91	0.34	ppb
Molybdenum	98-1	5080.92	5093.24	5112.66	5095.60	0.31	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	534.72	532.66	526.99	531.46	0.75	ppb
Phosphorus	31-2	9870.43	9978.85	9815.48	9888.25	0.84	ppb
Potassium	39-2	125736.74	125019.87	125190.40	125315.67	0.30	ppb
Rhodium	103-1				96		%
Rhodium	103-2				94		%
Scandium	45-1				96		%
Scandium	45-2				98		%
Selenium	82-1	508.25	513.68	518.36	513.43	0.99	ppb
Selenium	77-2	498.80	497.00	507.20	501.00	1.09	ppb
Selenium	78-2	495.58	507.80	491.64	498.34	1.69	ppb
Silicon	28-1	504.28	498.46	506.35	503.03	0.81	ppb
Silver	107-1	502.51	514.11	512.18	509.60	1.22	ppb
Silver	109-1	501.04	508.17	509.22	506.15	0.88	ppb
Sodium	23-2	250034.64	254104.69	250553.90	251564.41	0.88	ppb
Strontium	86-1	499.28	511.86	501.47	504.20	1.33	ppb
Strontium	88-1	491.41	502.46	504.70	499.52	1.42	ppb
Sulfur	34-1	8626.40	8547.47	8575.88	8583.25	0.47	ppb
Terbium	159-1				111		%
Terbium	159-2				105		%
Thallium	203-1	516.71	510.04	526.50	517.75	1.60	ppb
Thallium	205-1	513.49	512.86	522.48	516.28	1.04	ppb
Tin	118-1	504.71	503.13	501.18	503.01	0.35	ppb
Titanium	47-1	4981.42	4932.31	5006.31	4973.35	0.76	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCV002	Instrumnet Name :	P7
Client Sample ID :	CCV002	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:18:05	DataFile Name :	035CCV.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	515.80	517.22	525.46	519.49	1.00	ppb
Vanadium	51-2	511.19	513.82	509.20	511.40	0.45	ppb
Yttrium	89-1				103		%
Yttrium	89-2				99		%
Zinc	66-2	5076.62	5178.06	5071.12	5108.60	1.18	ppb
Zirconium	90-1	500.55	512.00	515.07	509.21	1.50	ppb
Zirconium	91-1	499.82	514.89	522.35	512.35	2.24	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCB002	Instrumnet Name :	P7
Client Sample ID :	CCB002	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:27:22	DataFile Name :	037CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Aluminium	27-2	2.48	2.80	2.96	2.75	8.85	ppb
Antimony	121-1	0.03	0.03	0.03	0.03	6.87	ppb
Arsenic	75-2	0.03	0.02	0.02	0.02	30.84	ppb
Barium	135-1	0.08	0.04	0.08	0.06	31.03	ppb
Barium	137-1	0.06	0.04	0.06	0.06	18.42	ppb
Beryllium	9-1	0.03	0.03	0.09	0.05	66.71	ppb
Bismuth	209-1				113		%
Bismuth	209-2				109		%
Bromine	81-1						cps
Bromine	81-2						cps
Cadmium	108-1	-0.04	-0.02	-0.01	-0.02		ppb
Cadmium	106-1	-0.35	-1.40	-0.72	-0.82		ppb
Cadmium	111-1	0.01	-0.03	0.01	0.00		ppb
Calcium	43-1	2.08	3.77	55.02	20.29	148.30	ppb
Calcium	44-1	2.61	2.39	37.21	14.07	142.39	ppb
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	0.02	0.01	0.01	0.01	33.95	ppb
Cobalt	59-2	0.00	0.00	0.00	0.00		ppb
Copper	63-2	0.15	0.13	0.16	0.15	10.10	ppb
Dysprosium	156-1						cps
Dysprosium	156-2						cps
Erbium	164-1						cps
Erbium	164-2						cps
Gadolinium	160-1						cps
Gadolinium	160-2						cps
Holmium	165-1				111		%
Holmium	165-2				106		%
Indium	115-1				107		%
Indium	115-2				102		%
Iron	56-2	4.08	4.32	4.95	4.45	10.03	ppb
Iron	57-2	2.91	3.40	3.94	3.42	15.08	ppb
Iron	54-2	3.67	4.63	4.79	4.37	13.85	ppb
Krypton	83-1						cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCB002	Instrumnet Name :	P7
Client Sample ID :	CCB002	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:27:22	DataFile Name :	037CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Lead	206-1	0.29	0.30	0.31	0.30	2.19	ppb
Lead	207-1	0.27	0.29	0.29	0.28	3.76	ppb
Lead	208-1	0.28	0.29	0.29	0.29	1.95	ppb
Lithium	6-1				95		%
Magnesium	24-2	2.87	3.43	4.18	3.50	18.82	ppb
Manganese	55-2	0.09	0.09	0.10	0.09	1.42	ppb
Molybdenum	94-1	0.16	0.12	0.20	0.16	26.28	ppb
Molybdenum	95-1	0.15	0.13	0.20	0.16	25.51	ppb
Molybdenum	96-1	0.14	0.12	0.21	0.15	31.53	ppb
Molybdenum	97-1	0.15	0.09	0.16	0.13	26.13	ppb
Molybdenum	98-1	0.15	0.11	0.15	0.14	16.38	ppb
Neodymium	150-1						cps
Neodymium	150-2						cps
Nickel	60-2	-0.02	-0.06	-0.03	-0.04		ppb
Phosphorus	31-2	-15.82	-17.74	-17.92	-17.16		ppb
Potassium	39-2	2.74	2.40	4.43	3.19	33.99	ppb
Rhodium	103-1				105		%
Rhodium	103-2				105		%
Scandium	45-1				99		%
Scandium	45-2				100		%
Selenium	82-1	-0.37	-0.34	-0.15	-0.29		ppb
Selenium	77-2	0.16	-0.03	0.06	0.06	152.53	ppb
Selenium	78-2	-0.19	-0.14	-0.22	-0.18		ppb
Silicon	28-1	-3.64	-3.09	-2.81	-3.18		ppb
Silver	107-1	0.02	0.02	0.02	0.02	4.21	ppb
Silver	109-1	0.02	0.02	0.02	0.02	2.41	ppb
Sodium	23-2	17.14	17.38	18.06	17.53	2.74	ppb
Strontium	86-1	0.04	0.03	0.04	0.04	3.79	ppb
Strontium	88-1	0.01	0.01	0.03	0.02	69.09	ppb
Sulfur	34-1	-478.47	-338.54	-364.67	-393.89		ppb
Terbium	159-1				110		%
Terbium	159-2				107		%
Thallium	203-1	0.17	0.16	0.17	0.17	2.75	ppb
Thallium	205-1	0.16	0.18	0.17	0.17	3.95	ppb
Tin	118-1	0.01	0.02	0.01	0.01	49.63	ppb
Titanium	47-1	0.13	0.09	0.80	0.34	117.19	ppb

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCB002	Instrumnet Name :	P7
Client Sample ID :	CCB002	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:27:22	DataFile Name :	037CCBE.d

Parameter	Mass	ConRep1	ConRep2	ConRep3	Avg. Conc.	ConcRSD	Units
Uranium	238-1	0.01	0.01	0.01	0.01	28.05	ppb
Vanadium	51-2	0.02	0.02	0.03	0.02	22.55	ppb
Yttrium	89-1				105		%
Yttrium	89-2				102		%
Zinc	66-2	0.14	0.16	0.23	0.18	26.70	ppb
Zirconium	90-1	0.02	0.02	0.02	0.02	15.63	ppb
Zirconium	91-1	0.02	0.02	0.02	0.02	13.11	ppb

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S00	Instrumnet Name :	P7
Client Sample ID :	S0	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:12:15	DataFile Name :	004CALB.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	213	233	170	206	15.75	cps
Antimony	121-1	17	13	47	26	71.84	cps
Arsenic	75-2	37	33	67	46	40.30	cps
Barium	135-1	213	150	137	167	24.58	cps
Barium	137-1	337	307	223	289	20.33	cps
Beryllium	9-1	160	210	167	179	15.18	cps
Bismuth	209-1	11254609	11140330	11250385	11215108	0.58	cps
Bismuth	209-2	8446259	8700207	8468174	8538213	1.65	cps
Bromine	81-1	15852	16399	16416	16222	1.98	cps
Bromine	81-2	220	233	203	219	6.87	cps
Cadmium	108-1	37	30	13	27	45.08	cps
Cadmium	106-1	5274	5141	4861	5092	4.14	cps
Cadmium	111-1	1109	1064	1010	1061	4.70	cps
Calcium	43-1	977	933	967	959	2.37	cps
Calcium	44-1	27001	25455	25245	25900	3.70	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	2770	2677	2750	2732	1.80	cps
Cobalt	59-2	503	593	627	574	11.11	cps
Copper	63-2	1533	1570	1593	1566	1.93	cps
Dysprosium	156-1	20	20	13	18	21.66	cps
Dysprosium	156-2	13	13	7	11	34.61	cps
Erbium	164-1	97	67	50	71	33.26	cps
Erbium	164-2	57	47	60	54	12.74	cps
Gadolinium	160-1	80	73	63	72	11.62	cps
Gadolinium	160-2	760	787	840	796	5.12	cps
Holmium	165-1	18430299	18341770	18367162	18379744	0.25	cps
Holmium	165-2	12794952	12973210	12903840	12890667	0.70	cps
Indium	115-1	15442575	15353543	15425628	15407249	0.31	cps
Indium	115-2	5959884	6029545	6018163	6002531	0.62	cps
Iron	56-2	30257	30117	29636	30003	1.09	cps
Iron	57-2	1763	1887	1670	1773	6.13	cps
Iron	54-2	3724	3654	3644	3674	1.19	cps
Krypton	83-1	277	277	327	293	9.84	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S00	Instrumnet Name :	P7
Client Sample ID :	S0	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:12:15	DataFile Name :	004CALB.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	1320	1333	1293	1316	1.55	cps
Lead	207-1	1153	1063	1117	1111	4.07	cps
Lead	208-1	5070	4960	4964	4998	1.25	cps
Lithium	6-1	1906267	1837333	1791895	1845165	3.12	cps
Magnesium	24-2	3394	3450	3520	3455	1.84	cps
Manganese	55-2	1080	1160	1033	1091	5.87	cps
Molybdenum	94-1	460	460	507	476	5.67	cps
Molybdenum	95-1	280	257	283	273	5.32	cps
Molybdenum	96-1	460	423	467	450	5.19	cps
Molybdenum	97-1	227	220	193	213	8.27	cps
Molybdenum	98-1	487	520	443	483	7.95	cps
Neodymium	150-1	7	7	13	9	43.25	cps
Neodymium	150-2	3	7	3	4	43.40	cps
Nickel	60-2	1073	1193	1053	1107	6.84	cps
Phosphorus	31-2	370	397	433	400	7.95	cps
Potassium	39-2	76611	75134	76568	76104	1.10	cps
Rhodium	103-1	14949480	14862878	14675743	14829367	0.94	cps
Rhodium	103-2	9031025	9138874	9129348	9099749	0.66	cps
Scandium	45-1	8545765	8467861	8440870	8484832	0.64	cps
Scandium	45-2	800888	805978	804411	803759	0.32	cps
Selenium	82-1	767	718	647	711	8.43	cps
Selenium	77-2	3	0	0	1	173.21	cps
Selenium	78-2	613	617	580	603	3.36	cps
Silicon	28-1	864535	867218	866005	865919	0.16	cps
Silver	107-1	110	117	107	111	4.58	cps
Silver	109-1	63	60	57	60	5.55	cps
Sodium	23-2	22884	23368	22804	23018	1.33	cps
Strontium	86-1	487	507	523	506	3.63	cps
Strontium	88-1	1033	807	753	864	17.20	cps
Sulfur	34-1	261497	262131	263867	262499	0.47	cps
Terbium	159-1	18932192	18925488	19209941	19022540	0.85	cps
Terbium	159-2	12795324	13015653	13026900	12945959	1.01	cps
Thallium	203-1	577	533	523	544	5.21	cps
Thallium	205-1	1313	1280	1147	1247	7.07	cps
Tin	118-1	3794	3357	3324	3492	7.52	cps
Titanium	47-1	157	133	107	132	18.92	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S00	Instrumnet Name :	P7
Client Sample ID :	S0	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:12:15	DataFile Name :	004CALB.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	153	150	83	129	30.64	cps
Vanadium	51-2	30	40	23	31	26.97	cps
Yttrium	89-1	18300657	18110576	18149603	18186945	0.55	cps
Yttrium	89-2	5198561	5261030	5260965	5240185	0.69	cps
Zinc	66-2	1107	1117	1107	1110	0.52	cps
Zirconium	90-1	923	873	1007	934	7.21	cps
Zirconium	91-1	167	143	207	172	18.60	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S02	Instrumnet Name :	P7
Client Sample ID :	S02	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:15:31	DataFile Name :	005CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	8459	8946	8869	8758	2.99	cps
Antimony	121-1	37542	37586	37489	37539	0.13	cps
Arsenic	75-2	1300	1213	1087	1200	8.94	cps
Barium	135-1	45101	45780	45974	45618	1.00	cps
Barium	137-1	78465	79396	79199	79020	0.62	cps
Beryllium	9-1	2157	2094	2027	2092	3.11	cps
Bismuth	209-1	11364164	11310094	11182703	11285654	0.83	cps
Bismuth	209-2	8704723	8730051	8553461	8662745	1.10	cps
Bromine	81-1	15972	15508	14838	15439	3.69	cps
Bromine	81-2	107	133	73	104	28.79	cps
Cadmium	108-1	287	353	323	321	10.40	cps
Cadmium	106-1	5845	5691	5708	5748	1.46	cps
Cadmium	111-1	6313	5935	6263	6170	3.32	cps
Calcium	43-1	25455	26189	25558	25734	1.55	cps
Calcium	44-1	427737	430532	429386	429218	0.33	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	19907	19349	19136	19464	2.05	cps
Cobalt	59-2	14203	13883	14033	14040	1.14	cps
Copper	63-2	19850	19616	19887	19784	0.74	cps
Dysprosium	156-1	23	17	13	18	28.64	cps
Dysprosium	156-2	10	10	13	11	17.30	cps
Erbium	164-1	90	77	90	86	9.00	cps
Erbium	164-2	43	20	53	39	43.98	cps
Gadolinium	160-1	80	73	70	74	6.84	cps
Gadolinium	160-2	780	810	837	809	3.50	cps
Holmium	165-1	18941854	18514595	18317446	18591298	1.72	cps
Holmium	165-2	12959104	13121920	12931176	13004067	0.79	cps
Indium	115-1	15615611	15334351	15246828	15398930	1.25	cps
Indium	115-2	6053630	6099857	5955496	6036328	1.22	cps
Iron	56-2	424793	423881	423277	423984	0.18	cps
Iron	57-2	12122	12165	12118	12135	0.21	cps
Iron	54-2	25625	26083	24614	25440	2.96	cps
Krypton	83-1	287	283	257	276	5.97	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S02	Instrumnet Name :	P7
Client Sample ID :	S02	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:15:31	DataFile Name :	005CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	14838	14832	14945	14872	0.43	cps
Lead	207-1	13143	13277	13133	13184	0.61	cps
Lead	208-1	59641	59792	59842	59758	0.17	cps
Lithium	6-1	1865436	1840719	1823458	1843204	1.14	cps
Magnesium	24-2	364707	358366	363351	362141	0.92	cps
Manganese	55-2	7769	7605	7642	7672	1.12	cps
Molybdenum	94-1	38838	39440	38881	39053	0.86	cps
Molybdenum	95-1	46333	47433	47387	47051	1.32	cps
Molybdenum	96-1	52541	52654	53688	52961	1.19	cps
Molybdenum	97-1	29216	29590	29704	29503	0.86	cps
Molybdenum	98-1	76552	77303	76636	76831	0.54	cps
Neodymium	150-1	10	3	7	7	50.03	cps
Neodymium	150-2	0	0	20	7	173.21	cps
Nickel	60-2	4474	4454	4537	4488	0.97	cps
Phosphorus	31-2	1120	1147	1097	1121	2.23	cps
Potassium	39-2	550085	547449	542328	546621	0.72	cps
Rhodium	103-1	15077611	15144405	14808716	15010244	1.18	cps
Rhodium	103-2	9217371	9167508	9189808	9191562	0.27	cps
Scandium	45-1	8556205	8439861	8388696	8461588	1.01	cps
Scandium	45-2	808853	810036	801263	806717	0.59	cps
Selenium	82-1	2347	2240	2182	2256	3.71	cps
Selenium	77-2	190	223	137	183	23.85	cps
Selenium	78-2	1217	1143	1150	1170	3.47	cps
Silicon	28-1	1206057	1202941	902358	1103785	15.80	cps
Silver	107-1	24007	24090	24167	24088	0.33	cps
Silver	109-1	22080	22888	23162	22710	2.48	cps
Sodium	23-2	567539	565207	564234	565660	0.30	cps
Strontium	86-1	6545	6718	6391	6552	2.50	cps
Strontium	88-1	52527	52199	53065	52597	0.83	cps
Sulfur	34-1	263969	265698	261383	263683	0.82	cps
Terbium	159-1	19435115	18984767	18844522	19088135	1.62	cps
Terbium	159-2	12926124	13090010	12709663	12908599	1.48	cps
Thallium	203-1	17334	17752	17605	17564	1.21	cps
Thallium	205-1	41423	40858	41172	41151	0.69	cps
Tin	118-1	82293	83932	82032	82752	1.24	cps
Titanium	47-1	12015	11858	11468	11780	2.39	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S02	Instrumnet Name :	P7
Client Sample ID :	S02	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:15:31	DataFile Name :	005CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	50418	52674	51656	51583	2.19	cps
Vanadium	51-2	35458	35990	35505	35651	0.83	cps
Yttrium	89-1	18572233	18251898	18034511	18286214	1.48	cps
Yttrium	89-2	5345132	5237164	5239055	5273784	1.17	cps
Zinc	66-2	8526	8663	8796	8661	1.56	cps
Zirconium	90-1	31988	32593	32289	32290	0.94	cps
Zirconium	91-1	7172	7292	7162	7208	1.00	cps

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S03	Instrumnet Name :	P7
Client Sample ID :	S03	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:18:47	DataFile Name :	006CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	451326	453235	446938	450500	0.72	cps
Antimony	121-1	940036	950777	944319	945044	0.57	cps
Arsenic	75-2	54175	54851	53546	54191	1.20	cps
Barium	135-1	1157360	1162251	1160244	1159952	0.21	cps
Barium	137-1	2001708	2019482	2023677	2014956	0.58	cps
Beryllium	9-1	91530	93026	93975	92844	1.33	cps
Bismuth	209-1	11273964	11108988	11243537	11208830	0.78	cps
Bismuth	209-2	8667969	8569049	8380409	8539143	1.71	cps
Bromine	81-1	14641	14621	14177	14479	1.81	cps
Bromine	81-2	110	97	90	99	10.30	cps
Cadmium	108-1	18802	19156	19056	19005	0.96	cps
Cadmium	106-1	31785	31163	31304	31417	1.04	cps
Cadmium	111-1	242192	244007	242741	242980	0.38	cps
Calcium	43-1	257338	259892	256385	257872	0.70	cps
Calcium	44-1	3975148	3963571	3928829	3955849	0.61	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	405955	403488	401537	403660	0.55	cps
Cobalt	59-2	646352	642156	634566	641025	0.93	cps
Copper	63-2	4748354	4663307	4643095	4684919	1.19	cps
Dysprosium	156-1	47	60	40	49	20.83	cps
Dysprosium	156-2	83	67	77	76	11.10	cps
Erbium	164-1	73	93	90	86	12.53	cps
Erbium	164-2	60	27	83	57	50.25	cps
Gadolinium	160-1	117	93	83	98	17.50	cps
Gadolinium	160-2	943	847	720	837	13.39	cps
Holmium	165-1	18624265	18173653	18400217	18399378	1.22	cps
Holmium	165-2	12963431	12812547	12703850	12826609	1.02	cps
Indium	115-1	15351618	14991507	15039181	15127435	1.29	cps
Indium	115-2	5845134	5776739	5794198	5805357	0.61	cps
Iron	56-2	18959831	18701223	18657230	18772762	0.87	cps
Iron	57-2	489385	491354	484230	488323	0.75	cps
Iron	54-2	1095960	1089134	1080504	1088533	0.71	cps
Krypton	83-1	277	260	307	281	8.41	cps

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S03	Instrumnet Name :	P7
Client Sample ID :	S03	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:18:47	DataFile Name :	006CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	3498594	3500391	3474112	3491032	0.42	cps
Lead	207-1	3123308	3128429	3147339	3133026	0.40	cps
Lead	208-1	14084790	14041198	14147717	14091235	0.38	cps
Lithium	6-1	1864450	1850565	1851326	1855447	0.42	cps
Magnesium	24-2	3724047	3665853	3689602	3693167	0.79	cps
Manganese	55-2	3239568	3207639	3192209	3213139	0.75	cps
Molybdenum	94-1	3372081	3349799	3338486	3353456	0.51	cps
Molybdenum	95-1	4808006	4835640	4752625	4798757	0.88	cps
Molybdenum	96-1	5276737	5249395	5263328	5263153	0.26	cps
Molybdenum	97-1	3038518	3060986	2979320	3026274	1.39	cps
Molybdenum	98-1	7671687	7729567	7647348	7682868	0.55	cps
Neodymium	150-1	80	63	67	70	12.60	cps
Neodymium	150-2	10	23	30	21	48.24	cps
Nickel	60-2	167766	167460	166553	167260	0.38	cps
Phosphorus	31-2	22563	22460	23158	22727	1.66	cps
Potassium	39-2	2389873	2379589	2331836	2367099	1.31	cps
Rhodium	103-1	14869791	14587983	14399374	14619050	1.62	cps
Rhodium	103-2	8892946	8833750	8820538	8849078	0.44	cps
Scandium	45-1	8518101	8386412	8261884	8388799	1.53	cps
Scandium	45-2	797577	784331	780484	787464	1.14	cps
Selenium	82-1	16003	15887	15856	15915	0.48	cps
Selenium	77-2	1707	1777	1750	1745	2.03	cps
Selenium	78-2	6338	6491	6361	6397	1.29	cps
Silicon	28-1	3485945	3489638	3440749	3472110	0.78	cps
Silver	107-1	1273314	1276226	1272842	1274127	0.14	cps
Silver	109-1	1207826	1216964	1218815	1214535	0.48	cps
Sodium	23-2	5796795	5729396	5789396	5771862	0.64	cps
Strontium	86-1	298480	298355	296406	297747	0.39	cps
Strontium	88-1	2633776	2604587	2603094	2613819	0.66	cps
Sulfur	34-1	320876	320856	317715	319816	0.57	cps
Terbium	159-1	19247363	18886469	18711919	18948584	1.44	cps
Terbium	159-2	12967584	12675939	12819527	12821017	1.14	cps
Thallium	203-1	866959	877848	874781	873196	0.64	cps
Thallium	205-1	2044729	2052186	2043195	2046703	0.23	cps
Tin	118-1	796006	805156	798342	799835	0.59	cps
Titanium	47-1	1150934	1156839	1152041	1153271	0.27	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S03	Instrumnet Name :	P7
Client Sample ID :	S03	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:18:47	DataFile Name :	006CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	2719459	2730879	2750465	2733601	0.57	cps
Vanadium	51-2	350649	348152	348761	349187	0.37	cps
Yttrium	89-1	18267304	17973591	18035391	18092095	0.86	cps
Yttrium	89-2	5200159	5148237	5110074	5152823	0.88	cps
Zinc	66-2	804140	799605	795275	799674	0.55	cps
Zirconium	90-1	1623167	1625776	1624140	1624361	0.08	cps
Zirconium	91-1	364256	366781	362029	364355	0.65	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S04	Instrumnet Name :	P7
Client Sample ID :	S04	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:21:42	DataFile Name :	007CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	1069801	1041365	1047806	1052991	1.42	cps
Antimony	121-1	2239430	2261211	2249949	2250197	0.48	cps
Arsenic	75-2	127855	127404	126887	127382	0.38	cps
Barium	135-1	2780627	2817311	2774731	2790890	0.83	cps
Barium	137-1	4749246	4846751	4807801	4801266	1.02	cps
Beryllium	9-1	218651	222630	223084	221455	1.10	cps
Bismuth	209-1	11515300	11312259	11348450	11392003	0.95	cps
Bismuth	209-2	8604159	8605658	8623681	8611166	0.13	cps
Bromine	81-1	13683	13753	13406	13614	1.35	cps
Bromine	81-2	100	83	90	91	9.21	cps
Cadmium	108-1	44368	45575	44351	44764	1.57	cps
Cadmium	106-1	66334	67928	66796	67019	1.22	cps
Cadmium	111-1	561839	576352	574513	570901	1.38	cps
Calcium	43-1	588720	598503	595073	594099	0.84	cps
Calcium	44-1	9086075	9227814	9243565	9185818	0.94	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	945601	944935	950065	946867	0.29	cps
Cobalt	59-2	1508863	1482133	1484235	1491744	1.00	cps
Copper	63-2	11176137	11068021	10870450	11038203	1.40	cps
Dysprosium	156-1	67	100	70	79	23.27	cps
Dysprosium	156-2	150	183	93	142	32.00	cps
Erbium	164-1	127	77	100	101	24.74	cps
Erbium	164-2	80	57	47	61	27.99	cps
Gadolinium	160-1	110	87	117	104	15.08	cps
Gadolinium	160-2	803	830	793	809	2.34	cps
Holmium	165-1	18845815	18399512	18099556	18448294	2.04	cps
Holmium	165-2	13083089	12945130	12722875	12917031	1.41	cps
Indium	115-1	15239909	14781122	14710907	14910646	1.93	cps
Indium	115-2	5671304	5730927	5701295	5701175	0.52	cps
Iron	56-2	43947691	44388204	44489588	44275161	0.65	cps
Iron	57-2	1150435	1161927	1155348	1155903	0.50	cps
Iron	54-2	2438826	2489045	2467898	2465256	1.02	cps
Krypton	83-1	260	263	293	272	6.74	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S04	Instrumnet Name :	P7
Client Sample ID :	S04	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:21:42	DataFile Name :	007CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	8431845	8562484	8560291	8518207	0.88	cps
Lead	207-1	7574338	7733658	7681629	7663208	1.06	cps
Lead	208-1	33998547	34674911	34685215	34452891	1.14	cps
Lithium	6-1	1884978	1799309	1818016	1834101	2.46	cps
Magnesium	24-2	8707558	8608308	8711019	8675628	0.67	cps
Manganese	55-2	7545192	7551754	7541555	7546167	0.07	cps
Molybdenum	94-1	7771301	7850016	7814087	7811801	0.50	cps
Molybdenum	95-1	11089605	11285580	11255734	11210306	0.94	cps
Molybdenum	96-1	12232536	12379621	12356857	12323005	0.64	cps
Molybdenum	97-1	6983257	7079891	7022695	7028614	0.69	cps
Molybdenum	98-1	17924136	18255463	18200819	18126806	0.98	cps
Neodymium	150-1	137	160	153	150	8.01	cps
Neodymium	150-2	47	33	43	41	16.89	cps
Nickel	60-2	390224	386228	387560	388004	0.52	cps
Phosphorus	31-2	51406	50935	52195	51512	1.24	cps
Potassium	39-2	5319788	5254639	5368971	5314466	1.08	cps
Rhodium	103-1	14556613	14024332	13987821	14189589	2.24	cps
Rhodium	103-2	8655282	8708794	8597348	8653808	0.64	cps
Scandium	45-1	8292294	8053369	7944957	8096873	2.19	cps
Scandium	45-2	752021	753194	760469	755228	0.61	cps
Selenium	82-1	35707	36764	36097	36189	1.48	cps
Selenium	77-2	4174	3997	4114	4095	2.19	cps
Selenium	78-2	14591	14040	14344	14325	1.93	cps
Silicon	28-1	6417291	6498710	6584928	6500310	1.29	cps
Silver	107-1	2942565	3017462	2963145	2974391	1.30	cps
Silver	109-1	2778117	2847029	2820030	2815058	1.23	cps
Sodium	23-2	13603319	13469205	13385762	13486095	0.81	cps
Strontium	86-1	695530	704528	696301	698786	0.71	cps
Strontium	88-1	6027643	6091673	6052336	6057217	0.53	cps
Sulfur	34-1	394129	394023	391145	393099	0.43	cps
Terbium	159-1	19376512	18698888	18668075	18914491	2.12	cps
Terbium	159-2	12901226	12826193	12770294	12832571	0.51	cps
Thallium	203-1	2099285	2146257	2166021	2137188	1.60	cps
Thallium	205-1	4985739	5062414	5119474	5055876	1.33	cps
Tin	118-1	1848260	1875586	1900012	1874620	1.38	cps
Titanium	47-1	2659716	2719208	2704827	2694584	1.15	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S04	Instrumnet Name :	P7
Client Sample ID :	S04	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:21:42	DataFile Name :	007CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	6668743	6745305	6727213	6713754	0.60	cps
Vanadium	51-2	813822	810775	817938	814178	0.44	cps
Yttrium	89-1	17913078	17417725	17209695	17513499	2.06	cps
Yttrium	89-2	4984434	5000508	5011561	4998834	0.27	cps
Zinc	66-2	1869588	1853475	1832577	1851880	1.00	cps
Zirconium	90-1	3744157	3789461	3826377	3786665	1.09	cps
Zirconium	91-1	846489	861690	859373	855851	0.96	cps

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On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S05	Instrumnet Name :	P7
Client Sample ID :	S05	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:24:30	DataFile Name :	008CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	2047739	2089818	2073327	2070295	1.02	cps
Antimony	121-1	4322438	4265058	4294895	4294130	0.67	cps
Arsenic	75-2	244072	242978	239909	242320	0.89	cps
Barium	135-1	5313309	5328583	5325046	5322313	0.15	cps
Barium	137-1	9347352	9309323	9146999	9267891	1.15	cps
Beryllium	9-1	442505	444522	446326	444451	0.43	cps
Bismuth	209-1	11170674	11194629	11128842	11164715	0.30	cps
Bismuth	209-2	8627823	8459349	8544304	8543825	0.99	cps
Bromine	81-1	13183	12986	12329	12832	3.49	cps
Bromine	81-2	80	63	110	84	28.01	cps
Cadmium	108-1	85597	84484	84900	84994	0.66	cps
Cadmium	106-1	124582	125466	124293	124780	0.49	cps
Cadmium	111-1	1095332	1084962	1086115	1088803	0.52	cps
Calcium	43-1	1131388	1123183	1120662	1125078	0.50	cps
Calcium	44-1	17567816	17304261	17025510	17299196	1.57	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	1830351	1796217	1784608	1803725	1.32	cps
Cobalt	59-2	2869630	2824047	2875505	2856394	0.99	cps
Copper	63-2	21003185	20945791	20793557	20914178	0.52	cps
Dysprosium	156-1	143	93	87	108	28.74	cps
Dysprosium	156-2	310	287	290	296	4.27	cps
Erbium	164-1	173	203	180	186	8.49	cps
Erbium	164-2	67	83	140	97	39.77	cps
Gadolinium	160-1	123	120	103	116	9.27	cps
Gadolinium	160-2	757	830	773	787	4.89	cps
Holmium	165-1	18110098	18025419	17922441	18019319	0.52	cps
Holmium	165-2	12871014	12719577	12731281	12773957	0.66	cps
Indium	115-1	14305678	14126285	14065936	14165967	0.88	cps
Indium	115-2	5567026	5515743	5426466	5503078	1.29	cps
Iron	56-2	84292054	84537097	82932049	83920400	1.03	cps
Iron	57-2	2101678	2107796	2125216	2111563	0.58	cps
Iron	54-2	4668185	4715832	4561268	4648428	1.70	cps
Krypton	83-1	223	207	237	222	6.76	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S05	Instrumnet Name :	P7
Client Sample ID :	S05	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:24:30	DataFile Name :	008CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	16986079	16833630	16779549	16866419	0.63	cps
Lead	207-1	15139232	15091253	14915521	15048669	0.78	cps
Lead	208-1	68246296	68144318	67708120	68032911	0.42	cps
Lithium	6-1	1813291	1775406	1828119	1805605	1.51	cps
Magnesium	24-2	16991842	16913594	16879149	16928195	0.34	cps
Manganese	55-2	14436744	14452871	14128953	14339523	1.27	cps
Molybdenum	94-1	14963361	15098932	14937439	14999911	0.58	cps
Molybdenum	95-1	21802273	21658123	21357825	21606074	1.05	cps
Molybdenum	96-1	23788619	23783237	23609810	23727222	0.43	cps
Molybdenum	97-1	13576039	13526048	13365014	13489034	0.82	cps
Molybdenum	98-1	34931220	34888953	34291412	34703862	1.03	cps
Neodymium	150-1	313	307	307	309	1.25	cps
Neodymium	150-2	83	80	90	84	6.03	cps
Nickel	60-2	736247	736030	729168	733815	0.55	cps
Phosphorus	31-2	99766	99178	99591	99512	0.30	cps
Potassium	39-2	10474711	10331076	10163470	10323086	1.51	cps
Rhodium	103-1	13485104	13290074	13127151	13300777	1.35	cps
Rhodium	103-2	8421495	8274450	8238027	8311324	1.17	cps
Scandium	45-1	7640391	7585148	7531810	7585783	0.72	cps
Scandium	45-2	735287	728185	728251	730574	0.56	cps
Selenium	82-1	68927	67834	67753	68171	0.96	cps
Selenium	77-2	7966	7802	7832	7867	1.11	cps
Selenium	78-2	27155	26594	26070	26606	2.04	cps
Silicon	28-1	11523981	11384194	11500850	11469675	0.65	cps
Silver	107-1	5650708	5517974	5551195	5573292	1.24	cps
Silver	109-1	5347188	5339408	5316049	5334215	0.30	cps
Sodium	23-2	26362354	26400510	26484918	26415927	0.24	cps
Strontium	86-1	1339056	1328870	1324329	1330751	0.57	cps
Strontium	88-1	11555492	11524458	11574515	11551488	0.22	cps
Sulfur	34-1	520294	517553	512276	516708	0.79	cps
Terbium	159-1	18468756	18378026	18221783	18356188	0.68	cps
Terbium	159-2	12787099	12784170	12745584	12772284	0.18	cps
Thallium	203-1	4183112	4206850	4228527	4206163	0.54	cps
Thallium	205-1	9950775	9899645	9924623	9925014	0.26	cps
Tin	118-1	3613289	3562435	3608377	3594700	0.78	cps
Titanium	47-1	5091030	5069792	5098681	5086501	0.29	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S05	Instrumnet Name :	P7
Client Sample ID :	S05	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:24:30	DataFile Name :	008CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	13471634	13496696	13444804	13471045	0.19	cps
Vanadium	51-2	1556000	1550892	1550554	1552482	0.20	cps
Yttrium	89-1	16604809	16440632	16510144	16518528	0.50	cps
Yttrium	89-2	4840862	4850008	4829451	4840107	0.21	cps
Zinc	66-2	3526011	3533048	3509908	3522989	0.34	cps
Zirconium	90-1	7283361	7260251	7236177	7259930	0.32	cps
Zirconium	91-1	1635283	1621706	1615214	1624067	0.63	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S06	Instrumnet Name :	P7
Client Sample ID :	S06	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:27:14	DataFile Name :	009CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	4161170	4144012	4125805	4143662	0.43	cps
Antimony	121-1	8375826	8560500	8423279	8453201	1.13	cps
Arsenic	75-2	478834	482181	485869	482295	0.73	cps
Barium	135-1	10485336	10490697	10470485	10482173	0.10	cps
Barium	137-1	18278761	18401397	18305201	18328453	0.35	cps
Beryllium	9-1	864727	874332	874099	871053	0.63	cps
Bismuth	209-1	11208906	10999933	10996519	11068453	1.10	cps
Bismuth	209-2	8530318	8511879	8563347	8535181	0.31	cps
Bromine	81-1	12615	12228	12459	12434	1.57	cps
Bromine	81-2	87	73	87	82	9.37	cps
Cadmium	108-1	162647	165248	167198	165031	1.38	cps
Cadmium	106-1	235391	237495	237480	236789	0.51	cps
Cadmium	111-1	2071550	2108677	2088529	2089585	0.89	cps
Calcium	43-1	2089877	2112651	2070884	2091137	1.00	cps
Calcium	44-1	33560840	34349693	33860922	33923818	1.17	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	3559472	3561168	3545487	3555376	0.24	cps
Cobalt	59-2	5618770	5668796	5531108	5606225	1.24	cps
Copper	63-2	41330146	41324446	41204065	41286219	0.17	cps
Dysprosium	156-1	200	200	183	194	4.95	cps
Dysprosium	156-2	700	550	617	622	12.08	cps
Erbium	164-1	183	183	187	184	1.04	cps
Erbium	164-2	183	117	153	151	22.10	cps
Gadolinium	160-1	137	207	147	163	23.18	cps
Gadolinium	160-2	850	920	883	884	3.96	cps
Holmium	165-1	18427573	18001705	17908735	18112671	1.53	cps
Holmium	165-2	12887407	12971151	12846346	12901635	0.49	cps
Indium	115-1	13843741	13742920	13711318	13765993	0.50	cps
Indium	115-2	5444034	5428537	5396505	5423025	0.45	cps
Iron	56-2	167429578	165434611	166874301	166579496	0.62	cps
Iron	57-2	4215240	4233181	4169545	4205988	0.78	cps
Iron	54-2	9153799	9176238	9243708	9191248	0.51	cps
Krypton	83-1	253	247	280	260	6.79	cps

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On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S06	Instrumnet Name :	P7
Client Sample ID :	S06	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:27:14	DataFile Name :	009CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	33385218	33382293	33421898	33396470	0.07	cps
Lead	207-1	29465074	29850540	29800231	29705282	0.71	cps
Lead	208-1	134009481	135385321	135474208	134956337	0.61	cps
Lithium	6-1	1822012	1765656	1795077	1794249	1.57	cps
Magnesium	24-2	33787135	33678204	33620061	33695133	0.25	cps
Manganese	55-2	28516078	28420228	28521665	28485990	0.20	cps
Molybdenum	94-1	29429219	29901568	29762095	29697627	0.82	cps
Molybdenum	95-1	42172633	42599507	42847603	42539914	0.80	cps
Molybdenum	96-1	46582409	46927901	46835613	46781974	0.38	cps
Molybdenum	97-1	26604180	26973991	26536185	26704785	0.88	cps
Molybdenum	98-1	68099766	68887476	69179591	68722277	0.81	cps
Neodymium	150-1	493	530	580	534	8.14	cps
Neodymium	150-2	140	117	140	132	10.19	cps
Nickel	60-2	1429336	1434168	1428192	1430566	0.22	cps
Phosphorus	31-2	198538	196823	198511	197957	0.50	cps
Potassium	39-2	20229951	20416358	20213282	20286531	0.56	cps
Rhodium	103-1	13154943	13022969	12865608	13014506	1.11	cps
Rhodium	103-2	8261151	8275854	8195375	8244126	0.52	cps
Scandium	45-1	7494505	7395902	7404521	7431643	0.73	cps
Scandium	45-2	728086	723226	727127	726146	0.35	cps
Selenium	82-1	130862	132302	131551	131571	0.55	cps
Selenium	77-2	15839	15461	15094	15465	2.41	cps
Selenium	78-2	52225	52710	52342	52426	0.48	cps
Silicon	28-1	20995180	21269539	21203639	21156119	0.68	cps
Silver	107-1	10771752	10873624	10816820	10820732	0.47	cps
Silver	109-1	10311156	10456224	10540622	10436001	1.11	cps
Sodium	23-2	52724648	53257943	52818738	52933776	0.54	cps
Strontium	86-1	2568823	2616715	2625925	2603821	1.18	cps
Strontium	88-1	22563398	22709659	22974721	22749259	0.92	cps
Sulfur	34-1	781760	787493	790598	786617	0.57	cps
Terbium	159-1	18619780	18306110	18439201	18455030	0.85	cps
Terbium	159-2	12810195	12942536	12751235	12834655	0.76	cps
Thallium	203-1	8319725	8410368	8354250	8361448	0.55	cps
Thallium	205-1	19793338	19826636	19793716	19804563	0.10	cps
Tin	118-1	6984815	7032839	7069085	7028913	0.60	cps
Titanium	47-1	10001715	9957129	10099134	10019326	0.72	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S06	Instrumnet Name :	P7
Client Sample ID :	S06	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:27:14	DataFile Name :	009CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	27255005	27141312	27413247	27269855	0.50	cps
Vanadium	51-2	3133184	3110839	3135836	3126620	0.44	cps
Yttrium	89-1	16691422	16157629	16226408	16358486	1.78	cps
Yttrium	89-2	4862332	4799765	4760396	4807498	1.07	cps
Zinc	66-2	6869867	6900215	6895277	6888453	0.24	cps
Zirconium	90-1	14213899	14329563	14321591	14288351	0.45	cps
Zirconium	91-1	3179728	3222027	3181254	3194336	0.75	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S07	Instrumnet Name :	P7
Client Sample ID :	S07	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:29:59	DataFile Name :	010CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	8283448	8241709	8236452	8253870	0.31	cps
Antimony	121-1	17009336	17166394	17225341	17133690	0.65	cps
Arsenic	75-2	971385	967322	969929	969545	0.21	cps
Barium	135-1	21317301	21680550	21375818	21457889	0.91	cps
Barium	137-1	36577732	37439803	37267584	37095040	1.23	cps
Beryllium	9-1	1791661	1785133	1778748	1785181	0.36	cps
Bismuth	209-1	10764174	10922242	10800220	10828879	0.76	cps
Bismuth	209-2	8381867	8418912	8284674	8361818	0.83	cps
Bromine	81-1	13116	12592	12902	12870	2.05	cps
Bromine	81-2	103	113	150	122	20.10	cps
Cadmium	108-1	326769	330864	330993	329542	0.73	cps
Cadmium	106-1	467634	471768	469809	469737	0.44	cps
Cadmium	111-1	4168795	4218202	4153563	4180187	0.81	cps
Calcium	43-1	4250805	4314144	4244713	4269888	0.90	cps
Calcium	44-1	67903557	69288531	69157367	68783152	1.11	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	7140151	7151366	7194428	7161982	0.40	cps
Cobalt	59-2	11226562	11236634	11214122	11225773	0.10	cps
Copper	63-2	82595177	82405659	81453747	82151528	0.74	cps
Dysprosium	156-1	363	370	430	388	9.47	cps
Dysprosium	156-2	1197	1173	1307	1226	5.81	cps
Erbium	164-1	310	327	337	324	4.15	cps
Erbium	164-2	227	237	237	233	2.47	cps
Gadolinium	160-1	287	290	253	277	7.33	cps
Gadolinium	160-2	770	947	850	856	10.34	cps
Holmium	165-1	18133945	18141361	18052565	18109290	0.27	cps
Holmium	165-2	13027406	12936743	12824919	12929689	0.78	cps
Indium	115-1	13463348	13709601	13481600	13551516	1.01	cps
Indium	115-2	5352099	5285798	5315022	5317639	0.62	cps
Iron	56-2	335939668	336539468	334338602	335605913	0.34	cps
Iron	57-2	8325212	8492721	8386686	8401539	1.01	cps
Iron	54-2	18287744	18496938	18504211	18429631	0.67	cps
Krypton	83-1	353	277	200	277	27.71	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S07	Instrumnet Name :	P7
Client Sample ID :	S07	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:29:59	DataFile Name :	010CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	66946217	68112767	67656604	67571863	0.87	cps
Lead	207-1	59721122	60572354	60555016	60282831	0.81	cps
Lead	208-1	270036211	275945976	273728201	273236796	1.09	cps
Lithium	6-1	1793341	1804816	1756217	1784792	1.42	cps
Magnesium	24-2	66895096	67022476	66883239	66933603	0.12	cps
Manganese	55-2	57250462	57542681	57745057	57512734	0.43	cps
Molybdenum	94-1	60580634	60337439	59908656	60275576	0.56	cps
Molybdenum	95-1	86330342	86771985	86543615	86548648	0.26	cps
Molybdenum	96-1	94680452	95849759	95098759	95209656	0.62	cps
Molybdenum	97-1	53927978	54514031	54311081	54251030	0.55	cps
Molybdenum	98-1	137894301	139324585	140632835	139283907	0.98	cps
Neodymium	150-1	1127	1067	1077	1090	2.95	cps
Neodymium	150-2	293	313	333	313	6.38	cps
Nickel	60-2	2896397	2861637	2912518	2890184	0.90	cps
Phosphorus	31-2	395803	394648	393179	394543	0.33	cps
Potassium	39-2	40714279	40682601	40706990	40701290	0.04	cps
Rhodium	103-1	12631241	12722634	12792305	12715393	0.64	cps
Rhodium	103-2	8097579	8073735	8043207	8071507	0.34	cps
Scandium	45-1	7370873	7429130	7311706	7370570	0.80	cps
Scandium	45-2	737577	731676	730419	733224	0.52	cps
Selenium	82-1	260788	263310	259585	261228	0.73	cps
Selenium	77-2	30732	30718	31283	30911	1.04	cps
Selenium	78-2	104062	104132	102696	103630	0.78	cps
Silicon	28-1	40380428	40143010	39622154	40048531	0.97	cps
Silver	107-1	21551796	21849931	21763776	21721834	0.71	cps
Silver	109-1	20704825	20856324	20674869	20745339	0.47	cps
Sodium	23-2	105269528	106479498	106223332	105990786	0.60	cps
Strontium	86-1	5250088	5377830	5381353	5336424	1.40	cps
Strontium	88-1	46315088	47228129	46933596	46825604	1.00	cps
Sulfur	34-1	1426062	1463211	1449765	1446346	1.30	cps
Terbium	159-1	18445210	18165001	18498462	18369558	0.98	cps
Terbium	159-2	12696162	12780602	12643906	12706890	0.54	cps
Thallium	203-1	16795206	17089207	16816446	16900287	0.97	cps
Thallium	205-1	40147764	40622423	40024679	40264955	0.78	cps
Tin	118-1	14098911	14343650	14263799	14235453	0.88	cps
Titanium	47-1	20004961	20077826	20204687	20095825	0.50	cps

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On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S07	Instrumnet Name :	P7
Client Sample ID :	S07	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:29:59	DataFile Name :	010CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	55361339	55277684	55803463	55480829	0.51	cps
Vanadium	51-2	6353342	6342690	6359349	6351793	0.13	cps
Yttrium	89-1	16261701	16558544	16242123	16354123	1.08	cps
Yttrium	89-2	4768433	4773780	4784816	4775676	0.17	cps
Zinc	66-2	13742211	13701334	13791294	13744946	0.33	cps
Zirconium	90-1	28908627	29584735	29025575	29172979	1.24	cps
Zirconium	91-1	6493600	6577458	6502632	6524563	0.71	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S08	Instrumnet Name :	P7
Client Sample ID :	S08	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:32:43	DataFile Name :	011CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	42136896	41606585	41681949	41808477	0.69	cps
Antimony	121-1	8759	9283	8559	8867	4.21	cps
Arsenic	75-2	533	677	627	612	11.88	cps
Barium	135-1	9990	10190	9720	9967	2.37	cps
Barium	137-1	18292	17628	17441	17787	2.51	cps
Beryllium	9-1	523	527	457	502	7.86	cps
Bismuth	209-1	10220503	9978750	9806760	10002004	2.08	cps
Bismuth	209-2	7682229	7661751	7613508	7652496	0.46	cps
Bromine	81-1	14407	14437	15298	14714	3.44	cps
Bromine	81-2	157	147	157	153	3.77	cps
Cadmium	108-1	183	170	167	173	5.09	cps
Cadmium	106-1	4918	4918	4944	4926	0.31	cps
Cadmium	111-1	2209	2125	1996	2110	5.09	cps
Calcium	43-1	21043290	21039305	21021499	21034698	0.06	cps
Calcium	44-1	342435182	344476395	343774782	343562119	0.30	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	12922	14291	12449	13221	7.24	cps
Cobalt	59-2	31139	30982	30899	31006	0.39	cps
Copper	63-2	20344	19817	19349	19837	2.51	cps
Dysprosium	156-1	713	727	763	734	3.53	cps
Dysprosium	156-2	660	627	603	630	4.52	cps
Erbium	164-1	773	830	833	812	4.15	cps
Erbium	164-2	580	520	573	558	5.90	cps
Gadolinium	160-1	683	757	740	727	5.29	cps
Gadolinium	160-2	1130	1163	1287	1193	6.92	cps
Holmium	165-1	18180078	17961273	17802630	17981327	1.05	cps
Holmium	165-2	12763136	12852103	12735494	12783578	0.48	cps
Indium	115-1	13430905	13482309	13575941	13496385	0.54	cps
Indium	115-2	5353700	5477041	5415907	5415549	1.14	cps
Iron	56-2	1641048616	1659697682	1643906749	1648217682	0.61	cps
Iron	57-2	41092757	41576409	41584795	41417987	0.68	cps
Iron	54-2	89903042	89428259	90043692	89791664	0.36	cps
Krypton	83-1	320	303	380	334	12.06	cps

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S08	Instrumnet Name :	P7
Client Sample ID :	S08	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:32:43	DataFile Name :	011CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	14755	14992	14474	14740	1.76	cps
Lead	207-1	12930	12799	12573	12767	1.42	cps
Lead	208-1	59278	58857	57150	58428	1.93	cps
Lithium	6-1	1747110	1732143	1730825	1736693	0.52	cps
Magnesium	24-2	337525368	336674948	334097255	336099191	0.53	cps
Manganese	55-2	34944	34239	34456	34546	1.04	cps
Molybdenum	94-1	18879	18118	18478	18492	2.06	cps
Molybdenum	95-1	20061	19974	19450	19828	1.67	cps
Molybdenum	96-1	35500	34945	33495	34647	2.99	cps
Molybdenum	97-1	12569	12392	12185	12382	1.55	cps
Molybdenum	98-1	31414	30616	29633	30554	2.92	cps
Neodymium	150-1	330	393	320	348	11.43	cps
Neodymium	150-2	270	200	233	234	14.94	cps
Nickel	60-2	9253	9246	9300	9266	0.31	cps
Phosphorus	31-2	580	560	543	561	3.27	cps
Potassium	39-2	206796150	207683317	206476777	206985415	0.30	cps
Rhodium	103-1	12148088	12201881	12078364	12142777	0.51	cps
Rhodium	103-2	7797279	7791524	7734503	7774435	0.45	cps
Scandium	45-1	7513536	7537808	7601866	7551070	0.60	cps
Scandium	45-2	759912	759855	750762	756843	0.70	cps
Selenium	82-1	918	909	774	867	9.29	cps
Selenium	77-2	7	10	7	8	24.71	cps
Selenium	78-2	610	603	553	589	5.26	cps
Silicon	28-1	844940	839077	831892	838637	0.78	cps
Silver	107-1	7092	6405	5831	6443	9.80	cps
Silver	109-1	6408	5945	5114	5822	11.26	cps
Sodium	23-2	523849086	518077059	519844046	520590063	0.57	cps
Strontium	86-1	18976	18762	18635	18791	0.92	cps
Strontium	88-1	159319	161643	161984	160982	0.90	cps
Sulfur	34-1	200571	209063	218367	209334	4.25	cps
Terbium	159-1	18387903	18235884	18170052	18264613	0.61	cps
Terbium	159-2	12653707	12673818	12574074	12633866	0.42	cps
Thallium	203-1	3350	2960	2407	2906	16.32	cps
Thallium	205-1	8042	6895	5915	6951	15.32	cps
Tin	118-1	7359	7229	7035	7207	2.26	cps
Titanium	47-1	3544	3667	3500	3570	2.42	cps

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	S08	Instrumnet Name :	P7
Client Sample ID :	S08	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:32:43	DataFile Name :	011CALS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	7969	7526	7099	7531	5.78	cps
Vanadium	51-2	2237	2187	2177	2200	1.46	cps
Yttrium	89-1	16583633	16620801	16446371	16550268	0.56	cps
Yttrium	89-2	4943484	5004290	4949206	4965660	0.68	cps
Zinc	66-2	5188	5014	5151	5118	1.79	cps
Zirconium	90-1	18572	19239	18335	18715	2.51	cps
Zirconium	91-1	4007	3787	3844	3879	2.95	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICV001	Instrumnet Name :	P7
Client Sample ID :	ICV001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:47:27	DataFile Name :	012ICV.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	233159	232837	231199	232398	0.45	cps
Antimony	121-1	3553340	3513028	3516307	3527559	0.63	cps
Arsenic	75-2	205523	203641	202400	203854	0.77	cps
Barium	135-1	438682	443277	439130	440363	0.58	cps
Barium	137-1	760108	761663	764205	761992	0.27	cps
Beryllium	9-1	186278	189180	187757	187739	0.77	cps
Bismuth	209-1	11709310	11408702	11417484	11511832	1.49	cps
Bismuth	209-2	8934737	8801103	8732112	8822651	1.17	cps
Bromine	81-1	13306	13229	13269	13268	0.29	cps
Bromine	81-2	113	103	93	103	9.68	cps
Cadmium	108-1	53003	54308	53006	53439	1.41	cps
Cadmium	106-1	82110	80732	81872	81572	0.90	cps
Cadmium	111-1	461329	468114	460432	463292	0.91	cps
Calcium	43-1	105399	103769	103423	104197	1.01	cps
Calcium	44-1	1554389	1558134	1528039	1546854	1.06	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	773091	765742	759620	766151	0.88	cps
Cobalt	59-2	1219156	1213407	1208514	1213692	0.44	cps
Copper	63-2	857432	847237	838452	847707	1.12	cps
Dysprosium	156-1	23	23	37	28	27.73	cps
Dysprosium	156-2	33	27	37	32	15.80	cps
Erbium	164-1	70	50	60	60	16.67	cps
Erbium	164-2	77	33	70	60	38.89	cps
Gadolinium	160-1	60	90	73	74	20.19	cps
Gadolinium	160-2	873	833	760	822	6.99	cps
Holmium	165-1	18472523	17953552	18251107	18225727	1.43	cps
Holmium	165-2	13179186	13112027	12863159	13051457	1.28	cps
Indium	115-1	14830596	14455847	14338573	14541672	1.77	cps
Indium	115-2	5721397	5601449	5697417	5673421	1.12	cps
Iron	56-2	13994145	13698751	13687327	13793408	1.26	cps
Iron	57-2	363420	358359	360169	360649	0.71	cps
Iron	54-2	821913	810218	809607	813912	0.85	cps
Krypton	83-1	293	300	307	300	2.22	cps

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On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICV001	Instrumnet Name :	P7
Client Sample ID :	ICV001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:47:27	DataFile Name :	012ICV.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	3001144	2992266	3028759	3007389	0.63	cps
Lead	207-1	2582300	2606222	2589519	2592680	0.47	cps
Lead	208-1	11869027	11884447	11943697	11899057	0.33	cps
Lithium	6-1	1936438	1944270	1906353	1929020	1.04	cps
Magnesium	24-2	786764	781394	784047	784068	0.34	cps
Manganese	55-2	606297	599778	598112	601396	0.72	cps
Molybdenum	94-1	31601060	31654373	31445474	31566969	0.34	cps
Molybdenum	95-1	46016746	45916304	45392461	45775170	0.73	cps
Molybdenum	96-1	50161361	50277781	49709043	50049395	0.60	cps
Molybdenum	97-1	28630832	28567499	28320614	28506315	0.57	cps
Molybdenum	98-1	73766296	73915436	71952512	73211414	1.49	cps
Neodymium	150-1	33	43	33	37	15.75	cps
Neodymium	150-2	7	7	3	6	34.70	cps
Nickel	60-2	317420	315029	314189	315546	0.53	cps
Phosphorus	31-2	383	370	387	380	2.32	cps
Potassium	39-2	1754982	1695345	1679656	1709994	2.32	cps
Rhodium	103-1	14432622	13963837	13861234	14085898	2.16	cps
Rhodium	103-2	8833100	8686161	8695828	8738363	0.94	cps
Scandium	45-1	8217235	7986957	7828753	8010982	2.44	cps
Scandium	45-2	771250	762283	759653	764396	0.80	cps
Selenium	82-1	58726	58763	58516	58668	0.23	cps
Selenium	77-2	6471	6775	6518	6588	2.48	cps
Selenium	78-2	23752	23085	22440	23093	2.84	cps
Silicon	28-1	4648922	4796467	4818651	4754680	1.94	cps
Silver	107-1	1156687	1163975	1163486	1161382	0.35	cps
Silver	109-1	1092209	1106950	1095515	1098225	0.70	cps
Sodium	23-2	2203209	2207446	2157556	2189404	1.26	cps
Strontium	86-1	2813067	2788039	2727766	2776290	1.58	cps
Strontium	88-1	24328129	24284480	23865625	24159411	1.06	cps
Sulfur	34-1	240121	236695	233947	236921	1.31	cps
Terbium	159-1	19170453	18591295	18743013	18834921	1.59	cps
Terbium	159-2	13001814	13136408	12911572	13016598	0.87	cps
Thallium	203-1	3728566	3739603	3723985	3730718	0.22	cps
Thallium	205-1	8753406	8852879	8910946	8839077	0.90	cps
Tin	118-1	7356991	7375013	7272282	7334762	0.75	cps
Titanium	47-1	10964984	10938532	10799685	10901067	0.81	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICV001	Instrumnet Name :	P7
Client Sample ID :	ICV001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:47:27	DataFile Name :	012ICV.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	28811650	28939896	28799479	28850342	0.27	cps
Vanadium	51-2	646852	640090	636450	641131	0.82	cps
Yttrium	89-1	17629700	17233626	16862984	17242103	2.22	cps
Yttrium	89-2	5066401	4961497	4910651	4979516	1.59	cps
Zinc	66-2	300853	298807	298646	299436	0.41	cps
Zirconium	90-1	14872842	14739662	14525741	14712749	1.19	cps
Zirconium	91-1	3360060	3337866	3323049	3340325	0.56	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICB001	Instrumnet Name :	P7
Client Sample ID :	ICB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:58:15	DataFile Name :	015CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	217	200	220	212	5.05	cps
Antimony	121-1	177	187	190	184	3.76	cps
Arsenic	75-2	47	60	50	52	13.28	cps
Barium	135-1	160	140	130	143	10.66	cps
Barium	137-1	220	290	203	238	19.34	cps
Beryllium	9-1	133	197	207	179	22.23	cps
Bismuth	209-1	11819093	11421917	11542584	11594531	1.76	cps
Bismuth	209-2	9062856	8904997	8942188	8970014	0.92	cps
Bromine	81-1	13903	13693	13460	13685	1.62	cps
Bromine	81-2	210	187	240	212	12.60	cps
Cadmium	108-1	23	20	30	24	20.83	cps
Cadmium	106-1	4684	4654	4667	4669	0.32	cps
Cadmium	111-1	1004	980	976	987	1.53	cps
Calcium	43-1	763	817	797	792	3.40	cps
Calcium	44-1	25272	24153	23692	24372	3.33	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	2670	2550	2720	2647	3.30	cps
Cobalt	59-2	370	320	333	341	7.59	cps
Copper	63-2	1477	1377	1490	1448	4.28	cps
Dysprosium	156-1	7	7	13	9	43.25	cps
Dysprosium	156-2	7	17	7	10	57.72	cps
Erbium	164-1	73	100	97	90	16.15	cps
Erbium	164-2	43	47	53	48	10.66	cps
Gadolinium	160-1	57	63	73	64	13.01	cps
Gadolinium	160-2	837	783	703	774	8.67	cps
Holmium	165-1	18635207	18457311	18421740	18504753	0.62	cps
Holmium	165-2	13324313	13055143	13146169	13175208	1.04	cps
Indium	115-1	15335893	14829722	14998329	15054648	1.71	cps
Indium	115-2	5969610	5828301	5851013	5882975	1.29	cps
Iron	56-2	26988	27094	26610	26897	0.95	cps
Iron	57-2	1510	1640	1580	1577	4.13	cps
Iron	54-2	3404	3384	3460	3416	1.16	cps
Krypton	83-1	233	280	263	259	9.13	cps

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICB001	Instrumnet Name :	P7
Client Sample ID :	ICB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:58:15	DataFile Name :	015CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	1680	1587	1607	1625	3.03	cps
Lead	207-1	1257	1413	1433	1368	7.07	cps
Lead	208-1	6734	6394	6477	6535	2.71	cps
Lithium	6-1	1928584	1924063	1902678	1918442	0.72	cps
Magnesium	24-2	2304	2377	2440	2374	2.88	cps
Manganese	55-2	1110	947	957	1004	9.11	cps
Molybdenum	94-1	647	657	627	643	2.37	cps
Molybdenum	95-1	407	427	407	413	2.79	cps
Molybdenum	96-1	510	550	523	528	3.86	cps
Molybdenum	97-1	237	290	310	279	13.59	cps
Molybdenum	98-1	693	713	660	689	3.91	cps
Neodymium	150-1	0	3	20	8	137.80	cps
Neodymium	150-2	0	10	7	6	91.64	cps
Nickel	60-2	903	897	983	928	5.20	cps
Phosphorus	31-2	310	383	350	348	10.56	cps
Potassium	39-2	69263	69571	70368	69734	0.82	cps
Rhodium	103-1	14494942	14232907	14172816	14300222	1.20	cps
Rhodium	103-2	9111346	9031499	8934124	9025657	0.98	cps
Scandium	45-1	8167597	8041976	7989984	8066519	1.13	cps
Scandium	45-2	782302	783173	778878	781451	0.29	cps
Selenium	82-1	905	697	694	765	15.85	cps
Selenium	77-2	3	3	3	3	0.00	cps
Selenium	78-2	537	530	553	540	2.23	cps
Silicon	28-1	738541	736299	738838	737893	0.19	cps
Silver	107-1	300	327	233	287	16.77	cps
Silver	109-1	263	217	210	230	12.64	cps
Sodium	23-2	30520	29689	30520	30243	1.59	cps
Strontium	86-1	493	527	580	533	8.20	cps
Strontium	88-1	793	833	820	816	2.50	cps
Sulfur	34-1	238462	236869	238936	238089	0.45	cps
Terbium	159-1	19175917	18865796	18665521	18902411	1.36	cps
Terbium	159-2	13273630	13310245	13072848	13218908	0.97	cps
Thallium	203-1	507	450	437	464	8.00	cps
Thallium	205-1	1187	1033	1083	1101	7.10	cps
Tin	118-1	3174	3047	3137	3119	2.09	cps
Titanium	47-1	153	127	147	142	9.76	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICB001	Instrumnet Name :	P7
Client Sample ID :	ICB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 13:58:15	DataFile Name :	015CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	57	53	70	60	14.70	cps
Vanadium	51-2	20	20	30	23	24.74	cps
Yttrium	89-1	17512016	17367955	17567165	17482378	0.59	cps
Yttrium	89-2	5111003	5093951	5054484	5086479	0.57	cps
Zinc	66-2	960	1027	970	986	3.65	cps
Zirconium	90-1	1017	1003	1007	1009	0.69	cps
Zirconium	91-1	213	140	190	181	20.69	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICSA001	Instrumnet Name :	P7
Client Sample ID :	ICSA001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:26:39	DataFile Name :	021ICSA.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	37633070	36972465	37890626	37498721	1.26	cps
Antimony	121-1	20378	20551	21252	20727	2.23	cps
Arsenic	75-2	393	427	397	406	4.53	cps
Barium	135-1	6685	6875	6642	6734	1.84	cps
Barium	137-1	11358	11635	11501	11498	1.20	cps
Beryllium	9-1	643	540	547	577	10.03	cps
Bismuth	209-1	11898865	11941031	11928918	11922938	0.18	cps
Bismuth	209-2	8612463	8526010	8673879	8604118	0.86	cps
Bromine	81-1	18291	18982	18555	18610	1.87	cps
Bromine	81-2	503	507	460	490	5.31	cps
Cadmium	108-1	3010	3147	2870	3009	4.60	cps
Cadmium	106-1	4541	4371	4634	4515	2.96	cps
Cadmium	111-1	2601	2632	2738	2657	2.70	cps
Calcium	43-1	4209552	4284224	4223209	4238995	0.94	cps
Calcium	44-1	68692782	69924876	69338167	69318608	0.89	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	150849	151438	151886	151391	0.34	cps
Cobalt	59-2	15098	14861	15295	15084	1.44	cps
Copper	63-2	62125	63327	64297	63250	1.72	cps
Dysprosium	156-1	57	87	63	69	22.87	cps
Dysprosium	156-2	67	53	77	66	17.86	cps
Erbium	164-1	160	183	123	156	19.44	cps
Erbium	164-2	83	73	77	78	6.55	cps
Gadolinium	160-1	150	137	180	156	14.27	cps
Gadolinium	160-2	783	773	783	780	0.74	cps
Holmium	165-1	20264045	20215625	20152145	20210605	0.28	cps
Holmium	165-2	13656504	13621771	13596284	13624853	0.22	cps
Indium	115-1	15920534	15860448	15655429	15812137	0.88	cps
Indium	115-2	5844022	5856706	5760431	5820386	0.90	cps
Iron	56-2	681821963	685014230	678721670	681852621	0.46	cps
Iron	57-2	17027794	17075620	17120640	17074685	0.27	cps
Iron	54-2	37176692	37120065	36991917	37096225	0.26	cps
Krypton	83-1	337	340	280	319	10.57	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICSA001	Instrumnet Name :	P7
Client Sample ID :	ICSA001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:26:39	DataFile Name :	021ICSA.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	98782	83581	79661	87342	11.56	cps
Lead	207-1	80735	67721	64060	70839	12.37	cps
Lead	208-1	377007	320492	297376	331625	12.35	cps
Lithium	6-1	1631035	1611407	1607196	1616546	0.79	cps
Magnesium	24-2	62048379	62327871	63608094	62661448	1.33	cps
Manganese	55-2	47495	47829	47558	47627	0.37	cps
Molybdenum	94-1	10059959	10137139	10218138	10138412	0.78	cps
Molybdenum	95-1	17644376	17952114	17827222	17807904	0.87	cps
Molybdenum	96-1	19044977	19188106	19028893	19087325	0.46	cps
Molybdenum	97-1	11028322	11169745	11056042	11084703	0.68	cps
Molybdenum	98-1	28333399	28676970	28812762	28607710	0.86	cps
Neodymium	150-1	83	97	107	96	12.25	cps
Neodymium	150-2	40	20	63	41	52.75	cps
Nickel	60-2	17650	17147	17053	17283	1.86	cps
Phosphorus	31-2	1954470	1922274	1911936	1929560	1.15	cps
Potassium	39-2	81166012	80298482	80956280	80806925	0.56	cps
Rhodium	103-1	14640320	14452501	14137691	14410170	1.76	cps
Rhodium	103-2	8836399	8805835	8742428	8794887	0.55	cps
Scandium	45-1	8102264	8064650	8080893	8082602	0.23	cps
Scandium	45-2	789159	788608	787953	788573	0.08	cps
Selenium	82-1	691	613	687	663	6.58	cps
Selenium	77-2	0	3	27	10	145.32	cps
Selenium	78-2	583	643	467	564	15.92	cps
Silicon	28-1	798063	806467	802748	802426	0.52	cps
Silver	107-1	667	663	680	670	1.32	cps
Silver	109-1	587	617	577	593	3.51	cps
Sodium	23-2	103622162	103524205	103510842	103552403	0.06	cps
Strontium	86-1	195274	195799	195347	195473	0.15	cps
Strontium	88-1	1670892	1734013	1716620	1707175	1.91	cps
Sulfur	34-1	5882241	5990494	5931949	5934895	0.91	cps
Terbium	159-1	20824049	20760396	20897129	20827191	0.33	cps
Terbium	159-2	13629341	13582268	13326562	13512724	1.21	cps
Thallium	203-1	2104	2054	1850	2002	6.70	cps
Thallium	205-1	5088	4734	4494	4772	6.26	cps
Tin	118-1	6965	6552	6105	6540	6.58	cps
Titanium	47-1	4061611	4111639	4046891	4073380	0.83	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICSA001	Instrumnet Name :	P7
Client Sample ID :	ICSA001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:26:39	DataFile Name :	021ICSA.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	997	900	963	953	5.15	cps
Vanadium	51-2	1277	1280	1423	1327	6.31	cps
Yttrium	89-1	18638582	18702828	18680869	18674093	0.17	cps
Yttrium	89-2	5183694	5225997	5218156	5209282	0.43	cps
Zinc	66-2	17113	16266	16946	16775	2.68	cps
Zirconium	90-1	3494	3604	3244	3447	5.35	cps
Zirconium	91-1	747	760	700	736	4.28	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICSAB001	Instrumnet Name :	P7
Client Sample ID :	ICSAB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:29:42	DataFile Name :	022ICSB.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	39093520	39142804	39052868	39096397	0.12	cps
Antimony	121-1	406066	411126	412012	409735	0.78	cps
Arsenic	75-2	21566	20821	21262	21216	1.76	cps
Barium	135-1	101015	102270	103842	102375	1.38	cps
Barium	137-1	175354	178785	179515	177885	1.25	cps
Beryllium	9-1	30016	30523	29194	29911	2.24	cps
Bismuth	209-1	11991146	12078057	12039825	12036343	0.36	cps
Bismuth	209-2	8824163	8748199	8685472	8752611	0.79	cps
Bromine	81-1	18528	18896	18695	18706	0.98	cps
Bromine	81-2	643	683	613	647	5.43	cps
Cadmium	108-1	9183	9120	9610	9304	2.87	cps
Cadmium	106-1	13803	14060	14030	13965	1.01	cps
Cadmium	111-1	95708	97716	97424	96949	1.12	cps
Calcium	43-1	4406877	4474714	4458248	4446613	0.80	cps
Calcium	44-1	72069802	72272416	72135402	72159207	0.14	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	309243	311595	309849	310229	0.39	cps
Cobalt	59-2	254791	259571	256171	256845	0.96	cps
Copper	63-2	229974	231645	231347	230989	0.39	cps
Dysprosium	156-1	87	93	87	89	4.33	cps
Dysprosium	156-2	37	67	50	51	29.41	cps
Erbium	164-1	173	143	143	153	11.30	cps
Erbium	164-2	97	113	113	108	8.93	cps
Gadolinium	160-1	150	187	113	150	24.45	cps
Gadolinium	160-2	873	823	840	846	3.01	cps
Holmium	165-1	21021743	20636479	20716772	20791665	0.98	cps
Holmium	165-2	13949579	13814136	13747435	13837050	0.74	cps
Indium	115-1	15858574	16020048	16189342	16022655	1.03	cps
Indium	115-2	5859422	5844908	5903869	5869399	0.52	cps
Iron	56-2	714702736	709187403	705696603	709862247	0.64	cps
Iron	57-2	17551802	17732544	17782763	17689036	0.69	cps
Iron	54-2	38605513	38652763	38235411	38497896	0.59	cps
Krypton	83-1	327	267	257	283	13.36	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICSAB001	Instrumnet Name :	P7
Client Sample ID :	ICSAB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:29:42	DataFile Name :	022ICSB.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	385773	380004	379908	381895	0.88	cps
Lead	207-1	323131	320275	323077	322161	0.51	cps
Lead	208-1	1489406	1472428	1472685	1478173	0.66	cps
Lithium	6-1	1585672	1595036	1534984	1571897	2.06	cps
Magnesium	24-2	65317079	65189989	65897672	65468247	0.58	cps
Manganese	55-2	168414	168316	167680	168137	0.24	cps
Molybdenum	94-1	10546185	10708234	10735757	10663392	0.96	cps
Molybdenum	95-1	18341065	18719101	18785168	18615112	1.29	cps
Molybdenum	96-1	19804721	20147387	20154133	20035414	1.00	cps
Molybdenum	97-1	11649254	11680568	11715050	11681624	0.28	cps
Molybdenum	98-1	29754397	30137690	30147615	30013234	0.75	cps
Neodymium	150-1	100	97	93	97	3.45	cps
Neodymium	150-2	60	53	57	57	5.89	cps
Nickel	60-2	79405	78166	77569	78380	1.19	cps
Phosphorus	31-2	2038553	1991116	2034450	2021373	1.30	cps
Potassium	39-2	84259807	84278490	85232119	84590139	0.66	cps
Rhodium	103-1	14673216	14561929	14519786	14584977	0.54	cps
Rhodium	103-2	8858856	8928422	8892595	8893291	0.39	cps
Scandium	45-1	8047932	8112060	8020492	8060161	0.58	cps
Scandium	45-2	793365	789379	789844	790862	0.28	cps
Selenium	82-1	6635	6558	6426	6540	1.62	cps
Selenium	77-2	707	593	633	644	8.92	cps
Selenium	78-2	2870	2774	2777	2807	1.96	cps
Silicon	28-1	820123	828939	831068	826710	0.70	cps
Silver	107-1	456762	467910	471478	465383	1.65	cps
Silver	109-1	437567	445187	449034	443929	1.31	cps
Sodium	23-2	106527498	106743188	106627645	106632777	0.10	cps
Strontium	86-1	205260	205763	205871	205631	0.16	cps
Strontium	88-1	1759160	1784432	1810538	1784710	1.44	cps
Sulfur	34-1	6019062	6031795	6107613	6052823	0.79	cps
Terbium	159-1	21298939	21382909	21053148	21244999	0.81	cps
Terbium	159-2	13734812	13638767	13517881	13630487	0.80	cps
Thallium	203-1	369761	373248	373720	372243	0.58	cps
Thallium	205-1	879606	881639	887398	882881	0.46	cps
Tin	118-1	5881	5991	5718	5863	2.35	cps
Titanium	47-1	4205487	4315672	4213903	4245021	1.44	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	ICSAB001	Instrumnet Name :	P7
Client Sample ID :	ICSAB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:29:42	DataFile Name :	022ICSB.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	930	1070	1103	1034	8.89	cps
Vanadium	51-2	133894	132895	132482	133090	0.55	cps
Yttrium	89-1	19062401	18869972	18850622	18927665	0.62	cps
Yttrium	89-2	5270648	5264438	5295851	5276979	0.32	cps
Zinc	66-2	46693	46736	47044	46824	0.41	cps
Zirconium	90-1	1457	1513	1500	1490	1.99	cps
Zirconium	91-1	327	360	390	359	8.83	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCV001	Instrumnet Name :	P7
Client Sample ID :	CCV001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:32:44	DataFile Name :	023CCV.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	22033476	22046016	22065626	22048373	0.07	cps
Antimony	121-1	10411009	10626996	10529831	10522612	1.03	cps
Arsenic	75-2	573687	570067	573313	572356	0.35	cps
Barium	135-1	12437612	12642608	12538396	12539539	0.82	cps
Barium	137-1	21802818	21882487	21690517	21791941	0.44	cps
Beryllium	9-1	747557	762635	763754	757982	1.19	cps
Bismuth	209-1	12140971	11929292	11735304	11935189	1.70	cps
Bismuth	209-2	8417892	8427361	8314560	8386605	0.75	cps
Bromine	81-1	16690	16686	17043	16806	1.22	cps
Bromine	81-2	187	173	123	161	20.72	cps
Cadmium	108-1	197579	198235	197590	197801	0.19	cps
Cadmium	106-1	282482	283021	282315	282606	0.13	cps
Cadmium	111-1	2506650	2537361	2548276	2530762	0.85	cps
Calcium	43-1	11614084	11738789	11632792	11661889	0.58	cps
Calcium	44-1	188935404	190909510	188945277	189596731	0.60	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	3982569	4036408	4014022	4011000	0.67	cps
Cobalt	59-2	6583420	6625103	6626206	6611576	0.37	cps
Copper	63-2	46735208	46562729	46932171	46743369	0.40	cps
Dysprosium	156-1	587	620	517	574	9.18	cps
Dysprosium	156-2	840	947	987	924	8.20	cps
Erbium	164-1	677	533	587	599	12.10	cps
Erbium	164-2	477	360	383	407	15.18	cps
Gadolinium	160-1	480	537	490	502	6.02	cps
Gadolinium	160-2	1100	997	1150	1082	7.23	cps
Holmium	165-1	21452203	21087833	20645458	21061831	1.92	cps
Holmium	165-2	13601298	13724635	13600459	13642131	0.52	cps
Indium	115-1	16051501	15949574	15674829	15891968	1.23	cps
Indium	115-2	5755030	5708639	5672544	5712071	0.72	cps
Iron	56-2	900102893	896614840	909601106	902106280	0.75	cps
Iron	57-2	22611086	22628691	22438303	22559360	0.47	cps
Iron	54-2	48511671	48733886	48942884	48729480	0.44	cps
Krypton	83-1	300	320	390	337	14.04	cps

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On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCV001	Instrumnet Name :	P7
Client Sample ID :	CCV001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:32:44	DataFile Name :	023CCV.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	38392561	38140497	37879546	38137535	0.67	cps
Lead	207-1	34046166	33731470	33417011	33731549	0.93	cps
Lead	208-1	153798061	153030558	152379879	153069499	0.46	cps
Lithium	6-1	1563623	1570533	1590086	1574747	0.87	cps
Magnesium	24-2	178551157	176397877	176990877	177313304	0.63	cps
Manganese	55-2	31809135	31904164	32034120	31915806	0.35	cps
Molybdenum	94-1	35444886	36039622	35799446	35761318	0.84	cps
Molybdenum	95-1	51082811	51417118	51501576	51333835	0.43	cps
Molybdenum	96-1	56430189	56460644	56678859	56523231	0.24	cps
Molybdenum	97-1	32143607	32264615	32249710	32219310	0.20	cps
Molybdenum	98-1	82873745	83147579	82868012	82963112	0.19	cps
Neodymium	150-1	780	857	707	781	9.60	cps
Neodymium	150-2	323	240	263	276	15.60	cps
Nickel	60-2	1644311	1679605	1685456	1669790	1.33	cps
Phosphorus	31-2	210332	213187	213292	212270	0.79	cps
Potassium	39-2	110556872	110835288	111046535	110812898	0.22	cps
Rhodium	103-1	14618494	14523102	14299456	14480350	1.13	cps
Rhodium	103-2	8723743	8669862	8665072	8686225	0.38	cps
Scandium	45-1	8359113	8195317	8229722	8261384	1.05	cps
Scandium	45-2	804206	801743	796706	800885	0.48	cps
Selenium	82-1	156609	157540	156376	156841	0.39	cps
Selenium	77-2	16946	17120	17013	17027	0.51	cps
Selenium	78-2	58518	57772	58595	58295	0.78	cps
Silicon	28-1	22608219	22870688	22786654	22755187	0.59	cps
Silver	107-1	13070216	13006963	12980191	13019123	0.36	cps
Silver	109-1	12480117	12492443	12562371	12511644	0.35	cps
Sodium	23-2	273596729	273418943	271937616	272984429	0.33	cps
Strontium	86-1	3147376	3146470	3116560	3136802	0.56	cps
Strontium	88-1	27665867	27384131	27497327	27515775	0.52	cps
Sulfur	34-1	803222	816862	810198	810094	0.84	cps
Terbium	159-1	21579899	21108540	21177282	21288574	1.20	cps
Terbium	159-2	13609926	13499630	13416579	13508712	0.72	cps
Thallium	203-1	9647171	9525439	9488708	9553773	0.87	cps
Thallium	205-1	22955699	22672681	22566795	22731725	0.88	cps
Tin	118-1	8285621	8443424	8387548	8372198	0.96	cps
Titanium	47-1	11162641	11265756	11313814	11247403	0.69	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCV001	Instrumnet Name :	P7
Client Sample ID :	CCV001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:32:44	DataFile Name :	023CCV.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	31301303	31379037	31398443	31359594	0.16	cps
Vanadium	51-2	3532685	3532377	3585681	3550248	0.86	cps
Yttrium	89-1	19395321	19201017	19066281	19220873	0.86	cps
Yttrium	89-2	5361010	5285108	5331129	5325749	0.72	cps
Zinc	66-2	7837351	7754583	7751778	7781237	0.62	cps
Zirconium	90-1	17317209	17554883	17315474	17395856	0.79	cps
Zirconium	91-1	3866474	3885727	3903614	3885271	0.48	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCB001	Instrumnet Name :	P7
Client Sample ID :	CCB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:36:30	DataFile Name :	024CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	3374	3714	3104	3397	9.00	cps
Antimony	121-1	2470	2244	2107	2274	8.07	cps
Arsenic	75-2	60	77	77	71	13.53	cps
Barium	135-1	923	880	817	873	6.14	cps
Barium	137-1	1713	1510	1513	1579	7.38	cps
Beryllium	9-1	290	240	290	273	10.56	cps
Bismuth	209-1	12937364	12808037	12688660	12811354	0.97	cps
Bismuth	209-2	9289894	9386212	9354557	9343554	0.53	cps
Bromine	81-1	16680	16733	16730	16714	0.18	cps
Bromine	81-2	263	240	233	246	6.41	cps
Cadmium	108-1	27	23	43	31	34.44	cps
Cadmium	106-1	4858	4784	4824	4822	0.76	cps
Cadmium	111-1	1346	1197	1211	1252	6.58	cps
Calcium	43-1	1867	1810	1683	1787	5.25	cps
Calcium	44-1	41517	39117	38533	39722	3.98	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	3140	2954	3247	3114	4.77	cps
Cobalt	59-2	677	777	650	701	9.52	cps
Copper	63-2	4434	4868	3887	4396	11.17	cps
Dysprosium	156-1	17	17	7	13	43.29	cps
Dysprosium	156-2	13	13	3	10	57.75	cps
Erbium	164-1	60	70	87	72	18.66	cps
Erbium	164-2	50	33	50	44	21.66	cps
Gadolinium	160-1	57	70	87	71	21.14	cps
Gadolinium	160-2	713	740	773	742	4.05	cps
Holmium	165-1	20794492	20616978	20519394	20643621	0.68	cps
Holmium	165-2	13777097	13649260	13707460	13711272	0.47	cps
Indium	115-1	16610555	16598781	16643450	16617595	0.14	cps
Indium	115-2	6122617	6079662	6093151	6098477	0.36	cps
Iron	56-2	122401	128568	107545	119504	9.04	cps
Iron	57-2	3744	4007	3367	3706	8.68	cps
Iron	54-2	8709	8643	7966	8439	4.88	cps
Krypton	83-1	310	307	330	316	4.00	cps

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCB001	Instrumnet Name :	P7
Client Sample ID :	CCB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:36:30	DataFile Name :	024CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	12416	12159	11405	11993	4.38	cps
Lead	207-1	10651	10294	10181	10375	2.37	cps
Lead	208-1	48758	47082	46064	47301	2.88	cps
Lithium	6-1	1718151	1688548	1688762	1698487	1.00	cps
Magnesium	24-2	14307	14941	12472	13906	9.22	cps
Manganese	55-2	2650	2737	2480	2622	4.98	cps
Molybdenum	94-1	3981	3514	3597	3697	6.73	cps
Molybdenum	95-1	5581	4764	4597	4981	10.57	cps
Molybdenum	96-1	5945	5101	5191	5412	8.56	cps
Molybdenum	97-1	3467	2867	2947	3094	10.53	cps
Molybdenum	98-1	8623	7515	7769	7969	7.28	cps
Neodymium	150-1	10	3	3	6	69.34	cps
Neodymium	150-2	7	0	0	2	173.21	cps
Nickel	60-2	1090	980	1053	1041	5.38	cps
Phosphorus	31-2	507	467	467	480	4.81	cps
Potassium	39-2	89411	88297	87781	88496	0.94	cps
Rhodium	103-1	15659035	15654421	15596715	15636724	0.22	cps
Rhodium	103-2	9628924	9621924	9455615	9568821	1.03	cps
Scandium	45-1	8429897	8183013	8343571	8318827	1.51	cps
Scandium	45-2	806233	804889	800667	803930	0.36	cps
Selenium	82-1	816	758	680	751	9.09	cps
Selenium	77-2	0	0	7	2	173.21	cps
Selenium	78-2	653	647	553	618	9.05	cps
Silicon	28-1	738819	742914	737317	739684	0.39	cps
Silver	107-1	2637	2124	2194	2318	12.01	cps
Silver	109-1	2437	2024	1833	2098	14.71	cps
Sodium	23-2	67386	68033	64200	66540	3.08	cps
Strontium	86-1	787	970	793	850	12.23	cps
Strontium	88-1	2890	2790	2537	2739	6.65	cps
Sulfur	34-1	218499	220453	219416	219456	0.45	cps
Terbium	159-1	21421778	20921784	21202219	21181927	1.18	cps
Terbium	159-2	13704581	13739262	13703248	13715697	0.15	cps
Thallium	203-1	3687	3424	3420	3510	4.36	cps
Thallium	205-1	8416	8012	8376	8268	2.69	cps
Tin	118-1	4614	4394	4397	4469	2.82	cps
Titanium	47-1	1137	1033	1083	1084	4.77	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCB001	Instrumnet Name :	P7
Client Sample ID :	CCB001	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:36:30	DataFile Name :	024CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	2327	1910	1977	2071	10.81	cps
Vanadium	51-2	177	203	197	192	7.22	cps
Yttrium	89-1	19057592	19083300	19221818	19120903	0.46	cps
Yttrium	89-2	5412362	5395555	5342605	5383507	0.68	cps
Zinc	66-2	1570	1697	1670	1646	4.06	cps
Zirconium	90-1	2667	2464	2440	2524	4.94	cps
Zirconium	91-1	677	517	500	564	17.28	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165237BL	Instrumnet Name :	P7
Client Sample ID :	PBW237	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:47:40	DataFile Name :	026CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	2140	1767	1587	1831	15.41	cps
Antimony	121-1	307	327	330	321	3.93	cps
Arsenic	75-2	43	83	30	52	53.16	cps
Barium	135-1	237	173	177	196	18.23	cps
Barium	137-1	377	353	390	373	4.97	cps
Beryllium	9-1	200	163	150	171	15.13	cps
Bismuth	209-1	13024191	12905334	12880796	12936774	0.59	cps
Bismuth	209-2	9477410	9434121	9463861	9458464	0.23	cps
Bromine	81-1	16162	16516	16596	16425	1.41	cps
Bromine	81-2	90	90	107	96	10.07	cps
Cadmium	108-1	13	20	13	16	24.76	cps
Cadmium	106-1	5108	5048	5214	5123	1.65	cps
Cadmium	111-1	1096	1056	1107	1086	2.48	cps
Calcium	43-1	787	707	743	746	5.37	cps
Calcium	44-1	24460	22878	22731	23356	4.11	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	2497	2790	2590	2626	5.71	cps
Cobalt	59-2	553	470	493	506	8.50	cps
Copper	63-2	2530	2197	2164	2297	8.83	cps
Dysprosium	156-1	23	23	7	18	54.11	cps
Dysprosium	156-2	7	13	20	13	49.99	cps
Erbium	164-1	113	80	100	98	17.16	cps
Erbium	164-2	47	53	53	51	7.52	cps
Gadolinium	160-1	110	67	63	80	32.54	cps
Gadolinium	160-2	777	803	787	789	1.71	cps
Holmium	165-1	20925874	20755432	20640253	20773853	0.69	cps
Holmium	165-2	13843417	13850661	13992528	13895535	0.61	cps
Indium	115-1	16930634	16768227	16814563	16837808	0.50	cps
Indium	115-2	6269516	6261692	6238345	6256518	0.26	cps
Iron	56-2	70712	65877	61810	66133	6.74	cps
Iron	57-2	2604	2530	2540	2558	1.56	cps
Iron	54-2	5821	5828	4944	5531	9.19	cps
Krypton	83-1	257	287	297	280	7.43	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165237BL	Instrumnet Name :	P7
Client Sample ID :	PBW237	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:47:40	DataFile Name :	026CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	4254	4231	3957	4147	3.98	cps
Lead	207-1	3634	3651	3300	3528	5.60	cps
Lead	208-1	16634	15954	15660	16083	3.11	cps
Lithium	6-1	1724547	1738507	1718386	1727147	0.60	cps
Magnesium	24-2	7262	6238	6065	6521	9.92	cps
Manganese	55-2	1460	1430	1320	1403	5.25	cps
Molybdenum	94-1	1330	1100	1057	1162	12.64	cps
Molybdenum	95-1	1497	1157	1103	1252	17.04	cps
Molybdenum	96-1	1533	1373	1483	1463	5.59	cps
Molybdenum	97-1	877	793	753	808	7.79	cps
Molybdenum	98-1	2354	1910	2024	2096	10.99	cps
Neodymium	150-1	3	13	13	10	57.75	cps
Neodymium	150-2	7	20	7	11	69.25	cps
Nickel	60-2	960	940	907	936	2.88	cps
Phosphorus	31-2	457	443	413	438	5.07	cps
Potassium	39-2	82485	81513	80501	81500	1.22	cps
Rhodium	103-1	16021339	15980969	15905490	15969266	0.37	cps
Rhodium	103-2	9899292	9801251	9762950	9821165	0.72	cps
Scandium	45-1	8747665	8509987	8550614	8602755	1.48	cps
Scandium	45-2	825625	827793	833480	828966	0.49	cps
Selenium	82-1	889	794	721	801	10.54	cps
Selenium	77-2	0	3	0	1	173.21	cps
Selenium	78-2	557	550	643	583	8.93	cps
Silicon	28-1	757525	760352	763567	760481	0.40	cps
Silver	107-1	593	507	497	532	9.99	cps
Silver	109-1	527	363	443	444	18.38	cps
Sodium	23-2	45681	43759	43922	44454	2.40	cps
Strontium	86-1	617	500	580	566	10.55	cps
Strontium	88-1	807	727	713	749	6.74	cps
Sulfur	34-1	235669	236573	237237	236493	0.33	cps
Terbium	159-1	21440705	21094213	21120838	21218586	0.91	cps
Terbium	159-2	14171133	13728916	13809957	13903335	1.69	cps
Thallium	203-1	3477	3664	3527	3556	2.72	cps
Thallium	205-1	8743	8363	8343	8483	2.66	cps
Tin	118-1	3954	3901	3727	3861	3.07	cps
Titanium	47-1	360	380	340	360	5.56	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165237BL	Instrumnet Name :	P7
Client Sample ID :	PBW237	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:47:40	DataFile Name :	026CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	517	437	360	438	17.89	cps
Vanadium	51-2	73	100	60	78	26.19	cps
Yttrium	89-1	19666831	19435064	19334449	19478781	0.88	cps
Yttrium	89-2	5569366	5479070	5505430	5517955	0.84	cps
Zinc	66-2	940	840	907	896	5.69	cps
Zirconium	90-1	1343	1447	1110	1300	13.27	cps
Zirconium	91-1	293	223	283	267	14.20	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165237BS	Instrumnet Name :	P7
Client Sample ID :	LCS237	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:50:57	DataFile Name :	027LCSE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	20053	19719	19783	19852	0.89	cps
Antimony	121-1	84191	84181	83105	83826	0.74	cps
Arsenic	75-2	2517	2380	2250	2382	5.60	cps
Barium	135-1	99662	99646	99595	99634	0.03	cps
Barium	137-1	173633	174639	175016	174429	0.41	cps
Beryllium	9-1	3617	3794	3737	3716	2.43	cps
Bismuth	209-1	13019987	12761710	12901129	12894276	1.00	cps
Bismuth	209-2	9567068	9494330	9466484	9509294	0.55	cps
Bromine	81-1	16917	16469	17010	16799	1.72	cps
Bromine	81-2	127	93	140	120	20.03	cps
Cadmium	108-1	707	693	687	696	1.46	cps
Cadmium	106-1	6471	6175	6205	6284	2.60	cps
Cadmium	111-1	9999	10530	10007	10179	2.99	cps
Calcium	43-1	50430	50256	50591	50426	0.33	cps
Calcium	44-1	831372	836597	833845	833938	0.31	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	38399	36828	37654	37627	2.09	cps
Cobalt	59-2	27442	27839	28243	27841	1.44	cps
Copper	63-2	43496	43456	43155	43369	0.43	cps
Dysprosium	156-1	10	23	23	19	40.75	cps
Dysprosium	156-2	27	17	10	18	47.19	cps
Erbium	164-1	73	60	70	68	10.24	cps
Erbium	164-2	70	60	53	61	13.73	cps
Gadolinium	160-1	130	63	87	93	36.25	cps
Gadolinium	160-2	707	800	787	764	6.60	cps
Holmium	165-1	21064100	20939638	20807684	20937140	0.61	cps
Holmium	165-2	14292617	13971844	13814441	14026301	1.74	cps
Indium	115-1	17005074	16951677	17036486	16997746	0.25	cps
Indium	115-2	6334611	6305905	6257349	6299288	0.62	cps
Iron	56-2	3260346	3232852	3229908	3241035	0.52	cps
Iron	57-2	86112	85602	84436	85383	1.01	cps
Iron	54-2	187177	185103	184995	185759	0.66	cps
Krypton	83-1	287	263	323	291	10.39	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165237BS	Instrumnet Name :	P7
Client Sample ID :	LCS237	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:50:57	DataFile Name :	027LCSE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	36165	36379	35289	35944	1.61	cps
Lead	207-1	31563	31009	31206	31259	0.90	cps
Lead	208-1	143615	144028	142449	143364	0.57	cps
Lithium	6-1	1759485	1739439	1768174	1755700	0.84	cps
Magnesium	24-2	751233	746933	750618	749595	0.31	cps
Manganese	55-2	14931	15131	14671	14911	1.55	cps
Molybdenum	94-1	86557	87184	86382	86708	0.49	cps
Molybdenum	95-1	106403	105530	104812	105582	0.75	cps
Molybdenum	96-1	118116	115710	118014	117280	1.16	cps
Molybdenum	97-1	65687	67036	65677	66133	1.18	cps
Molybdenum	98-1	170134	170279	167427	169280	0.95	cps
Neodymium	150-1	17	33	10	20	60.08	cps
Neodymium	150-2	7	10	3	7	50.03	cps
Nickel	60-2	8216	8229	7782	8076	3.15	cps
Phosphorus	31-2	387	490	370	416	15.64	cps
Potassium	39-2	1066391	1059665	1064733	1063596	0.33	cps
Rhodium	103-1	16097397	16233143	16064588	16131709	0.55	cps
Rhodium	103-2	9904188	9879923	9740019	9841376	0.90	cps
Scandium	45-1	8634852	8569883	8608814	8604516	0.38	cps
Scandium	45-2	842939	835487	833703	837376	0.59	cps
Selenium	82-1	4256	4095	4007	4119	3.07	cps
Selenium	77-2	333	440	347	373	15.57	cps
Selenium	78-2	1940	1773	1920	1878	4.85	cps
Silicon	28-1	921370	922402	926935	923569	0.32	cps
Silver	107-1	53495	53712	53615	53607	0.20	cps
Silver	109-1	50026	51003	51264	50764	1.29	cps
Sodium	23-2	1207822	1210734	1213828	1210795	0.25	cps
Strontium	86-1	13246	13967	13349	13521	2.88	cps
Strontium	88-1	114397	115435	115160	114997	0.47	cps
Sulfur	34-1	247452	243345	246371	245723	0.87	cps
Terbium	159-1	21436199	21332436	21201918	21323518	0.55	cps
Terbium	159-2	14055843	13774544	14076816	13969068	1.21	cps
Thallium	203-1	43091	42245	42235	42524	1.16	cps
Thallium	205-1	101512	102240	100575	101442	0.82	cps
Tin	118-1	4401	4121	4301	4274	3.32	cps
Titanium	47-1	23899	24390	23939	24076	1.13	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165237BS	Instrumnet Name :	P7
Client Sample ID :	LCS237	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:50:57	DataFile Name :	027LCSE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	121081	122449	120169	121233	0.95	cps
Vanadium	51-2	73501	73247	72463	73070	0.74	cps
Yttrium	89-1	19755823	19728696	19801306	19761942	0.19	cps
Yttrium	89-2	5596917	5527503	5417464	5513961	1.64	cps
Zinc	66-2	18231	18298	17907	18146	1.15	cps
Zirconium	90-1	72317	71667	71155	71713	0.81	cps
Zirconium	91-1	15965	15775	16393	16044	1.97	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165238BL	Instrumnet Name :	P7
Client Sample ID :	PBS238	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:54:10	DataFile Name :	028CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	1533	1430	1387	1450	5.20	cps
Antimony	121-1	327	323	317	322	1.58	cps
Arsenic	75-2	40	33	47	40	16.68	cps
Barium	135-1	303	293	217	271	17.49	cps
Barium	137-1	473	380	347	400	16.42	cps
Beryllium	9-1	213	180	180	191	10.07	cps
Bismuth	209-1	12875073	12844230	12791638	12836980	0.33	cps
Bismuth	209-2	9259862	9232557	9379927	9290782	0.84	cps
Bromine	81-1	17320	16913	17240	17158	1.26	cps
Bromine	81-2	103	133	93	110	18.93	cps
Cadmium	108-1	17	13	20	17	20.01	cps
Cadmium	106-1	5124	5274	5194	5198	1.44	cps
Cadmium	111-1	1133	1152	1102	1129	2.27	cps
Calcium	43-1	940	1000	873	938	6.76	cps
Calcium	44-1	25108	24791	22918	24272	4.88	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	2727	2910	2737	2791	3.69	cps
Cobalt	59-2	503	407	540	483	14.25	cps
Copper	63-2	1830	1700	1860	1797	4.73	cps
Dysprosium	156-1	23	27	10	20	44.10	cps
Dysprosium	156-2	3	7	20	10	88.20	cps
Erbium	164-1	90	83	87	87	3.85	cps
Erbium	164-2	73	73	73	73	0.00	cps
Gadolinium	160-1	80	53	83	72	22.77	cps
Gadolinium	160-2	730	790	787	769	4.39	cps
Holmium	165-1	21080494	20600621	20565336	20748817	1.39	cps
Holmium	165-2	13728486	13757195	13748712	13744798	0.11	cps
Indium	115-1	17141005	16942199	17031625	17038276	0.58	cps
Indium	115-2	6218999	6229925	6188281	6212402	0.35	cps
Iron	56-2	49588	45549	45321	46820	5.13	cps
Iron	57-2	2063	1853	2043	1987	5.83	cps
Iron	54-2	4611	4431	4401	4481	2.54	cps
Krypton	83-1	340	287	243	290	16.70	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165238BL	Instrumnet Name :	P7
Client Sample ID :	PBS238	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:54:10	DataFile Name :	028CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	3374	3204	3050	3209	5.04	cps
Lead	207-1	2800	2940	2690	2810	4.46	cps
Lead	208-1	13133	12772	11962	12622	4.75	cps
Lithium	6-1	1749746	1781513	1725725	1752328	1.60	cps
Magnesium	24-2	4327	4004	3884	4072	5.63	cps
Manganese	55-2	1153	1113	1023	1097	6.07	cps
Molybdenum	94-1	1437	1357	1217	1337	8.33	cps
Molybdenum	95-1	1763	1540	1527	1610	8.26	cps
Molybdenum	96-1	1890	1757	1370	1672	16.15	cps
Molybdenum	97-1	1053	963	780	932	14.94	cps
Molybdenum	98-1	2757	2707	2187	2550	12.38	cps
Neodymium	150-1	0	0	10	3	173.21	cps
Neodymium	150-2	7	7	0	4	86.60	cps
Nickel	60-2	960	1070	887	972	9.49	cps
Phosphorus	31-2	397	380	400	392	2.73	cps
Potassium	39-2	80562	79801	79948	80104	0.50	cps
Rhodium	103-1	16049113	16117574	15749901	15972196	1.22	cps
Rhodium	103-2	9740633	9797198	9668575	9735469	0.66	cps
Scandium	45-1	8571018	8576624	8543943	8563862	0.20	cps
Scandium	45-2	829738	829845	825675	828419	0.29	cps
Selenium	82-1	671	733	731	712	4.94	cps
Selenium	77-2	0	0	0	0	0.00	cps
Selenium	78-2	540	613	580	578	6.35	cps
Silicon	28-1	764744	771596	773419	769920	0.59	cps
Silver	107-1	667	587	623	626	6.40	cps
Silver	109-1	623	610	507	580	11.01	cps
Sodium	23-2	39163	38575	38762	38833	0.77	cps
Strontium	86-1	573	587	563	574	2.04	cps
Strontium	88-1	1000	947	823	923	9.81	cps
Sulfur	34-1	245362	247577	248604	247181	0.67	cps
Terbium	159-1	21159951	21105930	21406681	21224187	0.76	cps
Terbium	159-2	13884577	13864918	13985842	13911779	0.47	cps
Thallium	203-1	3427	3500	3494	3474	1.17	cps
Thallium	205-1	8336	8760	8813	8636	3.03	cps
Tin	118-1	4174	3937	4054	4055	2.92	cps
Titanium	47-1	530	460	420	470	11.85	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165238BL	Instrumnet Name :	P7
Client Sample ID :	PBS238	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:54:10	DataFile Name :	028CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	587	630	433	550	18.79	cps
Vanadium	51-2	53	67	53	58	13.33	cps
Yttrium	89-1	19881446	19581864	19470815	19644708	1.08	cps
Yttrium	89-2	5446205	5518928	5441298	5468810	0.79	cps
Zinc	66-2	860	850	890	867	2.40	cps
Zirconium	90-1	1347	1433	1253	1345	6.70	cps
Zirconium	91-1	273	283	337	298	11.43	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165238BS	Instrumnet Name :	P7
Client Sample ID :	LCS238	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:57:27	DataFile Name :	029LCSE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	19976	19236	19723	19645	1.92	cps
Antimony	121-1	82827	83977	84285	83696	0.92	cps
Arsenic	75-2	2457	2350	2567	2458	4.41	cps
Barium	135-1	99699	101320	99743	100254	0.92	cps
Barium	137-1	174673	174010	175192	174625	0.34	cps
Beryllium	9-1	3540	3864	3677	3694	4.40	cps
Bismuth	209-1	12957239	13029706	12708369	12898438	1.31	cps
Bismuth	209-2	9280903	9432269	9311767	9341646	0.86	cps
Bromine	81-1	17210	16953	16890	17018	1.00	cps
Bromine	81-2	87	103	133	108	21.94	cps
Cadmium	108-1	633	743	743	707	8.99	cps
Cadmium	106-1	6485	6502	5855	6280	5.87	cps
Cadmium	111-1	10053	10116	9950	10040	0.84	cps
Calcium	43-1	50316	52226	50303	50948	2.17	cps
Calcium	44-1	824313	833641	829144	829033	0.56	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	37694	37750	38152	37865	0.66	cps
Cobalt	59-2	28520	28287	28043	28283	0.84	cps
Copper	63-2	43229	44132	43396	43586	1.10	cps
Dysprosium	156-1	40	20	33	31	32.73	cps
Dysprosium	156-2	13	17	20	17	20.01	cps
Erbium	164-1	73	97	63	78	22.00	cps
Erbium	164-2	37	53	40	43	20.34	cps
Gadolinium	160-1	60	90	97	82	23.76	cps
Gadolinium	160-2	777	843	753	791	5.90	cps
Holmium	165-1	20996178	20760941	20609123	20788747	0.94	cps
Holmium	165-2	13967364	13835487	13779041	13860631	0.70	cps
Indium	115-1	17167344	16628247	16733706	16843099	1.70	cps
Indium	115-2	6221855	6254758	6221449	6232687	0.31	cps
Iron	56-2	3220186	3262860	3181253	3221433	1.27	cps
Iron	57-2	84925	85357	86074	85452	0.68	cps
Iron	54-2	187478	185993	185110	186194	0.64	cps
Krypton	83-1	260	337	303	300	12.81	cps

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165238BS	Instrumnet Name :	P7
Client Sample ID :	LCS238	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:57:27	DataFile Name :	029LCSE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	34831	34377	34704	34637	0.68	cps
Lead	207-1	30735	31259	30528	30841	1.22	cps
Lead	208-1	139127	140005	140287	139806	0.43	cps
Lithium	6-1	1806798	1764242	1735379	1768806	2.03	cps
Magnesium	24-2	756694	754668	749467	753610	0.49	cps
Manganese	55-2	14964	14540	14854	14786	1.49	cps
Molybdenum	94-1	86111	85578	86017	85902	0.33	cps
Molybdenum	95-1	102680	104134	105315	104043	1.27	cps
Molybdenum	96-1	115249	116925	115102	115759	0.88	cps
Molybdenum	97-1	65144	65412	64642	65066	0.60	cps
Molybdenum	98-1	167158	167263	167295	167238	0.04	cps
Neodymium	150-1	7	20	7	11	69.25	cps
Neodymium	150-2	7	7	7	7	0.00	cps
Nickel	60-2	8139	8062	8256	8152	1.19	cps
Phosphorus	31-2	373	417	447	412	8.94	cps
Potassium	39-2	1068003	1068415	1064245	1066887	0.22	cps
Rhodium	103-1	16275075	15840345	15905524	16006982	1.46	cps
Rhodium	103-2	9764985	9799409	9613098	9725831	1.02	cps
Scandium	45-1	8765154	8553389	8461331	8593291	1.81	cps
Scandium	45-2	837816	835426	833752	835665	0.24	cps
Selenium	82-1	4084	4094	4076	4085	0.21	cps
Selenium	77-2	417	330	380	376	11.58	cps
Selenium	78-2	1907	1917	1807	1877	3.24	cps
Silicon	28-1	919584	1166633	929756	1005324	13.90	cps
Silver	107-1	53207	53291	54281	53593	1.11	cps
Silver	109-1	50695	52127	51474	51432	1.39	cps
Sodium	23-2	1205597	1229980	1230521	1222032	1.16	cps
Strontium	86-1	13096	13686	13156	13313	2.44	cps
Strontium	88-1	112661	114854	114649	114055	1.06	cps
Sulfur	34-1	250853	252093	248495	250480	0.73	cps
Terbium	159-1	21695866	21321002	20948822	21321897	1.75	cps
Terbium	159-2	13748294	13786505	13867603	13800800	0.44	cps
Thallium	203-1	41537	43058	41998	42197	1.85	cps
Thallium	205-1	100132	101061	102472	101222	1.16	cps
Tin	118-1	4144	4134	4254	4177	1.59	cps
Titanium	47-1	23321	24116	23505	23647	1.76	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165238BS	Instrumnet Name :	P7
Client Sample ID :	LCS238	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 14:57:27	DataFile Name :	029LCSE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	118790	121434	120388	120204	1.11	cps
Vanadium	51-2	73340	73789	73317	73482	0.36	cps
Yttrium	89-1	19843267	19452916	19478379	19591520	1.11	cps
Yttrium	89-2	5498322	5505120	5421165	5474869	0.85	cps
Zinc	66-2	18485	18468	18869	18607	1.22	cps
Zirconium	90-1	71406	70984	72849	71746	1.36	cps
Zirconium	91-1	15605	15909	15759	15757	0.96	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165241BL	Instrumnet Name :	P7
Client Sample ID :	PBS241	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:00:41	DataFile Name :	030CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	720	903	650	758	17.26	cps
Antimony	121-1	273	250	253	259	4.87	cps
Arsenic	75-2	53	60	57	57	5.89	cps
Barium	135-1	253	303	270	276	9.24	cps
Barium	137-1	503	577	510	530	7.65	cps
Beryllium	9-1	150	173	200	174	14.34	cps
Bismuth	209-1	12491113	12635714	12593237	12573355	0.59	cps
Bismuth	209-2	9203982	9105437	9184648	9164689	0.57	cps
Bromine	81-1	17901	17304	17494	17566	1.74	cps
Bromine	81-2	247	240	203	230	10.14	cps
Cadmium	108-1	27	23	27	26	7.55	cps
Cadmium	106-1	5541	5214	4991	5249	5.27	cps
Cadmium	111-1	1176	1123	1063	1121	5.06	cps
Calcium	43-1	1083	1080	990	1051	5.04	cps
Calcium	44-1	28103	28554	27599	28085	1.70	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	3124	2787	3004	2971	5.74	cps
Cobalt	59-2	557	510	533	533	4.37	cps
Copper	63-2	1963	1840	1780	1861	5.02	cps
Dysprosium	156-1	27	10	27	21	45.58	cps
Dysprosium	156-2	7	3	13	8	65.47	cps
Erbium	164-1	87	77	80	81	6.28	cps
Erbium	164-2	57	67	47	57	17.65	cps
Gadolinium	160-1	70	77	87	78	10.79	cps
Gadolinium	160-2	820	697	833	783	9.62	cps
Holmium	165-1	20274644	20084853	20239892	20199796	0.50	cps
Holmium	165-2	13631608	13459660	13589364	13560211	0.66	cps
Indium	115-1	16350733	16659284	16704810	16571609	1.16	cps
Indium	115-2	6167069	6164508	6154132	6161903	0.11	cps
Iron	56-2	45338	45913	40124	43792	7.28	cps
Iron	57-2	2134	2000	1833	1989	7.56	cps
Iron	54-2	4564	4444	4211	4406	4.08	cps
Krypton	83-1	330	270	317	306	10.31	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165241BL	Instrumnet Name :	P7
Client Sample ID :	PBS241	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:00:41	DataFile Name :	030CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	2584	2624	2577	2595	0.97	cps
Lead	207-1	2144	2317	2227	2229	3.89	cps
Lead	208-1	9818	10322	10165	10102	2.55	cps
Lithium	6-1	1755178	1729700	1718215	1734364	1.09	cps
Magnesium	24-2	3954	3971	3447	3791	7.85	cps
Manganese	55-2	1050	1257	1240	1182	9.71	cps
Molybdenum	94-1	1000	1400	1233	1211	16.59	cps
Molybdenum	95-1	1087	1413	1270	1257	13.03	cps
Molybdenum	96-1	1253	1727	1483	1488	15.91	cps
Molybdenum	97-1	677	927	733	779	16.83	cps
Molybdenum	98-1	1790	2400	1943	2045	15.52	cps
Neodymium	150-1	7	7	13	9	43.25	cps
Neodymium	150-2	3	7	7	6	34.70	cps
Nickel	60-2	1100	1047	1067	1071	2.52	cps
Phosphorus	31-2	327	353	260	313	15.34	cps
Potassium	39-2	79539	79613	78839	79331	0.54	cps
Rhodium	103-1	15696459	15571170	15614190	15627273	0.41	cps
Rhodium	103-2	9528110	9576342	9638258	9580903	0.58	cps
Scandium	45-1	8536166	8434592	8497655	8489471	0.60	cps
Scandium	45-2	821405	811391	815606	816134	0.62	cps
Selenium	82-1	661	742	597	667	10.93	cps
Selenium	77-2	0	0	0	0	0.00	cps
Selenium	78-2	627	597	737	653	11.28	cps
Silicon	28-1	747229	749564	753653	750149	0.43	cps
Silver	107-1	483	577	477	512	10.91	cps
Silver	109-1	457	827	410	565	40.47	cps
Sodium	23-2	35133	34612	33446	34397	2.51	cps
Strontium	86-1	567	660	587	604	8.13	cps
Strontium	88-1	1287	1400	1317	1335	4.40	cps
Sulfur	34-1	253882	250998	248918	251266	0.99	cps
Terbium	159-1	20681420	20989720	20818585	20829908	0.74	cps
Terbium	159-2	13539813	13576785	13653846	13590148	0.43	cps
Thallium	203-1	3244	3260	3194	3233	1.07	cps
Thallium	205-1	8066	8039	7889	7998	1.19	cps
Tin	118-1	3961	3814	4374	4050	7.17	cps
Titanium	47-1	283	297	340	307	9.66	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165241BL	Instrumnet Name :	P7
Client Sample ID :	PBS241	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:00:41	DataFile Name :	030CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	350	610	450	470	27.90	cps
Vanadium	51-2	60	93	57	70	28.96	cps
Yttrium	89-1	19153448	19227312	18927746	19102836	0.82	cps
Yttrium	89-2	5285581	5403493	5359886	5349653	1.11	cps
Zinc	66-2	1307	1307	1267	1293	1.79	cps
Zirconium	90-1	1190	1223	1373	1262	7.74	cps
Zirconium	91-1	273	283	350	302	13.79	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165241BS	Instrumnet Name :	P7
Client Sample ID :	LCS241	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:03:58	DataFile Name :	031LCSS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	4288363	4294913	4271163	4284813	0.29	cps
Antimony	121-1	9659198	9560303	9616099	9611867	0.52	cps
Arsenic	75-2	515619	515692	513078	514796	0.29	cps
Barium	135-1	11916424	11849246	11980782	11915484	0.55	cps
Barium	137-1	20338620	20676829	20613743	20543064	0.88	cps
Beryllium	9-1	813552	820947	817940	817480	0.45	cps
Bismuth	209-1	12214646	12205239	12233855	12217913	0.12	cps
Bismuth	209-2	8795984	8802040	8856172	8818065	0.38	cps
Bromine	81-1	15588	14931	15148	15222	2.20	cps
Bromine	81-2	143	87	113	114	24.77	cps
Cadmium	108-1	186111	186725	184788	185875	0.53	cps
Cadmium	106-1	265587	267969	267690	267082	0.49	cps
Cadmium	111-1	2378242	2364477	2385283	2376001	0.45	cps
Calcium	43-1	2376462	2338019	2302695	2339059	1.58	cps
Calcium	44-1	37669987	37416659	37403356	37496667	0.40	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	3866854	3801648	3781518	3816674	1.17	cps
Cobalt	59-2	6075719	6076526	5992419	6048222	0.80	cps
Copper	63-2	44669193	44513093	43788046	44323444	1.06	cps
Dysprosium	156-1	243	243	257	248	3.11	cps
Dysprosium	156-2	610	657	627	631	3.75	cps
Erbium	164-1	190	217	197	201	6.90	cps
Erbium	164-2	187	157	103	149	28.35	cps
Gadolinium	160-1	180	187	180	182	2.11	cps
Gadolinium	160-2	727	737	873	779	10.52	cps
Holmium	165-1	20363306	20239549	19859166	20154007	1.30	cps
Holmium	165-2	13346635	13467438	13521671	13445248	0.67	cps
Indium	115-1	16043440	15811569	15586000	15813670	1.45	cps
Indium	115-2	5739250	5834081	5783783	5785705	0.82	cps
Iron	56-2	180262317	177728251	179705971	179232180	0.74	cps
Iron	57-2	4511861	4523100	4454696	4496552	0.82	cps
Iron	54-2	9981204	9874499	9837851	9897851	0.75	cps
Krypton	83-1	260	380	297	312	19.70	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165241BS	Instrumnet Name :	P7
Client Sample ID :	LCS241	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:03:58	DataFile Name :	031LCSS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	37660861	37541039	36834619	37345507	1.20	cps
Lead	207-1	33025437	33176696	32691288	32964474	0.75	cps
Lead	208-1	149695485	150041504	148301794	149346261	0.62	cps
Lithium	6-1	1701072	1747635	1691858	1713522	1.74	cps
Magnesium	24-2	36002924	35420102	35188014	35537014	1.18	cps
Manganese	55-2	30740307	30662520	30349998	30584275	0.68	cps
Molybdenum	94-1	33516914	33586955	33205744	33436538	0.61	cps
Molybdenum	95-1	48017403	48477551	47814116	48103023	0.71	cps
Molybdenum	96-1	52723958	52995444	52472116	52730506	0.50	cps
Molybdenum	97-1	30060302	30251485	29876256	30062681	0.62	cps
Molybdenum	98-1	77583546	77831207	77375086	77596613	0.29	cps
Neodymium	150-1	587	580	567	578	1.76	cps
Neodymium	150-2	153	150	120	141	13.01	cps
Nickel	60-2	1586656	1545899	1526482	1553012	1.98	cps
Phosphorus	31-2	205849	205427	204136	205137	0.43	cps
Potassium	39-2	21503567	21608399	21489100	21533689	0.30	cps
Rhodium	103-1	14983570	14813121	14529646	14775445	1.55	cps
Rhodium	103-2	8911140	8982233	8899157	8930843	0.50	cps
Scandium	45-1	8340320	8203431	8126592	8223448	1.32	cps
Scandium	45-2	777806	784946	780411	781055	0.46	cps
Selenium	82-1	149168	147709	147704	148193	0.57	cps
Selenium	77-2	16146	15902	16279	16109	1.19	cps
Selenium	78-2	55537	54844	55182	55188	0.63	cps
Silicon	28-1	22366111	21988895	21828404	22061136	1.25	cps
Silver	107-1	12300751	12345984	12273187	12306641	0.30	cps
Silver	109-1	11732231	11780483	11760284	11757666	0.21	cps
Sodium	23-2	55930678	55542226	55514913	55662605	0.42	cps
Strontium	86-1	2929821	2957013	2950186	2945673	0.48	cps
Strontium	88-1	25743285	25754741	25848850	25782292	0.22	cps
Sulfur	34-1	847490	836172	825264	836309	1.33	cps
Terbium	159-1	20881206	20714711	20180486	20592135	1.78	cps
Terbium	159-2	13522332	13523796	13428559	13491562	0.40	cps
Thallium	203-1	9409372	9389257	9191230	9329953	1.29	cps
Thallium	205-1	22292117	22314246	21794771	22133712	1.33	cps
Tin	118-1	8158422	8068455	8009895	8078924	0.93	cps
Titanium	47-1	10870384	10963184	10899386	10910984	0.44	cps

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	PB165241BS	Instrumnet Name :	P7
Client Sample ID :	LCS241	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:03:58	DataFile Name :	031LCSS.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	29082987	29711990	29689848	29494942	1.21	cps
Vanadium	51-2	3374121	3328143	3309872	3337379	0.99	cps
Yttrium	89-1	18709316	18579226	18460010	18582851	0.67	cps
Yttrium	89-2	5115421	5165272	5238159	5172951	1.19	cps
Zinc	66-2	7464231	7444635	7440902	7449923	0.17	cps
Zirconium	90-1	16118361	16199551	16151933	16156615	0.25	cps
Zirconium	91-1	3592174	3626453	3590004	3602877	0.57	cps

Reviewed By:Mohan
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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	P4917-04	Instrumnet Name :	P7
Client Sample ID :	MX1010	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:12:17	DataFile Name :	033SMPL.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	368247	368626	364831	367235	0.57	cps
Antimony	121-1	246339	249776	248414	248176	0.70	cps
Arsenic	75-2	14898	14587	14444	14643	1.58	cps
Barium	135-1	7318797	7396403	7397766	7370989	0.61	cps
Barium	137-1	12773297	12943194	12765834	12827442	0.78	cps
Beryllium	9-1	27708	27758	28196	27887	0.96	cps
Bismuth	209-1	12679211	12678212	12627327	12661584	0.23	cps
Bismuth	209-2	9339593	9434142	9471562	9415099	0.72	cps
Bromine	81-1	16269	15652	16022	15981	1.94	cps
Bromine	81-2	177	140	190	169	15.33	cps
Cadmium	108-1	13279	13516	13223	13340	1.17	cps
Cadmium	106-1	22858	23830	23449	23379	2.09	cps
Cadmium	111-1	192737	194772	197281	194930	1.17	cps
Calcium	43-1	1587	1500	1400	1496	6.25	cps
Calcium	44-1	34440	33093	34075	33869	2.06	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	759344	748777	756218	754780	0.72	cps
Cobalt	59-2	3657	3604	3464	3575	2.79	cps
Copper	63-2	13831990	13776634	13690751	13766458	0.52	cps
Dysprosium	156-1	60	80	83	74	16.95	cps
Dysprosium	156-2	443	323	357	374	16.54	cps
Erbium	164-1	77	77	117	90	25.66	cps
Erbium	164-2	63	60	37	53	27.24	cps
Gadolinium	160-1	73	77	63	71	9.76	cps
Gadolinium	160-2	743	723	740	736	1.46	cps
Holmium	165-1	20213166	20232267	20180091	20208508	0.13	cps
Holmium	165-2	13853463	13669829	13792576	13771956	0.68	cps
Indium	115-1	16317133	16165030	16389701	16290621	0.70	cps
Indium	115-2	6073306	6172374	6064425	6103368	0.98	cps
Iron	56-2	9201059	9065246	9048179	9104828	0.92	cps
Iron	57-2	238788	239441	235369	237866	0.92	cps
Iron	54-2	548164	544195	542479	544946	0.54	cps
Krypton	83-1	260	277	330	289	12.66	cps

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	P4917-04	Instrumnet Name :	P7
Client Sample ID :	MX1010	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:12:17	DataFile Name :	033SMPL.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	1231136	1238546	1240748	1236810	0.41	cps
Lead	207-1	1038978	1035653	1041925	1038852	0.30	cps
Lead	208-1	4834257	4843568	4800709	4826178	0.47	cps
Lithium	6-1	1771581	1766267	1704287	1747378	2.14	cps
Magnesium	24-2	4717	6001	4814	5178	13.81	cps
Manganese	55-2	2863910	2779406	2832848	2825388	1.51	cps
Molybdenum	94-1	352129	358981	355025	355378	0.97	cps
Molybdenum	95-1	615407	618882	612601	615630	0.51	cps
Molybdenum	96-1	664453	668841	667242	666845	0.33	cps
Molybdenum	97-1	386291	389945	385778	387338	0.59	cps
Molybdenum	98-1	990434	1007490	996534	998153	0.87	cps
Neodymium	150-1	300	287	337	308	8.41	cps
Neodymium	150-2	60	60	83	68	19.87	cps
Nickel	60-2	1508442	1510383	1494993	1504606	0.56	cps
Phosphorus	31-2	343	407	417	389	10.23	cps
Potassium	39-2	80304	80783	79017	80034	1.14	cps
Rhodium	103-1	15331136	15463882	15333769	15376262	0.49	cps
Rhodium	103-2	9675313	9595957	9501653	9590974	0.91	cps
Scandium	45-1	8287011	8215245	8290878	8264378	0.52	cps
Scandium	45-2	808303	807893	809201	808465	0.08	cps
Selenium	82-1	22065	22286	21821	22058	1.05	cps
Selenium	77-2	2344	2567	2430	2447	4.60	cps
Selenium	78-2	8643	8599	8432	8558	1.30	cps
Silicon	28-1	1386235	1356632	1361111	1367993	1.17	cps
Silver	107-1	2309229	2302709	2349066	2320334	1.08	cps
Silver	109-1	2197512	2238575	2215287	2217125	0.93	cps
Sodium	23-2	66463	66074	64009	65515	2.01	cps
Strontium	86-1	820	893	980	898	8.92	cps
Strontium	88-1	3957	3994	3971	3974	0.47	cps
Sulfur	34-1	205678	203657	203374	204237	0.62	cps
Terbium	159-1	20795846	20843070	20636880	20758599	0.52	cps
Terbium	159-2	13826706	13766132	13780064	13790968	0.23	cps
Thallium	203-1	143756	143964	143776	143832	0.08	cps
Thallium	205-1	341087	343204	344837	343043	0.55	cps
Tin	118-1	4047	4057	4281	4128	3.20	cps
Titanium	47-1	750	793	977	840	14.32	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	P4917-04	Instrumnet Name :	P7
Client Sample ID :	MX1010	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:12:17	DataFile Name :	033SMPL.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	737	847	753	779	7.61	cps
Vanadium	51-2	4037695	3925051	3932523	3965090	1.59	cps
Yttrium	89-1	18834352	18777980	18882117	18831483	0.28	cps
Yttrium	89-2	5377752	5405743	5360652	5381382	0.42	cps
Zinc	66-2	660855	660196	655029	658694	0.48	cps
Zirconium	90-1	2564	2500	2487	2517	1.63	cps
Zirconium	91-1	573	637	710	640	10.69	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	P4917-01	Instrumnet Name :	P7
Client Sample ID :	MX1007	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:15:21	DataFile Name :	034SMPL.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	6906301	7007482	6974391	6962725	0.74	cps
Antimony	121-1	3051417	3138034	3143025	3110825	1.66	cps
Arsenic	75-2	527257	523174	523652	524694	0.43	cps
Barium	135-1	4640778	4709338	4680447	4676855	0.74	cps
Barium	137-1	7919747	8164081	8092720	8058849	1.56	cps
Beryllium	9-1	675540	675450	672700	674563	0.24	cps
Bismuth	209-1	13470900	13316808	12826040	13204582	2.55	cps
Bismuth	209-2	9549794	9597579	9559722	9569031	0.26	cps
Bromine	81-1	17804	18588	18485	18293	2.33	cps
Bromine	81-2	797	853	733	794	7.56	cps
Cadmium	108-1	95955	97159	95958	96357	0.72	cps
Cadmium	106-1	138022	142319	140902	140414	1.56	cps
Cadmium	111-1	1387691	1412675	1418194	1406187	1.16	cps
Calcium	43-1	691036	703781	701530	698782	0.97	cps
Calcium	44-1	10594324	10808859	10776399	10726527	1.08	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	4972978	4999769	4928342	4967030	0.73	cps
Cobalt	59-2	5675806	5603054	5669059	5649306	0.71	cps
Copper	63-2	2944133	2898360	2901566	2914687	0.88	cps
Dysprosium	156-1	120397	123110	123339	122282	1.34	cps
Dysprosium	156-2	106513	106845	106244	106534	0.28	cps
Erbium	164-1	91450	95399	92523	93124	2.19	cps
Erbium	164-2	62720	61632	61839	62064	0.93	cps
Gadolinium	160-1	109829	111976	110686	110830	0.97	cps
Gadolinium	160-2	80114	79078	78062	79085	1.30	cps
Holmium	165-1	21643291	21316075	21092885	21350750	1.30	cps
Holmium	165-2	14284840	13924549	14195529	14134973	1.33	cps
Indium	115-1	17015583	16422488	16368759	16602277	2.16	cps
Indium	115-2	6186960	6096531	6129670	6137720	0.75	cps
Iron	56-2	142938515	143518758	141998981	142818751	0.54	cps
Iron	57-2	3557396	3545175	3561996	3554856	0.24	cps
Iron	54-2	7959548	7989974	7895182	7948235	0.61	cps
Krypton	83-1	413	357	323	364	12.48	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	P4917-01	Instrumnet Name :	P7
Client Sample ID :	MX1007	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:15:21	DataFile Name :	034SMPL.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	6184836	6314410	6350507	6283251	1.39	cps
Lead	207-1	5316827	5373243	5357712	5349260	0.54	cps
Lead	208-1	24341400	24629328	24763593	24578107	0.88	cps
Lithium	6-1	1961637	1950901	1957941	1956826	0.28	cps
Magnesium	24-2	3322700	3386204	3388403	3365769	1.11	cps
Manganese	55-2	6844533	6840431	6760415	6815127	0.70	cps
Molybdenum	94-1	867314	885916	884303	879178	1.17	cps
Molybdenum	95-1	1196227	1222120	1212388	1210245	1.08	cps
Molybdenum	96-1	1314536	1348108	1353884	1338843	1.59	cps
Molybdenum	97-1	750515	766168	755721	757468	1.05	cps
Molybdenum	98-1	1918968	1986936	1942772	1949559	1.77	cps
Neodymium	150-1	232363	235011	237823	235066	1.16	cps
Neodymium	150-2	138906	139445	137997	138783	0.53	cps
Nickel	60-2	954736	958146	956950	956611	0.18	cps
Phosphorus	31-2	12906	13126	12909	12980	0.97	cps
Potassium	39-2	3295724	3269689	3264384	3276599	0.51	cps
Rhodium	103-1	16084817	15753304	15298450	15712191	2.51	cps
Rhodium	103-2	9770038	9499442	9670190	9646557	1.42	cps
Scandium	45-1	8713961	8610313	8419597	8581291	1.74	cps
Scandium	45-2	827141	819207	829103	825150	0.63	cps
Selenium	82-1	83568	84029	83756	83785	0.28	cps
Selenium	77-2	9370	9603	9550	9508	1.29	cps
Selenium	78-2	30979	31146	31326	31151	0.56	cps
Silicon	28-1	46240694	47261298	46287838	46596610	1.24	cps
Silver	107-1	3254039	3285288	3322267	3287198	1.04	cps
Silver	109-1	3107320	3152558	3147199	3135693	0.79	cps
Sodium	23-2	1406804	1406274	1405762	1406280	0.04	cps
Strontium	86-1	3445988	3495222	3511695	3484302	0.98	cps
Strontium	88-1	30107935	30932630	30587918	30542828	1.36	cps
Sulfur	34-1	206164	203296	196884	202115	2.35	cps
Terbium	159-1	22123042	21703076	21279355	21701824	1.94	cps
Terbium	159-2	14367015	14084176	14093002	14181398	1.13	cps
Thallium	203-1	8798696	8958783	8928007	8895162	0.95	cps
Thallium	205-1	20933688	21262975	21158536	21118400	0.80	cps
Tin	118-1	4102383	4124039	4183950	4136791	1.02	cps
Titanium	47-1	1390084	1448575	1421359	1420006	2.06	cps

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On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	P4917-01	Instrumnet Name :	P7
Client Sample ID :	MX1007	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:15:21	DataFile Name :	034SMPL.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	27504385	28224279	28282440	28003701	1.55	cps
Vanadium	51-2	2141800	2116247	2119881	2125976	0.65	cps
Yttrium	89-1	20789207	20404659	20246008	20479958	1.36	cps
Yttrium	89-2	5733478	5728849	5704217	5722181	0.27	cps
Zinc	66-2	1542029	1568600	1550798	1553809	0.87	cps
Zirconium	90-1	502625	517772	512795	511064	1.51	cps
Zirconium	91-1	113807	117324	115923	115685	1.53	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCV002	Instrumnet Name :	P7
Client Sample ID :	CCV002	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:18:05	DataFile Name :	035CCV.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	21626092	21655466	21723312	21668290	0.23	cps
Antimony	121-1	10316577	10345704	10298762	10320347	0.23	cps
Arsenic	75-2	558016	555607	555058	556227	0.28	cps
Barium	135-1	12373640	12389375	12263477	12342164	0.56	cps
Barium	137-1	21213918	21380093	21217991	21270667	0.45	cps
Beryllium	9-1	804363	808235	811308	807969	0.43	cps
Bismuth	209-1	12041740	12038909	11772224	11950958	1.30	cps
Bismuth	209-2	8625179	8575022	8558976	8586393	0.40	cps
Bromine	81-1	16636	16529	16556	16574	0.34	cps
Bromine	81-2	113	120	100	111	9.16	cps
Cadmium	108-1	194320	195634	194496	194817	0.37	cps
Cadmium	106-1	279870	279092	278149	279037	0.31	cps
Cadmium	111-1	2475350	2465960	2490615	2477308	0.50	cps
Calcium	43-1	11435427	11506452	11277694	11406524	1.03	cps
Calcium	44-1	185161691	183652577	185413891	184742719	0.52	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	3908630	3937751	3940809	3929063	0.45	cps
Cobalt	59-2	6430511	6497026	6486692	6471410	0.55	cps
Copper	63-2	45210089	45882028	45388721	45493613	0.77	cps
Dysprosium	156-1	547	577	573	566	2.91	cps
Dysprosium	156-2	890	910	940	913	2.76	cps
Erbium	164-1	693	560	560	604	12.74	cps
Erbium	164-2	390	430	407	409	4.91	cps
Gadolinium	160-1	470	440	517	476	8.12	cps
Gadolinium	160-2	970	987	937	964	2.64	cps
Holmium	165-1	21076796	20686119	20485195	20749370	1.45	cps
Holmium	165-2	13830378	13795188	13632409	13752658	0.77	cps
Indium	115-1	15546703	15535571	15326452	15469575	0.80	cps
Indium	115-2	5659287	5679569	5682251	5673702	0.22	cps
Iron	56-2	888868707	878838707	872015694	879907702	0.96	cps
Iron	57-2	22140716	22076773	22274460	22163983	0.46	cps
Iron	54-2	47764729	48131286	47672601	47856205	0.51	cps
Krypton	83-1	267	307	313	296	8.54	cps

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Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCV002	Instrumnet Name :	P7
Client Sample ID :	CCV002	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:18:05	DataFile Name :	035CCV.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	38313390	38042313	38374072	38243258	0.46	cps
Lead	207-1	33522830	33524320	33760497	33602549	0.41	cps
Lead	208-1	153301881	152814197	153065494	153060524	0.16	cps
Lithium	6-1	1686148	1651360	1655774	1664427	1.14	cps
Magnesium	24-2	176994844	178850551	177974751	177940048	0.52	cps
Manganese	55-2	31182968	31169065	30900280	31084105	0.51	cps
Molybdenum	94-1	34596168	34816318	34864244	34758910	0.41	cps
Molybdenum	95-1	49719298	49662369	49853769	49745145	0.20	cps
Molybdenum	96-1	55152426	54697029	54239426	54696294	0.83	cps
Molybdenum	97-1	31485781	31441664	31092729	31340058	0.69	cps
Molybdenum	98-1	81509975	81053112	80621849	81061645	0.55	cps
Neodymium	150-1	910	873	823	869	5.01	cps
Neodymium	150-2	303	260	260	274	9.12	cps
Nickel	60-2	1662266	1644610	1646146	1651007	0.59	cps
Phosphorus	31-2	210014	210869	209853	210245	0.26	cps
Potassium	39-2	108423112	107072665	108471645	107989141	0.74	cps
Rhodium	103-1	14466308	14163675	14089564	14239849	1.40	cps
Rhodium	103-2	8636579	8527888	8590979	8585149	0.64	cps
Scandium	45-1	8154985	8189487	8195611	8180028	0.27	cps
Scandium	45-2	787363	782012	791151	786842	0.58	cps
Selenium	82-1	154180	154573	154555	154436	0.14	cps
Selenium	77-2	16933	16703	17033	16890	1.00	cps
Selenium	78-2	56755	57558	55704	56672	1.64	cps
Silicon	28-1	22959358	22799733	23164695	22974595	0.80	cps
Silver	107-1	12731417	12871557	12768911	12790629	0.57	cps
Silver	109-1	12145666	12173201	12146756	12155208	0.13	cps
Sodium	23-2	271561063	274105389	273434063	273033505	0.48	cps
Strontium	86-1	3062897	3114883	3023912	3067230	1.49	cps
Strontium	88-1	26413177	26790414	26665155	26622915	0.72	cps
Sulfur	34-1	819959	818221	820708	819629	0.16	cps
Terbium	159-1	21408221	21155763	21066216	21210067	0.84	cps
Terbium	159-2	13519402	13647574	13485867	13550948	0.63	cps
Thallium	203-1	9632657	9506012	9595322	9577997	0.68	cps
Thallium	205-1	22769850	22736300	22649694	22718615	0.27	cps
Tin	118-1	8356178	8231863	8165287	8251109	1.17	cps
Titanium	47-1	11042312	10979718	11152780	11058270	0.79	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCV002	Instrumnet Name :	P7
Client Sample ID :	CCV002	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:18:05	DataFile Name :	035CCV.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	31475848	31554980	31347684	31459504	0.33	cps
Vanadium	51-2	3479806	3473916	3482912	3478878	0.13	cps
Yttrium	89-1	18899854	18748457	18577857	18742056	0.86	cps
Yttrium	89-2	5248413	5195855	5192040	5212102	0.60	cps
Zinc	66-2	7525924	7624107	7553932	7567988	0.67	cps
Zirconium	90-1	16793729	17040194	16986597	16940173	0.77	cps
Zirconium	91-1	3750827	3832917	3853054	3812266	1.42	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCB002	Instrumnet Name :	P7
Client Sample ID :	CCB002	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:27:22	DataFile Name :	037CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Aluminium	27-2	1310	1460	1517	1429	7.47	cps
Antimony	121-1	677	583	597	619	8.16	cps
Arsenic	75-2	77	63	67	69	10.08	cps
Barium	135-1	570	383	537	497	20.05	cps
Barium	137-1	873	690	810	791	11.77	cps
Beryllium	9-1	230	223	320	258	20.95	cps
Bismuth	209-1	12888351	12560270	12446949	12631857	1.81	cps
Bismuth	209-2	9314556	9221485	9369313	9301785	0.80	cps
Bromine	81-1	17140	16806	16473	16806	1.99	cps
Bromine	81-2	237	270	327	278	16.38	cps
Cadmium	108-1	13	23	27	21	32.88	cps
Cadmium	106-1	5504	4831	5108	5148	6.58	cps
Cadmium	111-1	1245	1040	1170	1151	9.01	cps
Calcium	43-1	1070	1110	3510	1897	73.66	cps
Calcium	44-1	28250	27081	53810	36380	41.52	cps
Carbon	12-1						cps
Carbon	12-2						cps
Chlorine	35-1						cps
Chlorine	35-2						cps
Chromium	52-2	2890	2860	2804	2851	1.54	cps
Cobalt	59-2	533	577	597	569	5.69	cps
Copper	63-2	2947	2747	2970	2888	4.25	cps
Dysprosium	156-1	30	10	20	20	50.00	cps
Dysprosium	156-2	7	27	0	11	124.89	cps
Erbium	164-1	103	83	73	87	17.63	cps
Erbium	164-2	27	77	60	54	46.76	cps
Gadolinium	160-1	80	70	70	73	7.87	cps
Gadolinium	160-2	773	973	803	850	12.69	cps
Holmium	165-1	20937788	20113810	20004197	20351932	2.51	cps
Holmium	165-2	13745681	13443895	13632009	13607195	1.12	cps
Indium	115-1	16719903	16274630	16434056	16476196	1.37	cps
Indium	115-2	6122850	6114520	6169753	6135708	0.49	cps
Iron	56-2	58773	60676	64617	61355	4.86	cps
Iron	57-2	2290	2387	2464	2380	3.65	cps
Iron	54-2	5088	5478	5498	5354	4.32	cps
Krypton	83-1	450	320	273	348	26.32	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCB002	Instrumnet Name :	P7
Client Sample ID :	CCB002	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:27:22	DataFile Name :	037CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Lead	206-1	6195	6148	6185	6176	0.40	cps
Lead	207-1	5108	5241	5174	5174	1.29	cps
Lead	208-1	23842	23748	23692	23761	0.32	cps
Lithium	6-1	1811545	1735861	1724911	1757439	2.68	cps
Magnesium	24-2	5518	5945	6435	5966	7.69	cps
Manganese	55-2	1687	1697	1697	1693	0.34	cps
Molybdenum	94-1	1643	1317	1907	1622	18.23	cps
Molybdenum	95-1	1773	1537	2318	1876	21.34	cps
Molybdenum	96-1	2010	1763	2785	2186	24.38	cps
Molybdenum	97-1	1157	803	1214	1058	21.01	cps
Molybdenum	98-1	2910	2280	2951	2714	13.86	cps
Neodymium	150-1	17	13	13	14	13.35	cps
Neodymium	150-2	7	3	7	6	34.70	cps
Nickel	60-2	1030	927	1023	993	5.82	cps
Phosphorus	31-2	417	377	370	388	6.51	cps
Potassium	39-2	78641	78689	79851	79060	0.87	cps
Rhodium	103-1	15852802	15423494	15421055	15565784	1.60	cps
Rhodium	103-2	9535988	9424981	9570324	9510431	0.80	cps
Scandium	45-1	8586097	8281391	8354039	8407176	1.89	cps
Scandium	45-2	805032	808567	802251	805283	0.39	cps
Selenium	82-1	641	639	698	660	5.08	cps
Selenium	77-2	7	0	3	3	100.05	cps
Selenium	78-2	593	597	593	594	0.32	cps
Silicon	28-1	708139	707369	726265	713924	1.50	cps
Silver	107-1	713	667	703	694	3.54	cps
Silver	109-1	603	590	560	584	3.80	cps
Sodium	23-2	42084	42539	42963	42529	1.03	cps
Strontium	86-1	763	733	750	749	2.01	cps
Strontium	88-1	1573	1463	2702	1913	35.84	cps
Sulfur	34-1	233513	234562	234861	234312	0.30	cps
Terbium	159-1	21252203	20787435	20478496	20839378	1.87	cps
Terbium	159-2	13960436	13792175	13687513	13813375	1.00	cps
Thallium	203-1	4034	3754	3797	3862	3.90	cps
Thallium	205-1	9257	9583	8996	9279	3.17	cps
Tin	118-1	4117	4137	3867	4041	3.72	cps
Titanium	47-1	430	340	1949	906	99.76	cps

Reviewed By:Mohan
On:12/6/2024 1:08:32 AM
Inst Id :P7

LB Number :	LB133719	Operator :	Jaswal
Lab Sample ID :	CCB002	Instrumnet Name :	P7
Client Sample ID :	CCB002	Dilution Factor :	1
Date & Time Acquired :	2024-12-03 15:27:22	DataFile Name :	037CCBE.d

Parameter	Mass	CPS1	CPS2	CPS3	CPSMean	CPSRSD	Units
Uranium	238-1	797	630	987	805	22.19	cps
Vanadium	51-2	170	150	213	178	18.21	cps
Yttrium	89-1	19376476	18962437	19016951	19118621	1.18	cps
Yttrium	89-2	5344399	5325880	5372422	5347567	0.44	cps
Zinc	66-2	1330	1353	1457	1380	4.89	cps
Zirconium	90-1	1567	1560	1720	1616	5.60	cps
Zirconium	91-1	347	303	333	328	6.77	cps

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Prep Standard - Chemical Standard Summary

Order ID : P4917

Test : Metals CLP MS,Metals CLP MS FULL

Prepbatch ID : PB165237,PB165238,

Sequence ID/Qc Batch ID: LB133719,LB133719,

Standard ID :
MP82128,MP83014,MP83016,MP83032,MP83033,MP83034,MP83035,MP83036,MP83037,MP83038,MP83039,MP830
41,MP83042,MP83043,MP83044,MP83045,MP83046,MP83048,MP83049,MP83050,MP83105,MP83122,

Chemical ID :
M5192,M5288,M5289,M5294,M5304,M5390,M5476,M5497,M5498,M5513,M5515,M5519,M5658,M5698,M5739,M5751
,M5769,M5798,M5799,M5800,M5801,M5802,M5806,M5815,M5816,M5817,M5818,M5819,M5820,M5873,M5874,M596
1,M5962,M5976,M5978,M5981,M5982,M5983,M6021,M6023,M6025,M6028,M6030,M6033,M6040,M6055,M6095,M 611
1,M6115,M6116,W3112,

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
641	1:4 HCL	MP82128	09/03/2024	02/08/2025	Janvi Patel	None	None	Sarabjit Jaswal 09/03/2024

FROM 1500.00000ml of W3112 + 500.00000ml of M6040 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1122	ICPMS CALIB BLANK(S0/ICB/CCB)	MP83014	11/02/2024	12/06/2024	Sarabjit Jaswal	None	None	Mohan Bera 11/04/2024

FROM 25.00000ml of M6095 + 4925.00000ml of W3112 + 50.00000ml of M6115 = Final Quantity: 5000.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2902	S8 ICPMS	MP83016	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 1.00000ml of M6033 + 2.50000ml of M5288 + 2.50000ml of M5515 + 5.00000ml of M5498 + 5.00000ml of M5769 + 5.00000ml of M5806 + 79.00000ml of MP83014 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3947	S7(SFAM,6020,200.8)	MP83032	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 0.40000ml of M5513 + 1.00000ml of M5799 + 1.00000ml of M5818 + 1.00000ml of M5981 + 1.00000ml of M5983 + 1.90000ml of M6033 + 10.00000ml of M6115 + 2.00000ml of M5815 + 2.00000ml of M5817 + 2.50000ml of M5476 + 4.00000ml of M5390 + 4.90000ml of M5515 + 4.90000ml of M5519 + 5.00000ml of M6095 + 50.00000ml of M5304 + 832.80000ml of W3112 + 9.00000ml of M5698 + 9.00000ml of M5819 + 9.00000ml of M5976 + 9.00000ml of M5978 + 9.90000ml of M5498 + 9.90000ml of M5751 + 9.90000ml of M5769 + 9.90000ml of M5806 = Final Quantity: 1000.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3948	S6(SFAM,6020,200.8)	MP83033	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 0.50000ml of M6095 + 1.00000ml of M6115 + 48.50000ml of W3112 + 50.00000ml of MP83032 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3954	S4(SFAM,6020,200.8)	MP83034	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 0.50000ml of M6095 + 1.00000ml of M6115 + 86.00000ml of W3112 + 12.50000ml of MP83032 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3949	S5(SFAM,6020,200.8)	MP83035	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 0.50000ml of M6095 + 1.00000ml of M6115 + 73.50000ml of W3112 + 25.00000ml of MP83032 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3951	S3(SFAM, 6020,200.8)	MP83036	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 0.50000ml of M6095 + 1.00000ml of M6115 + 88.50000ml of W3112 + 10.00000ml of MP83033 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3955	S2CONC(SFAM,6020,200.8)	MP83037	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 0.05000ml of M5698 + 0.05000ml of M5798 + 0.05000ml of M5800 + 0.05000ml of M5801 + 0.05000ml of M5961 + 0.05000ml of M5981 + 0.05000ml of M5982 + 0.05000ml of M5983 + 0.05000ml of M6023 + 0.05000ml of M6025 + 0.05000ml of M6028 + 0.05000ml of M6030 + 0.10000ml of M5658 + 0.10000ml of M5751 + 0.10000ml of M5802 + 0.10000ml of M6033 + 0.25000ml of M5515 + 0.25000ml of M5799 + 0.25000ml of M5819 + 0.25000ml of M5962 + 0.25000ml of M5976 + 0.25000ml of M5978 + 0.25000ml of M6021 + 0.50000ml of M5390 + 0.50000ml of M5818 + 1.25000ml of M5815 + 1.25000ml of M5817 + 2.50000ml of M5498 + 2.50000ml of M5519 + 2.50000ml of M5769 + 2.50000ml of M5806 + 2.50000ml of M6095 + 226.25000ml of W3112 + 5.00000ml of M6115 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3956	S2(SFAM,6020,200.8)	MP83038	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 0.50000ml of M6095 + 1.00000ml of M6115 + 88.50000ml of W3112 + 0.50000ml of MP83037 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3957	S1(SFAM,6020,200.8)	MP83039	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 0.50000ml of M6095 + 1.00000ml of M6115 + 88.50000ml of W3112 + 10.00000ml of MP83038 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3958	ICV(SFAM)	MP83041	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 2.00000ml of M5294 + 98.00000ml of MP83014 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3961	CCV	MP83042	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 0.20000ml of M5513 + 0.50000ml of M5799 + 0.50000ml of M5818 + 0.50000ml of M5981 + 0.50000ml of M5983 + 1.00000ml of M5815 + 1.00000ml of M5817 + 1.25000ml of M5476 + 10.00000ml of M6115 + 12.45000ml of M5515 + 12.45000ml of M5519 + 2.00000ml of M5390 + 24.95000ml of M5498 + 24.95000ml of M5769 + 24.95000ml of M5806 + 25.00000ml of M5304 + 4.50000ml of M5698 + 4.50000ml of M5751 + 4.50000ml of M5819 + 4.95000ml of M6033 + 5.00000ml of M5976 + 5.00000ml of M5978 + 5.00000ml of M6095 + 823.45000ml of W3112 = Final Quantity: 1000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1142	ICSA ICPMS	MP83043	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 10.00000ml of M5873 + 90.00000ml of MP83014 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1143	ICSAB ICPMS	MP83044	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 10.00000ml of M5873 + 10.00000ml of M5874 + 80.00000ml of MP83014 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3963	CONC.LCSW SPIKE	MP83045	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 0.25000ml of M5698 + 0.25000ml of M5798 + 0.25000ml of M5800 + 0.25000ml of M5801 + 0.25000ml of M5961 + 0.25000ml of M5978 + 0.25000ml of M5981 + 0.25000ml of M5982 + 0.25000ml of M5983 + 0.25000ml of M6023 + 0.25000ml of M6025 + 0.25000ml of M6028 + 0.25000ml of M6030 + 0.50000ml of M5289 + 0.50000ml of M5658 + 0.50000ml of M5751 + 0.50000ml of M5802 + 1.25000ml of M5192 + 1.25000ml of M5799 + 1.25000ml of M5819 + 1.25000ml of M5962 + 1.25000ml of M6021 + 12.50000ml of M5497 + 12.50000ml of M5769 + 12.50000ml of M5806 + 12.52000ml of M5519 + 156.23000ml of W3112 + 2.50000ml of M5390 + 2.50000ml of M5818 + 5.00000ml of M5515 + 5.00000ml of M6095 + 5.00000ml of M6115 + 6.25000ml of M5816 + 6.25000ml of M5820 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3964	CONC.LCSS SPIKE	MP83046	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 0.25000ml of M5698 + 0.25000ml of M5798 + 0.25000ml of M5800 + 0.25000ml of M5801 + 0.25000ml of M5961 + 0.25000ml of M5981 + 0.25000ml of M5982 + 0.25000ml of M5983 + 0.25000ml of M6023 + 0.25000ml of M6025 + 0.25000ml of M6028 + 0.25000ml of M6030 + 0.50000ml of M5289 + 0.50000ml of M5658 + 0.50000ml of M5751 + 0.50000ml of M5802 + 1.25000ml of M5192 + 1.25000ml of M5799 + 1.25000ml of M5819 + 1.25000ml of M5962 + 1.25000ml of M6021 + 12.50000ml of M5498 + 12.50000ml of M5769 + 12.50000ml of M5806 + 12.52000ml of M5519 + 156.23000ml of W3112 + 2.50000ml of M5390 + 2.50000ml of M5818 + 5.00000ml of M5515 + 5.00000ml of M6095 + 5.00000ml of M6115 + 6.25000ml of M5816 + 6.25000ml of M5820 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3962	MG 10PPM FOR TUNE	MP83048	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 0.01000ml of M5769 + 9.99000ml of MP83014 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3894	TUNE 200PPB	MP83049	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 2.00000ml of M6055 + 2.00000ml of MP83048 + 98.00000ml of MP83014 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3903	ISS 3PPM	MP83050	11/02/2024	12/06/2024	Sarabjit Jaswal	None	METALS_PIPETTE_3 (A)	Mohan Bera 11/04/2024

FROM 5.00000ml of M6115 + 75.00000ml of M5739 + 30.00000ml of MP83014 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
170	1:1HCL	MP83105	11/07/2024	12/06/2024	Janvi Patel	None	None	Sarabjit Jaswal 11/07/2024

FROM 1000.00000ml of M6111 + 1000.00000ml of W3112 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
169	1:1HNO3	MP83122	11/07/2024	12/06/2024	Janvi Patel	None	None	Sarabjit Jaswal 11/07/2024

FROM 1000.00000ml of M6116 + 1000.00000ml of W3112 = Final Quantity: 2000.000 ml

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57042 / Mo, 1000 PPM, 125 ml	051722	05/17/2025	07/01/2022 / bin	06/17/2022 / jaswal	M5192

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58119 / K, 10000 PPM, 500 ml	071122	07/11/2025	09/01/2022 / jaswal	07/21/2022 / jaswal	M5288

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	01/01/2025	12/13/2023 / bin	02/20/2020 / bin	M5294

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	6020CAL-1 / Calibration Standard Method 6020	S2-MEB711244	10/20/2026	08/07/2024 / jaswal	04/01/2022 / jaswal	M5304

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

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CHEMICAL RECEIPT LOG BOOK

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	03/18/2023 / bin	03/17/2023 / bin	M5497

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58120 / Ca, 10000 PPM, 500 ml	031523	03/15/2026	08/15/2023 / jaswal	03/17/2023 / bin	M5498

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57182 / Pb, 10000 PPM, 125 ml	061522	06/15/2025	03/19/2023 / bin	03/17/2023 / bin	M5513

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	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

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58024 / Chromium, Cr, 500 ml, 1000 PPM	060523	06/05/2026	08/28/2023 / jaswal	08/25/2023 / jaswal	M5658

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	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 #
Inorganic Ventures	6020ISS / 6020ISS, 10 ug/ml, Bi, Ho, In, 6Li, Rh, Sc, TB, Y	T2-MEB709511	09/03/2026	08/07/2024 / jaswal	04/11/2022 / jaswal	M5739

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

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	05/24/2024 / Jaswal	01/03/2024 / bin	M5769

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

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57050 / Sn, 1000 PPM, 125 ml	071123	07/11/2026	02/09/2024 / bin	02/09/2024 / bin	M5799

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57027 / CO, 1000 PPM, 125 ml	091923	09/19/2026	05/31/2024 / bin	02/09/2024 / bin	M5800

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57033 / As, 1000 PPM, 125 ml	111323	11/13/2026	02/09/2024 / bin	02/09/2024 / bin	M5801

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57051 / Sb, 1000 PPM, 125 ml	120523	12/05/2026	08/07/2024 / jaswal	01/03/2024 / jaswal	M5802

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58111 / Na, 10000 PPM, 500 ml	122223	12/22/2026	08/01/2024 / Jaswal	01/03/2024 / jaswal	M5806

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57115 / P, 10000 PPM, 125 ml	041723	04/17/2026	05/21/2024 / Jaswal	02/09/2024 / jaswal	M5815

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CHEMICAL RECEIPT LOG BOOK

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

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 #
EPA	PART A / ICSA (ICPMS) STOCK SOLN	CP-MS ICSA-0803	04/30/2025	04/17/2024 / jaswal	07/14/2022 / jaswal	M5873

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART B / ICSB (ICPMS) STOCK SOLUTION	CP-MS ICSB-0803	04/30/2025	04/17/2024 / jaswal	07/14/2022 / jaswal	M5874

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57028 / Ni, 1000 PPM, 125 ml	041124	04/11/2027	07/02/2024 / Jaswal	06/11/2024 / Jaswal	M5961

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57034 / Se, 1000 PPM, 125 ml	060624	06/06/2027	07/02/2024 / Jaswal	06/14/2024 / Jaswal	M5962

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
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.	57092 / U, 1000 PPM, 125 ml	060724	06/07/2027	07/29/2024 / Jaswal	06/11/2024 / Jaswal	M5981

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CHEMICAL RECEIPT LOG BOOK

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 #
Absolute Standards, Inc.	57040 / Zr, 1000 PPM, 125 ml	071423	07/14/2026	07/29/2024 / Jaswal	06/11/2024 / Jaswal	M5983

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 / Tl, 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

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57047 / Ag, 1000 PPM, 125 ml	122823	12/28/2026	08/05/2024 / kareem	08/05/2024 / Jaswal	M6030

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	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 #
Inorganic Ventures	IV-STOCK-12 / ICP-MS TUNING SOLUTION, 125mL	U2-MEB734294	06/21/2028	08/21/2024 / Jaswal	08/19/2024 / Jaswal	M6055

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)		03/17/2029	10/26/2024 / Janvi	10/21/2024 / Janvi	M6095

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

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24B1362001	05/04/2025	11/02/2024 / Janvi	09/29/2024 / Eman	M6115

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	11/04/2024 / Janvi	09/29/2024 / Eman	M6116

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

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M6028

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

R 8/15/24

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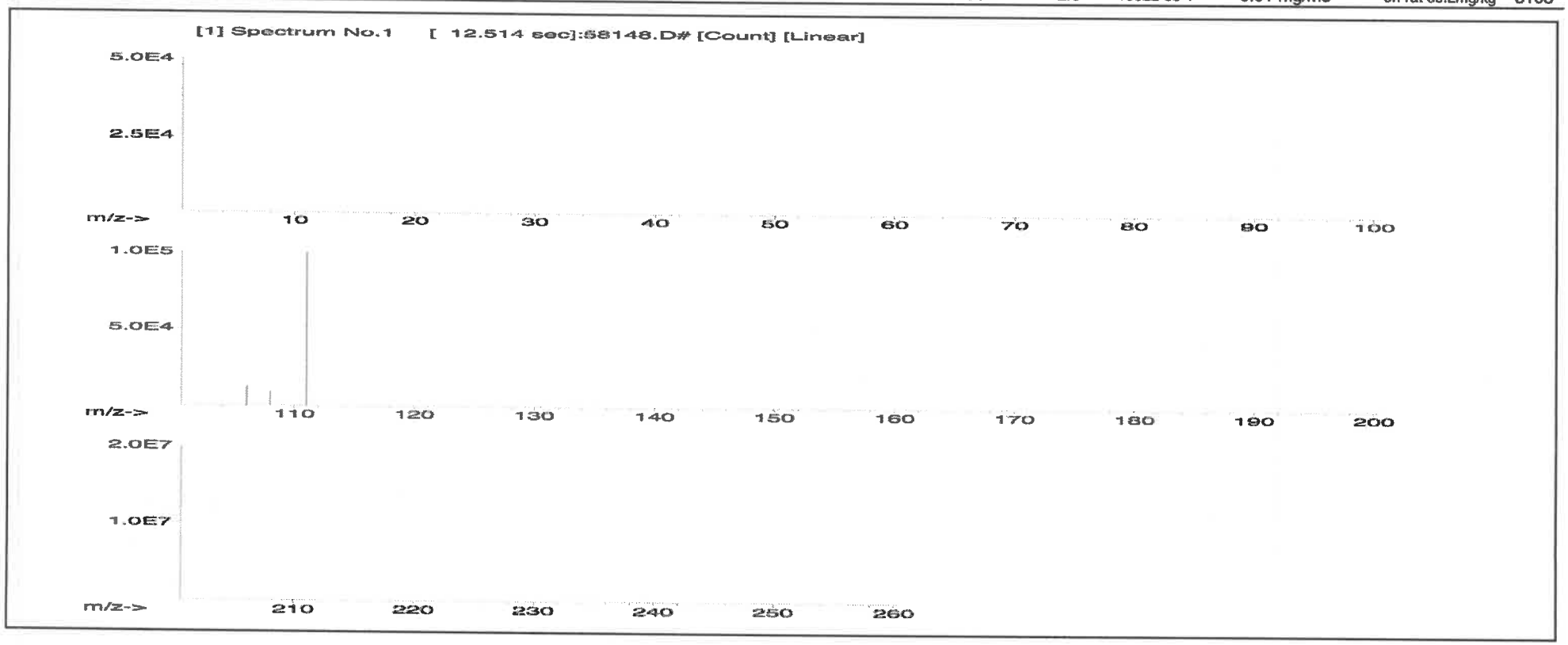
CERTIFIED WEIGHT REPORT:

Part Number:	**57048**		**Lot #**		
Lot Number:	**070124**	**Solvent:**	24002546	Nitric Acid	
Description:	**Cadmium (Cd)**	2%	40.0 (mL)	Nitric Acid	
Expiration Date:	070127				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty		

Aleah O'Brady

Formulated By:	Aleah O'Brady	070124
Reviewed By:	Pedro L. Rentas	070124

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Cadmium nitrate tetrahydrate (Cd)	IN024	CDM092021A1	1000	99.999	0.10	36.5	5.4797	5.4804	**1000.1**	**2.0**	10022-68-1	0.01 mg/m3	orl-rat 60.2mg/kg	3108



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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	T	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<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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* 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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R: 8/5/24

511

CERTIFIED WEIGHT REPORT:

Part Number: 57182
Lot Number: 110923
Description: Lead (Pb)

Expiration Date: 110926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

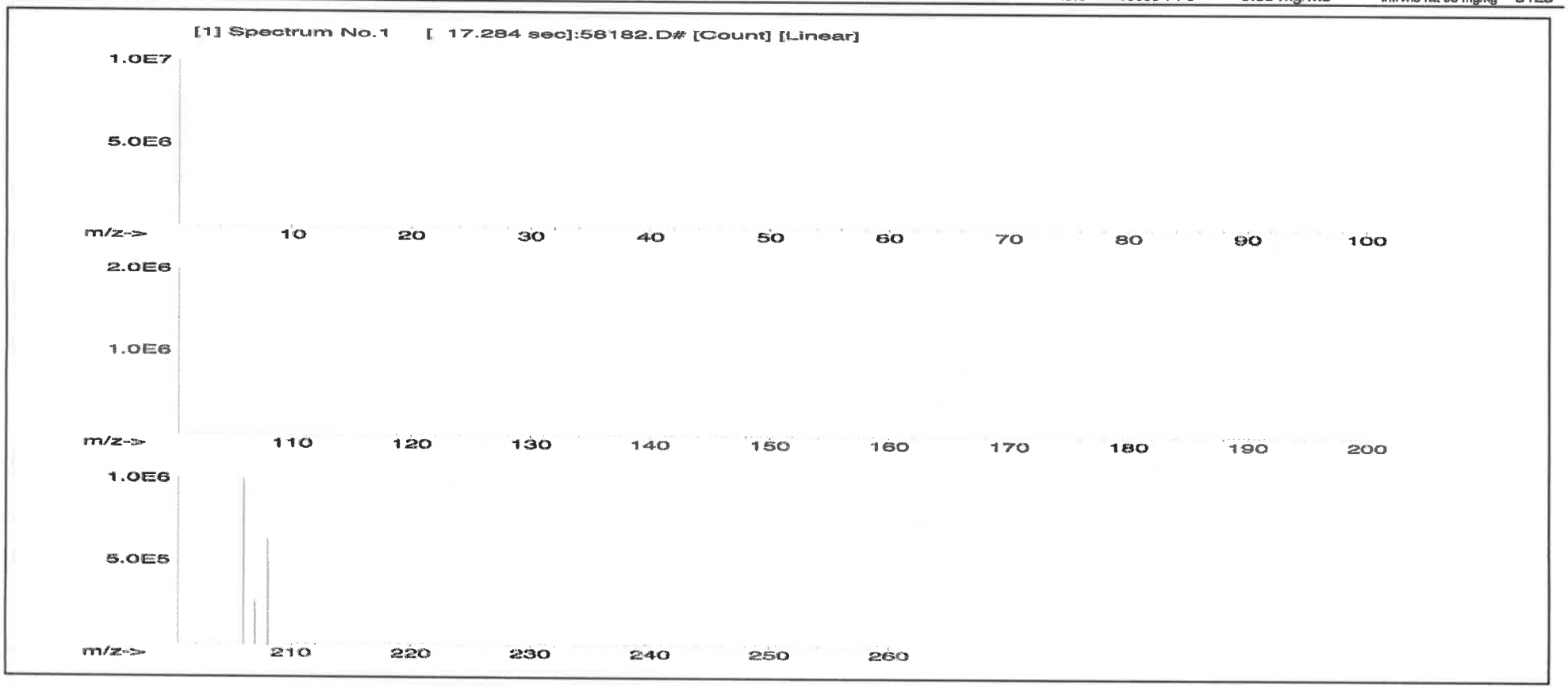
Weight shown below was diluted to (mL): 2000.02 0.058 Flask Uncertainty

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

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

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lead(II) nitrate (Pb)	IN029	PBD122016A1	10000	99.999	0.10	62.5	32.0006	32.0040	**10001.1**	**20.0**	10099-74-8	0.05 mg/m3	intrvns-rat 93 mg/kg	3128



512

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<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

(T)= Target analyte

Physical Characterization:

Certified by:

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

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M5192 R: 06/17/22

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513

CERTIFIED WEIGHT REPORT:

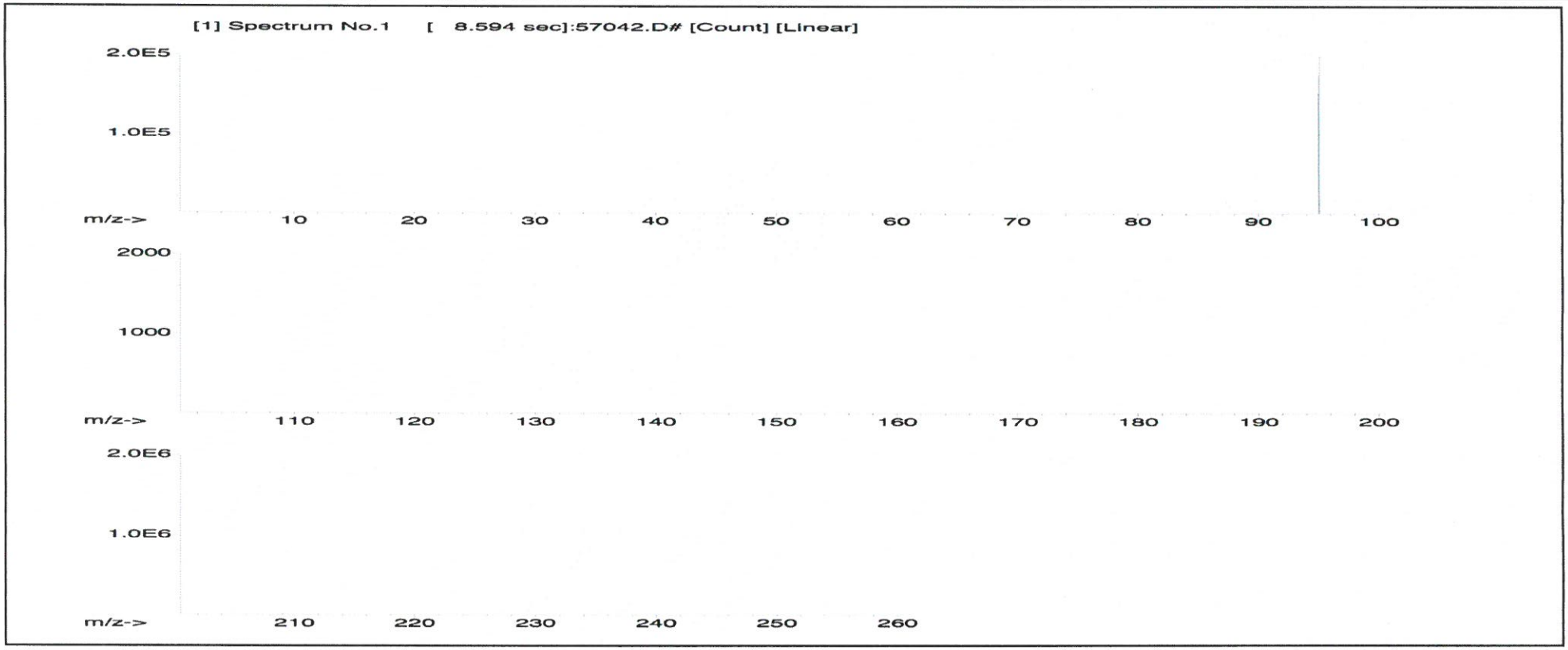
Part Number: 57042
Lot Number: 051722
Description: Molybdenum (Mo)
Expiration Date: 051725
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 3000.41

Lot #	Solvent:		
MKBQ8597V	Ammonium hydroxide		
0.5%	15.0 (mL)	Ammonium hydroxide	

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Lawrence Barry	051722
Reviewed By:	Pedro L. Rentas	051722

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.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium molybdate (Mo)	58142	022222	0.1000	300.0	0.084	1000	10001.0	**1000.0**	**2.1**	13106-76-8	5 mg(Mo)/m3	orl-rat 333 mg/kg	3134



514

Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	T	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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V15200 R: 04/24/22 (BP)

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515

CERTIFIED WEIGHT REPORT:

Part Number: 58119
Lot Number: 071122
Description: Potassium (K)

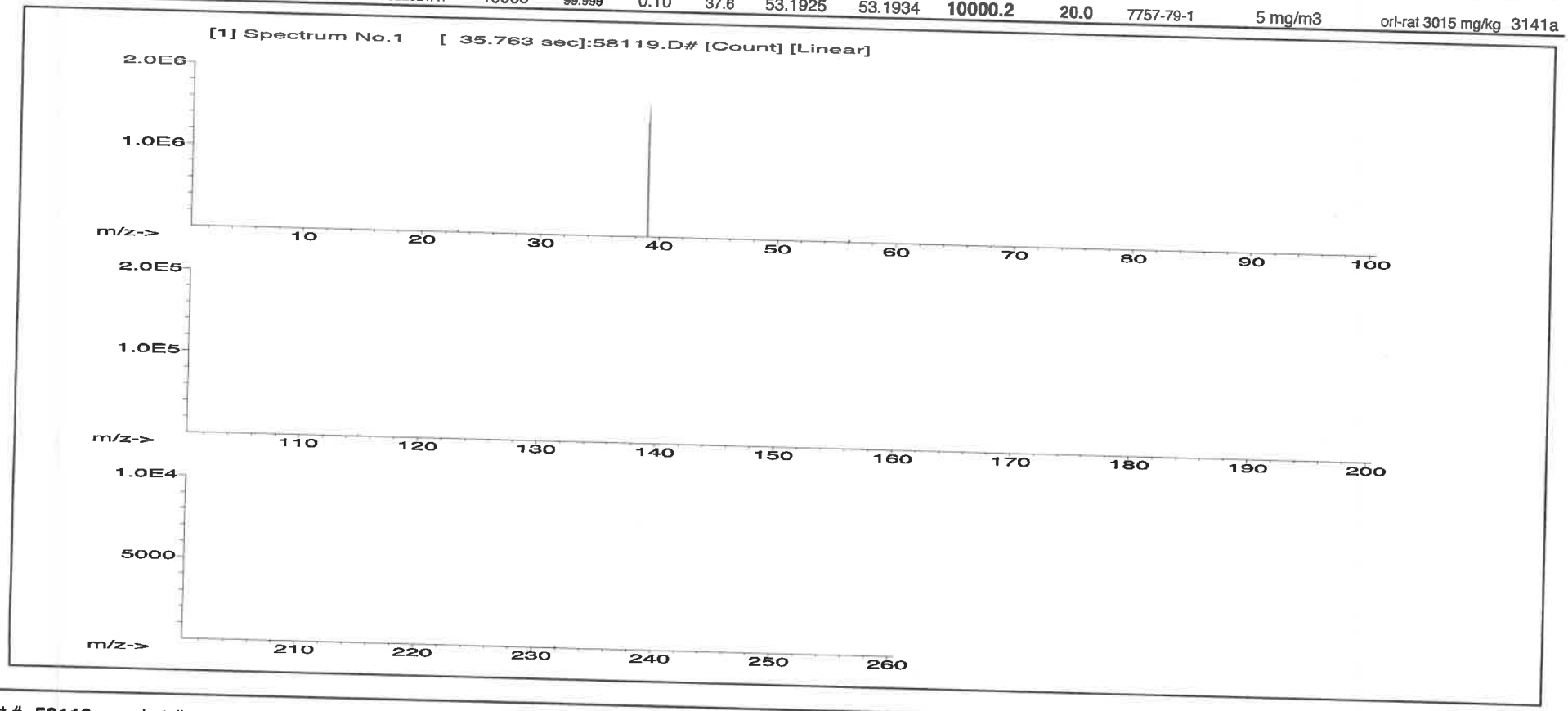
Expiration Date: 071125
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02

		Lot #	
Solvent:	20510011		Nitric Acid
2%	40.0 (mL)		Nitric Acid
5E-05	Balance Uncertainty		
0.058	Flask Uncertainty		

Formulated By: Lawrence Barry 071122

Reviewed By: Pedro L. Rentas 071122

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Potassium nitrate (K)	IN034	KD022021A1	10000	99.999	0.10	37.6	53.1925	53.1934	**10000.2**	**20.0**	7757-79-1	5 mg/m3	orl-rat 3015 mg/kg	3141a



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	T	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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M5289 R: 07/12/22 (BH)

Certified Reference Material CRM

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CERTIFIED WEIGHT REPORT:

Part Number: 58113
Lot Number: 070622
Description: Aluminum (Al)

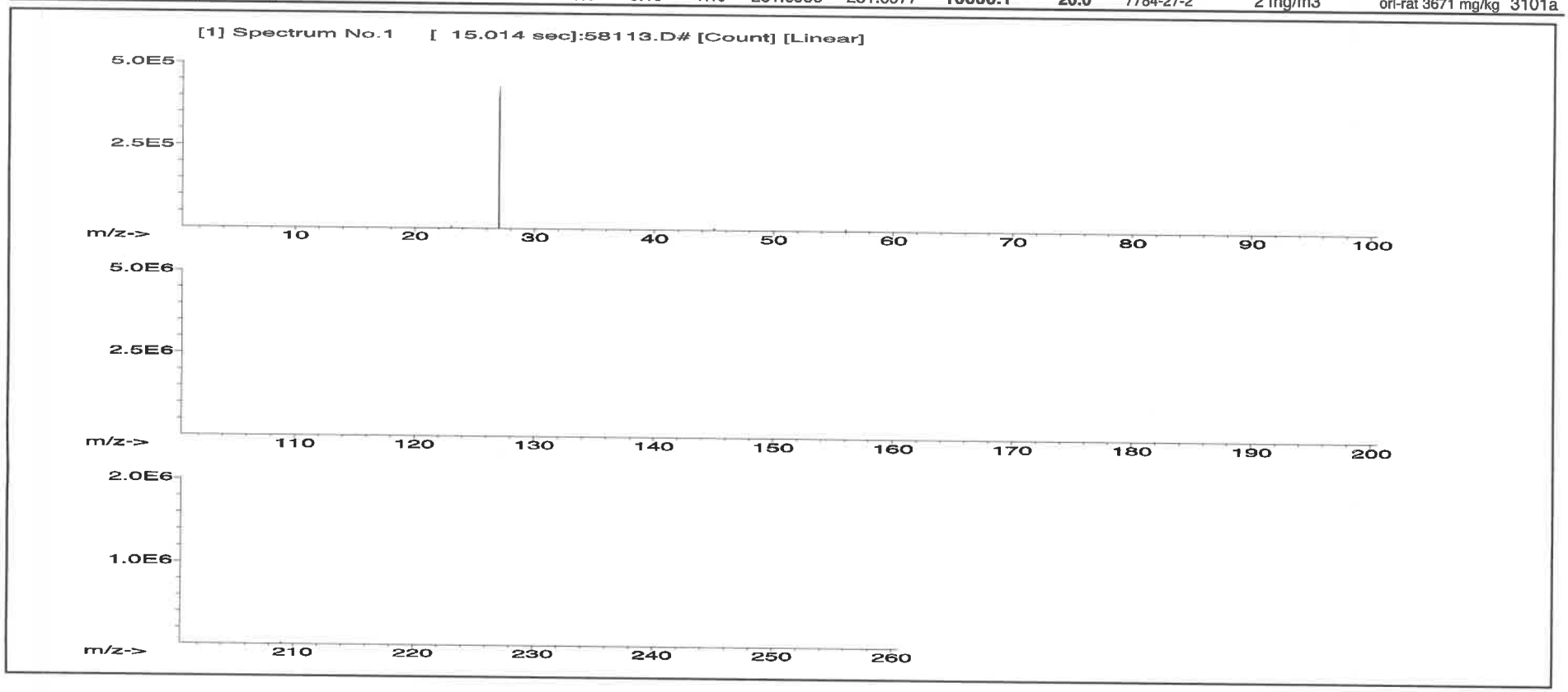
Expiration Date: 070625
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02

	Lot #		
Solvent:	20370011	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	
	0.058	Flask Uncertainty	

Formulated By: Lawrence Barry 070622

Reviewed By: Pedro L. Rentas 070622

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST 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	orl-rat 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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<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:

Certified by:

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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
M5292
M5293
M5294
M5295

(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.

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

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Certificate of Analysis

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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).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	6020CAL-1
Lot Number:	S2-MEB711244
Matrix:	5% (v/v) HNO3 tr. HF
Value / Analyte(s):	20 µg/mL ea:

Silver,	Aluminum,
Arsenic,	Barium,
Beryllium,	Calcium,
Cadmium,	Cobalt,
Chromium,	Copper,
Iron,	Potassium,
Magnesium,	Manganese,
Sodium,	Nickel,
Lead,	Antimony,
Selenium,	Thallium,
Vanadium,	Zinc

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	**20.01 ± 0.08 µg/mL**	**Antimony, Sb**	**20.01 ± 0.12 µg/mL**
Arsenic, As	**20.01 ± 0.18 µg/mL**	**Barium, Ba**	**20.01 ± 0.11 µg/mL**
Beryllium, Be	**20.01 ± 0.14 µg/mL**	**Cadmium, Cd**	**20.01 ± 0.11 µg/mL**
Calcium, Ca	**20.01 ± 0.10 µg/mL**	**Chromium, Cr**	**20.01 ± 0.16 µg/mL**
Cobalt, Co	**20.01 ± 0.11 µg/mL**	**Copper, Cu**	**20.01 ± 0.10 µg/mL**
Iron, Fe	**20.01 ± 0.09 µg/mL**	**Lead, Pb**	**20.01 ± 0.11 µg/mL**
Magnesium, Mg	**19.99 ± 0.10 µg/mL**	**Manganese, Mn**	**20.01 ± 0.10 µg/mL**
Nickel, Ni	**20.01 ± 0.11 µg/mL**	**Potassium, K**	**20.01 ± 0.10 µg/mL**
Selenium, Se	**20.02 ± 0.14 µg/mL**	**Silver, Ag**	**20.02 ± 0.09 µg/mL**
Sodium, Na	**20.01 ± 0.10 µg/mL**	**Thallium, Tl**	**20.01 ± 0.13 µg/mL**
Vanadium, V	**20.01 ± 0.11 µg/mL**	**Zinc, Zn**	**20.01 ± 0.11 µg/mL**

Density: 1.026 g/mL (measured at 20 ± 4 ºC)

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
As	ICP Assay	3103a	100818
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
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
Fe	Calculated		See Sec. 4.2
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
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Se	Calculated		See Sec. 4.2
Tl	ICP Assay	3158	151215
Tl	Calculated		See Sec. 4.2
V	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

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

N/A

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

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

Low Silver Note: This solution contains “LOW” levels of Silver. Please store this entire bottle inside a sealed glass jar.

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

October 20, 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

- **October 20, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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www.absolutestandards.com

R: 09/08/22 (BH)

Certified Reference Material CRM

M5387 - M5389. M5390 CM5391. M5392

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AR-1539 Certificate Number
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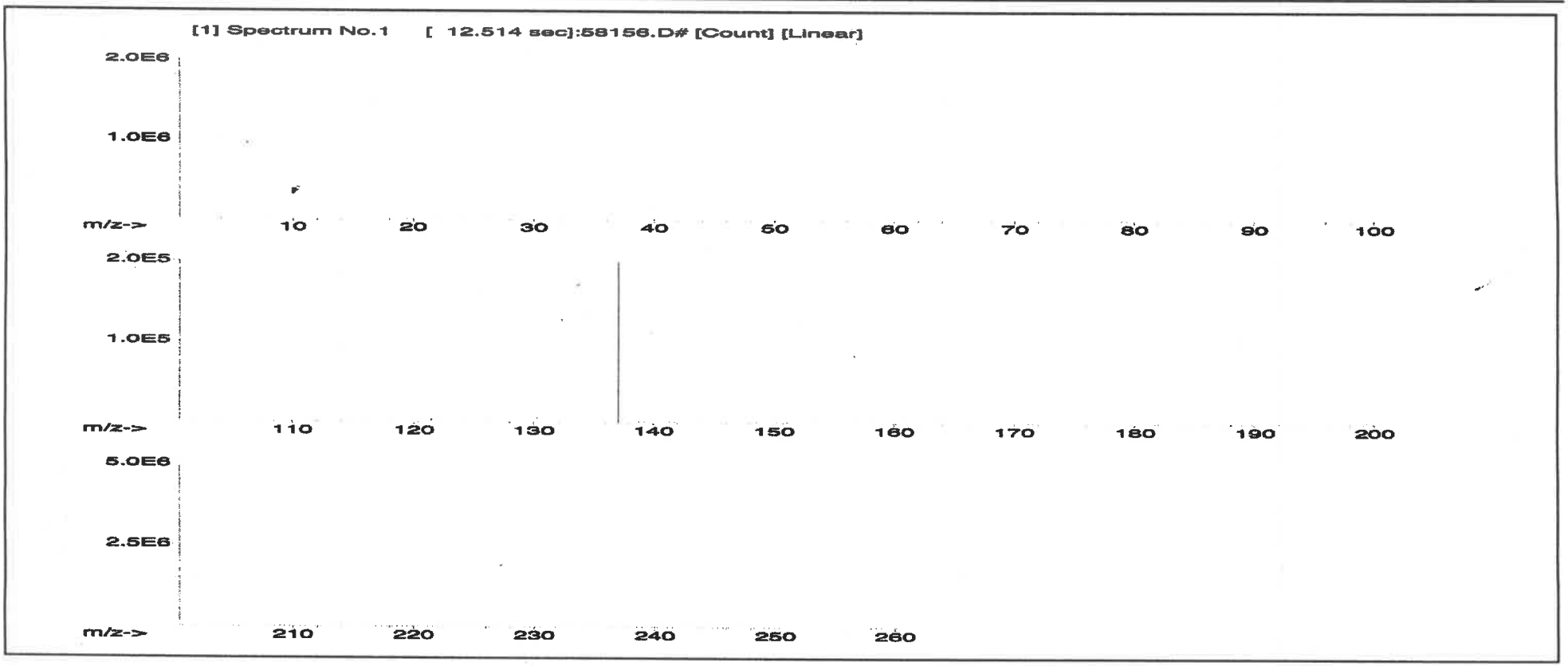
CERTIFIED WEIGHT REPORT:

			Lot #	
Part Number:	**57056**	**Solvent:**	20510011	Nitric Acid
Lot Number:	**072122**			
Description:	**Barium (Ba)**	2%	40.0 (mL)	Nitric Acid
Expiration Date:	072125			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Weight shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

Giovanni Esposito

Formulated By:	Giovanni Esposito	072122
Reviewed By:	Pedro L. Rentas	072122

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Barium nitrate (Ba)	IN023	BAD022019A1	1000	99.999	0.10	52.3	3.82417	3.82426	**1000.0**	2.0	10022-31-8	0.5 mg/m3	orl-rat 355 mg/kg	3104a



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	T	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

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 certifed (+/-) 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).

5706 2

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Certified Reference Material CRM

IN5497 - IN5498 R: 03/17/23 (BP)

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AR-1539 Certificate Number
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CERTIFIED WEIGHT REPORT:

Part Number: 58120
Lot Number: 031523
Description: Calcium (Ca)

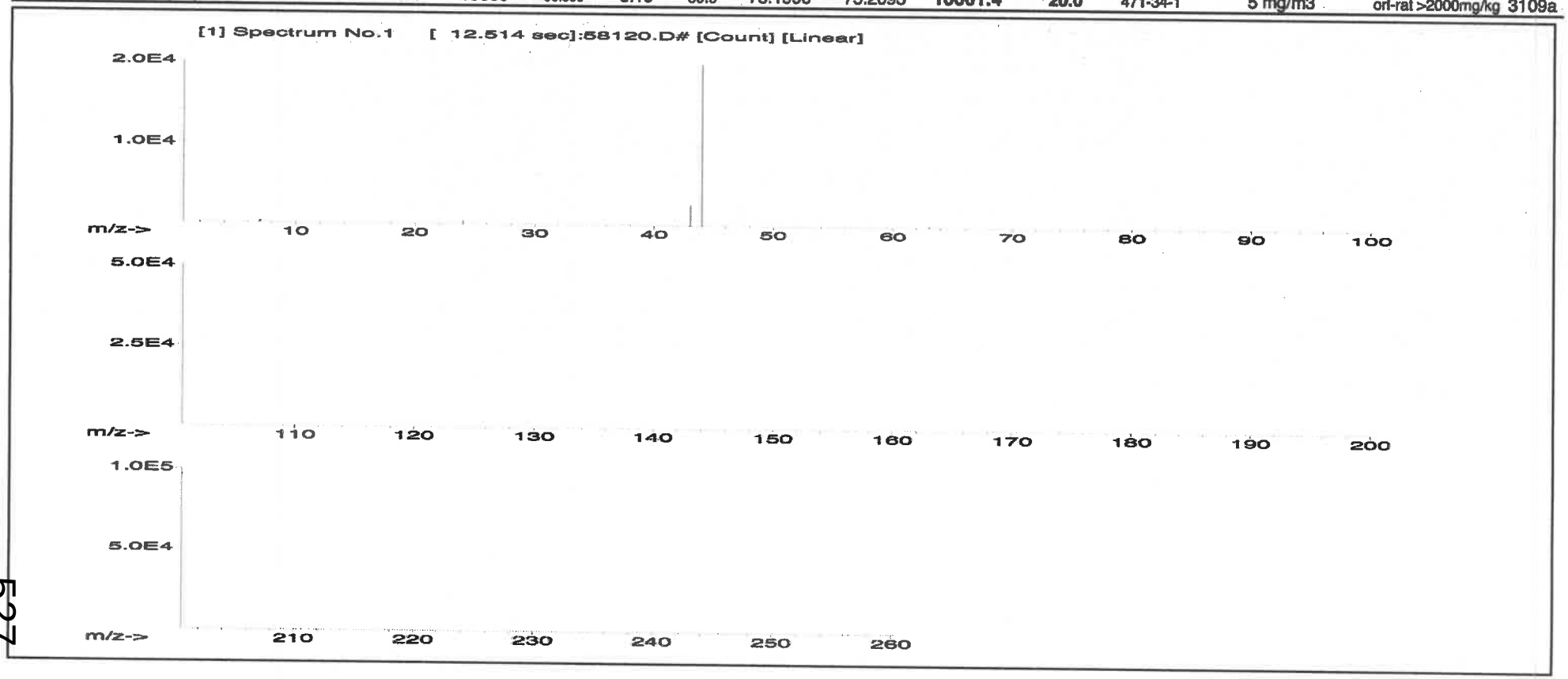
Expiration Date: 031526
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.41

	Lot #		
Solvent:	21110221	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	
	0.058	Flask Uncertainty	

Giovanni Esposito
Formulated By: Giovanni Esposito 031523

Pedro Rentas
Reviewed By: Pedro L. Rentas 031523

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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	orl-rat >2000mg/kg	3109a



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	T	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	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:

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 certifed (+/-) 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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Certified Reference Material CRM

M5497 - M5498 R: 03/17/23 BH

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AR-1539 Certificate Number
https://Absolutestandards.com

CERTIFIED WEIGHT REPORT:

Part Number: 58120
Lot Number: 031523
Description: Calcium (Ca)

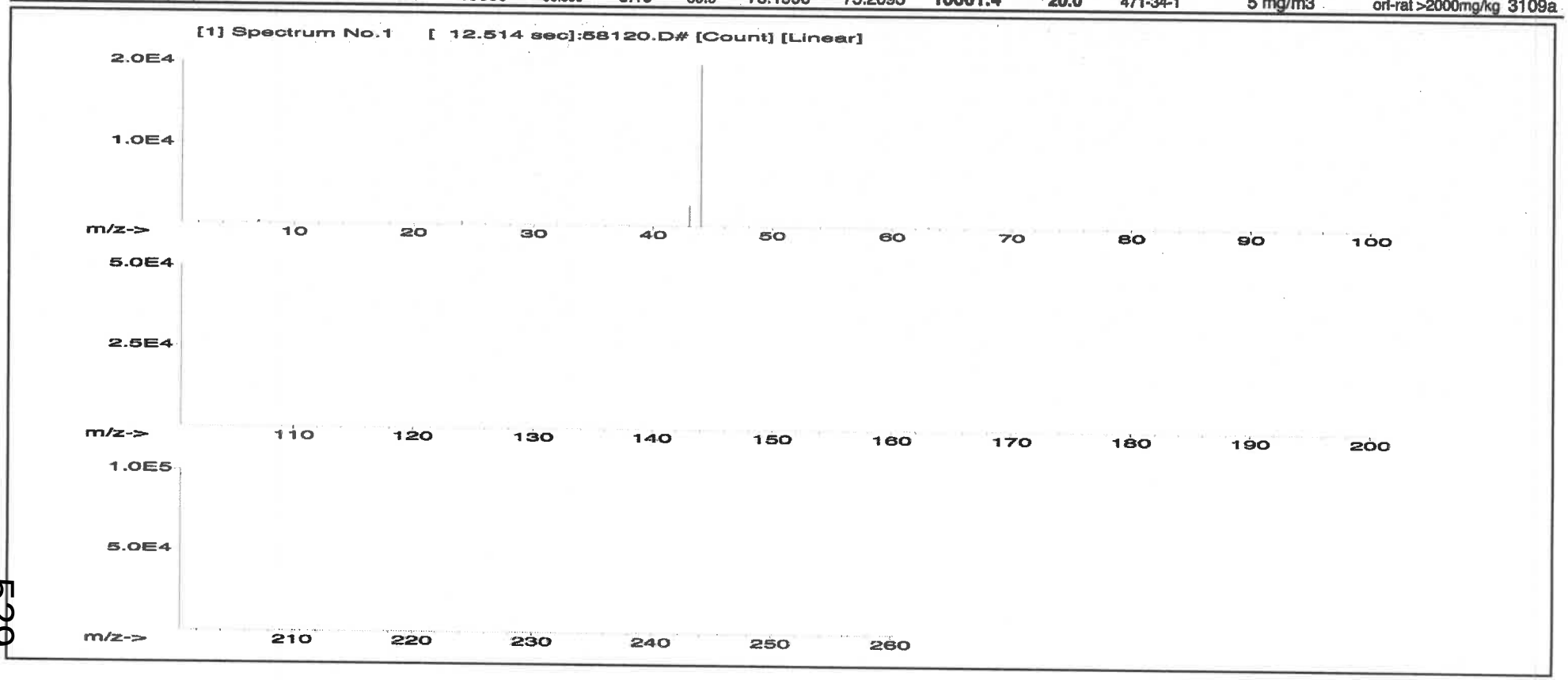
Expiration Date: 031526
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.41

	Lot #		
Solvent:	21110221	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	
	5E-05	Balance Uncertainty	
	0.058	Flask Uncertainty	

Giovanni Esposito

Formulated By:	Giovanni Esposito	031523
Reviewed By:	Pedro L. Rentas	031523

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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	orl-rat >2000mg/kg	3109a



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	T	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	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:

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 certifed (+/-) 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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Certified Reference Material CRM

MS513 R:03/17/23

ANAB ISO 17034 Accredited
AR-1539 Certificate Number
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CERTIFIED WEIGHT REPORT:

Part Number: 57182
Lot Number: 061522
Description: Lead (Pb)

Expiration Date: 061525
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02

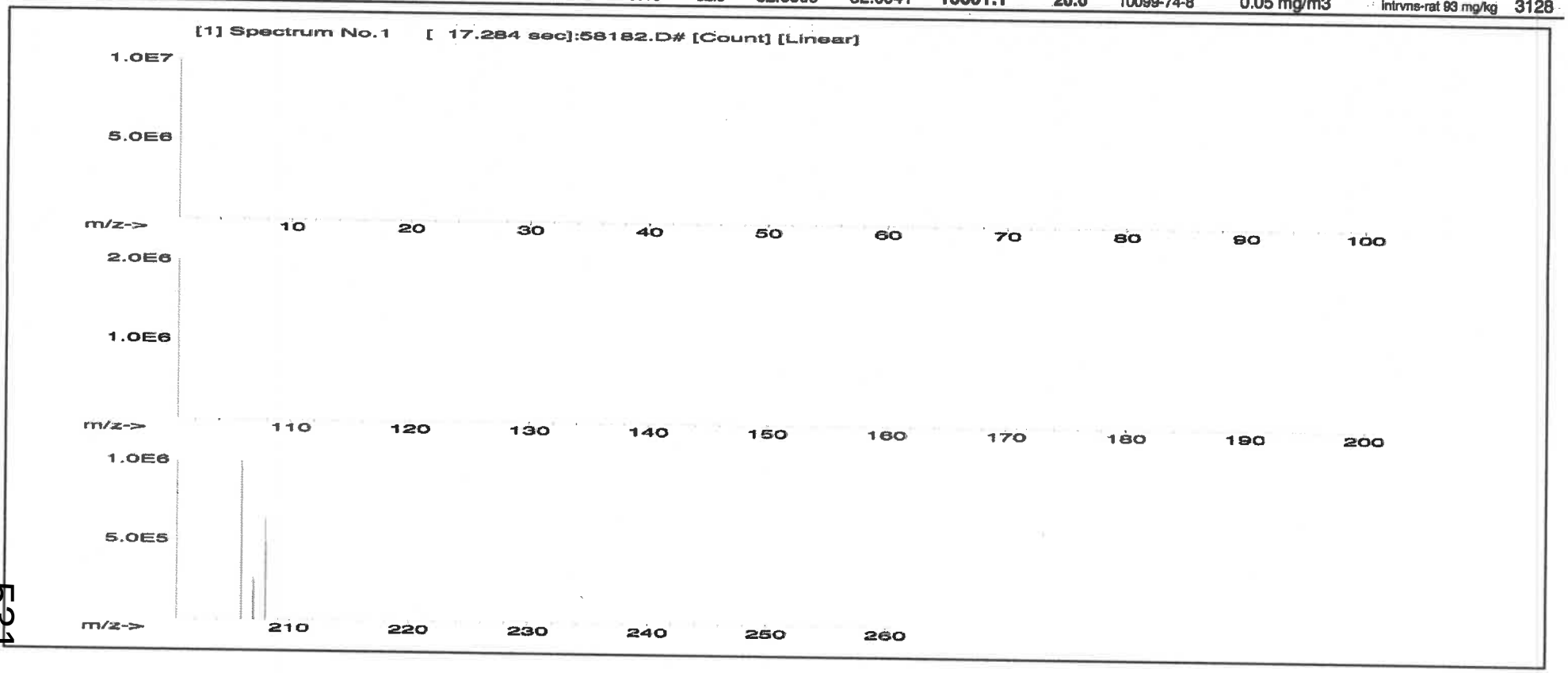
	Lot #		
Solvent:	20510011	Nitric Acid	
2%	40.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Giovanni Esposito

Formulated By:	Giovanni Esposito	061522
Reviewed By:	Pedro L. Rentas	061522

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Lead(II) nitrate (Pb)	IN029	PBD122016A1	10000	99.999	0.10	62.5	32.0006	32.0041	**10001.1**	**20.0**	10099-74-8	0.05 mg/m3	Intrvns-rat 93 mg/kg	3128



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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	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<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

(T)= Target analyte

Physical Characterization:

Certified by:

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

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
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* Standards are certifed (+/-) 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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Certified Reference Material CRM

M5514 - M5515 R: 03/17/22

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

CERTIFIED WEIGHT REPORT:

Part Number: 58126
Lot Number: 092122
Description: Iron (Fe)

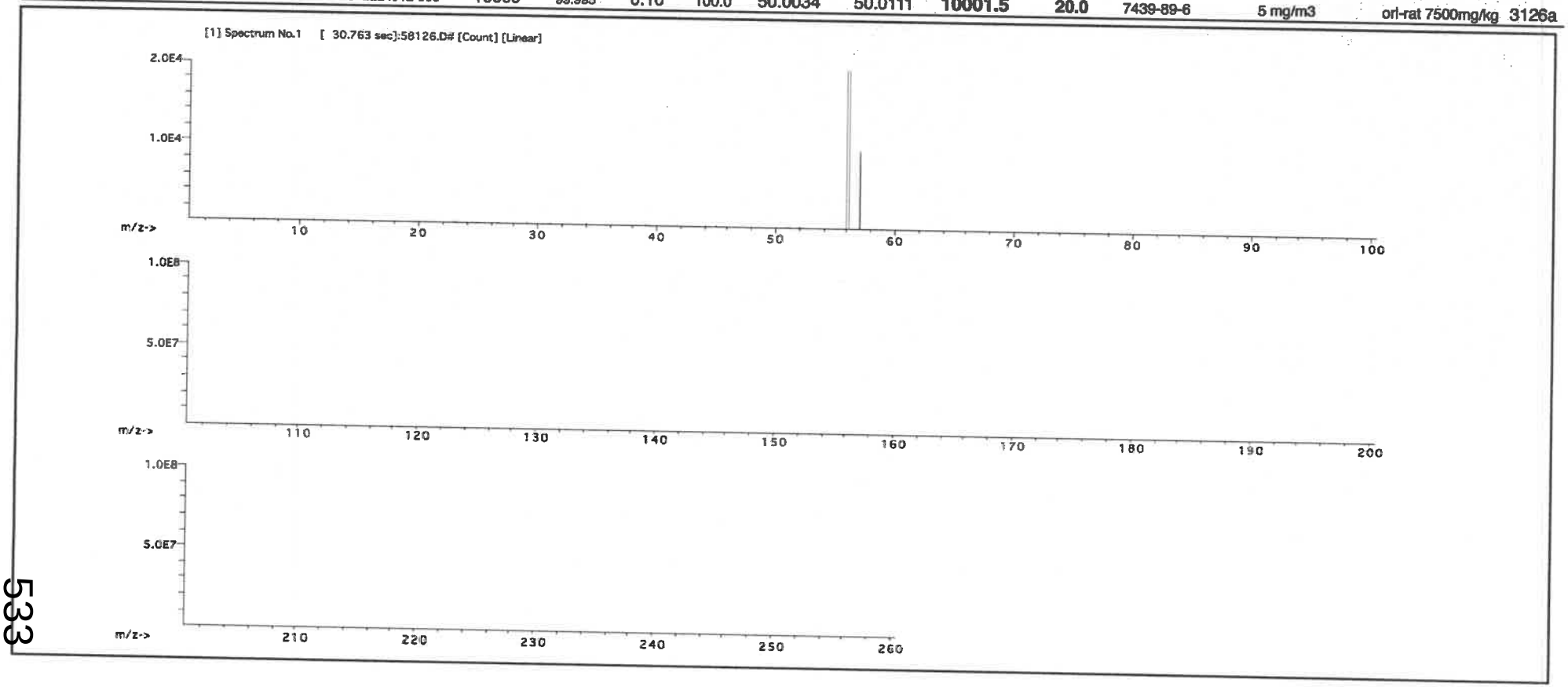
Expiration Date: 092125
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 5000.1

	Lot #		
Solvent:	20510011	Nitric Acid	
7.0%	350.0 (mL)	Nitric Acid	
5E-05	Balance Uncertainty		
0.12	Flask Uncertainty		

Giovanni Esposito

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

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Iron (Fe)	IN346	2224912-500	10000	99.995	0.10	100.0	50.0034	50.0111	**10001.5**	**20.0**	7439-89-6	5 mg/m3	orl-rat 7500mg/kg	3126a



533

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	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	<0.10	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.05	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.10	Ge	<0.10	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	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:

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.
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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).

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M5519. M5520 (BH) R:03/17/23

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535

CERTIFIED WEIGHT REPORT:

Part Number: 58119
Lot Number: 120822
Description: Potassium (K)

Expiration Date: 120825
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.4

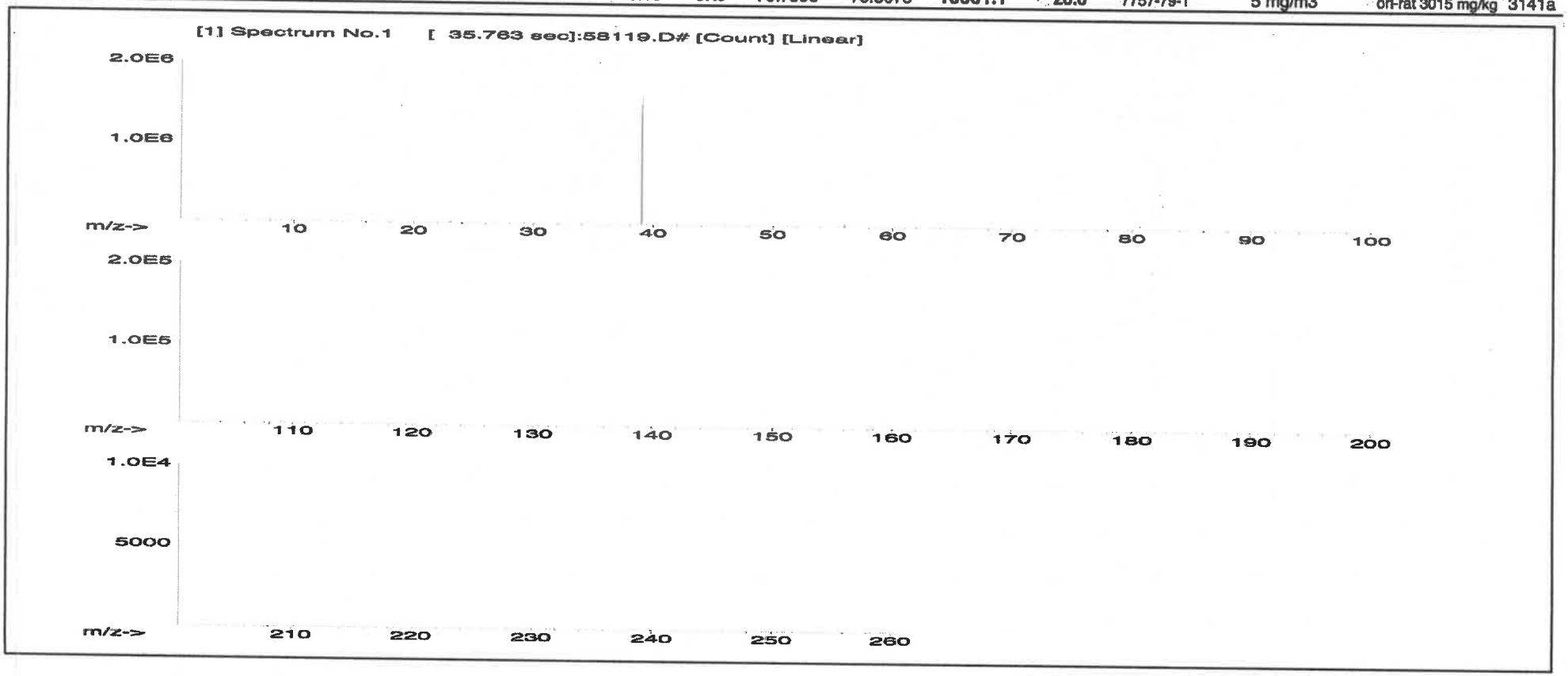
	Lot #		
Solvent:	20510011	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty
0.06 Flask Uncertainty

Giovanni Esposito

Formulated By:	Giovanni Esposito	120822
Reviewed By:	Pedro L. Rentas	120822

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Potassium nitrate (K)	IN034	KD022021A1	10000	99.999	0.10	37.6	79.7990	79.8075	**10001.1**	**20.0**	7757-79-1	5 mg/m3	orl-rat 3015 mg/kg	3141a



536

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	T	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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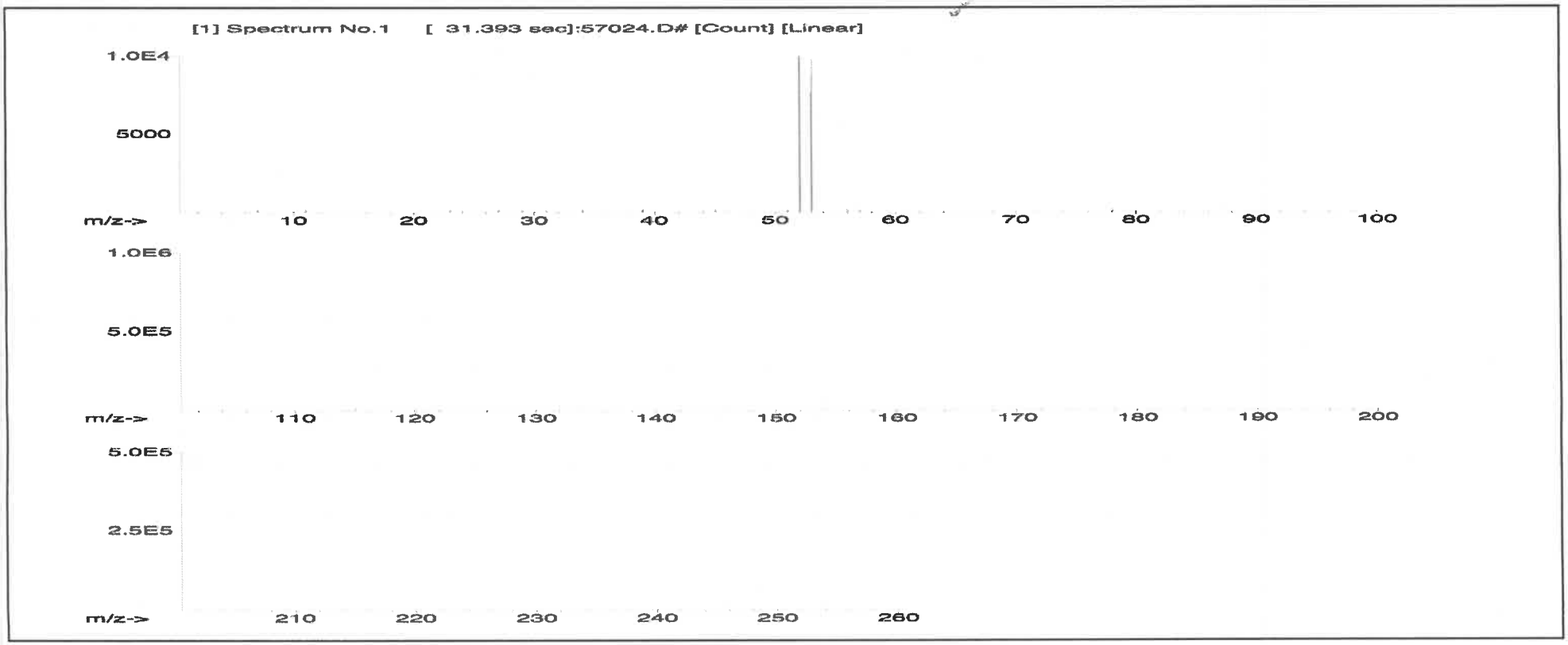
537

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	58024	21110221	Nitric Acid	
Lot Number:	060523			
Description:	Chromium (Cr)			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	060526			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	1000			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

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

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.) 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	orl-rat 3250 mg/kg	3112a



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	T	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Certified by:

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

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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).

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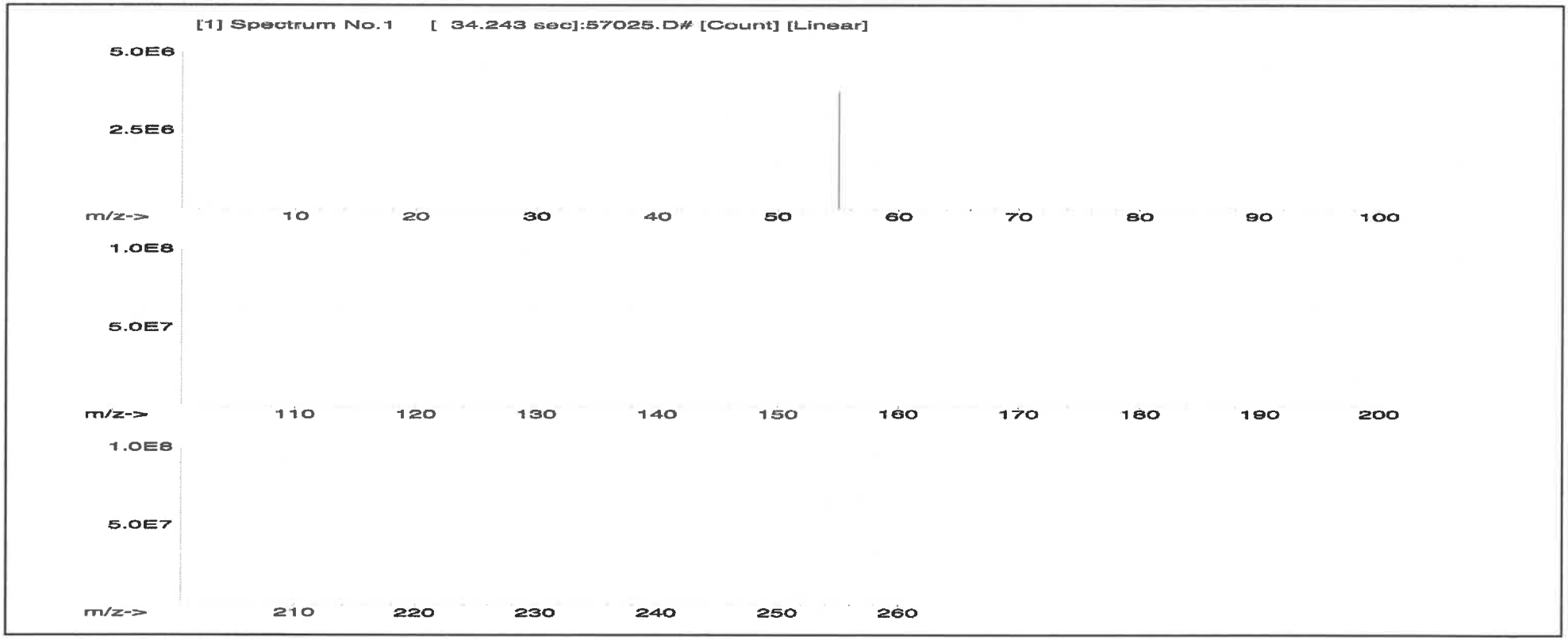
539

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58025**	24002546	Nitric Acid	
Lot Number:	**102623**			
Description:	**Manganese (Mn)**			
		2.0%	60.0 (mL)	Nitric Acid
Expiration Date:	102626			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	3000.41	0.058	Flask Uncertainty	

Formulated By:	Benson Chan	102623
Reviewed By:	Pedro L. Rentas	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.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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	orl-rat >300mg/kg	3132



540

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	T	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

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

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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).

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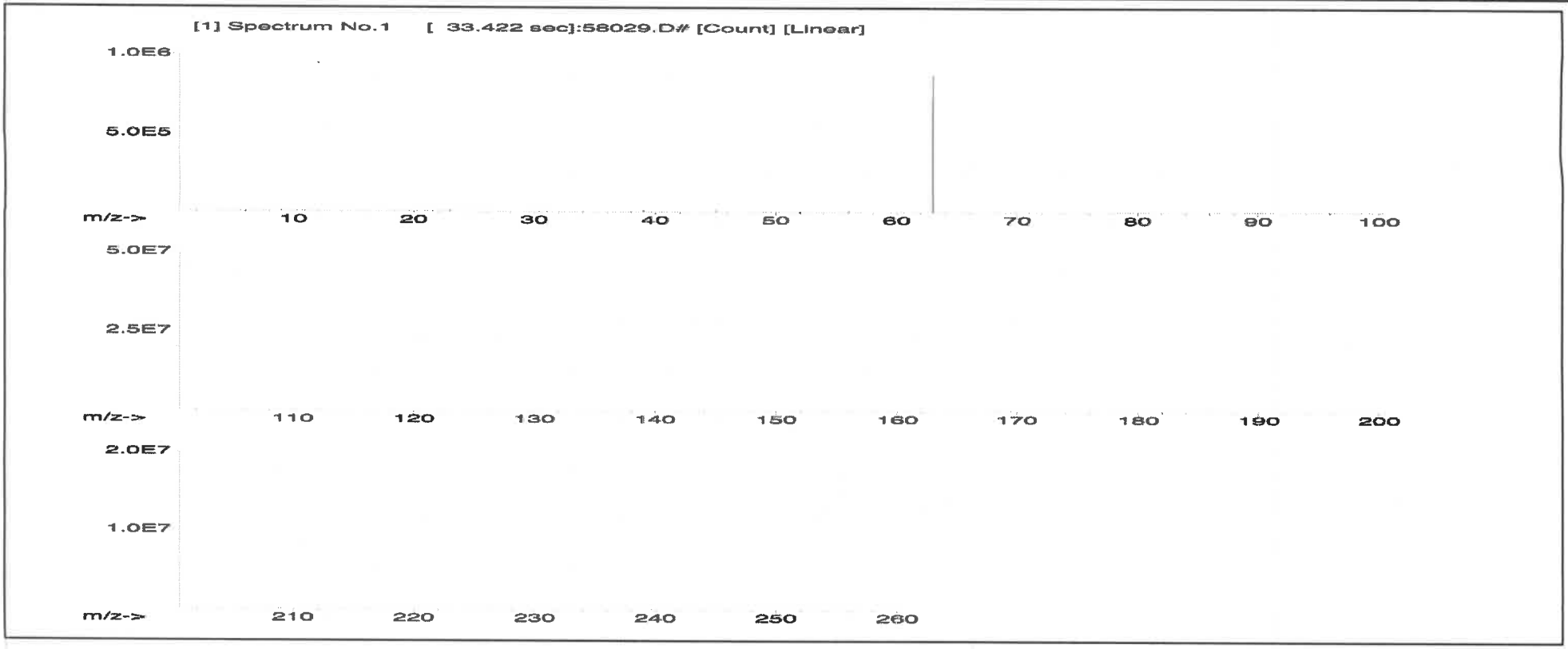
541

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**58029**	21110221	Nitric Acid	
Lot Number:	**071723**			
Description:	**Copper (Cu)**	2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	071726			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

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

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.) 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	orl-rat 794 mg/kg	3114



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	T	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

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

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M5768 M5769 (BP) R:1/3/24

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543

CERTIFIED WEIGHT REPORT:

Part Number: 58112
Lot Number: 091823
Description: Magnesium (Mg)

Expiration Date: 091826
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

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

		Lot #	
Solvent:	24002546	Nitric Acid	
	2%	40.0 (mL)	Nitric Acid

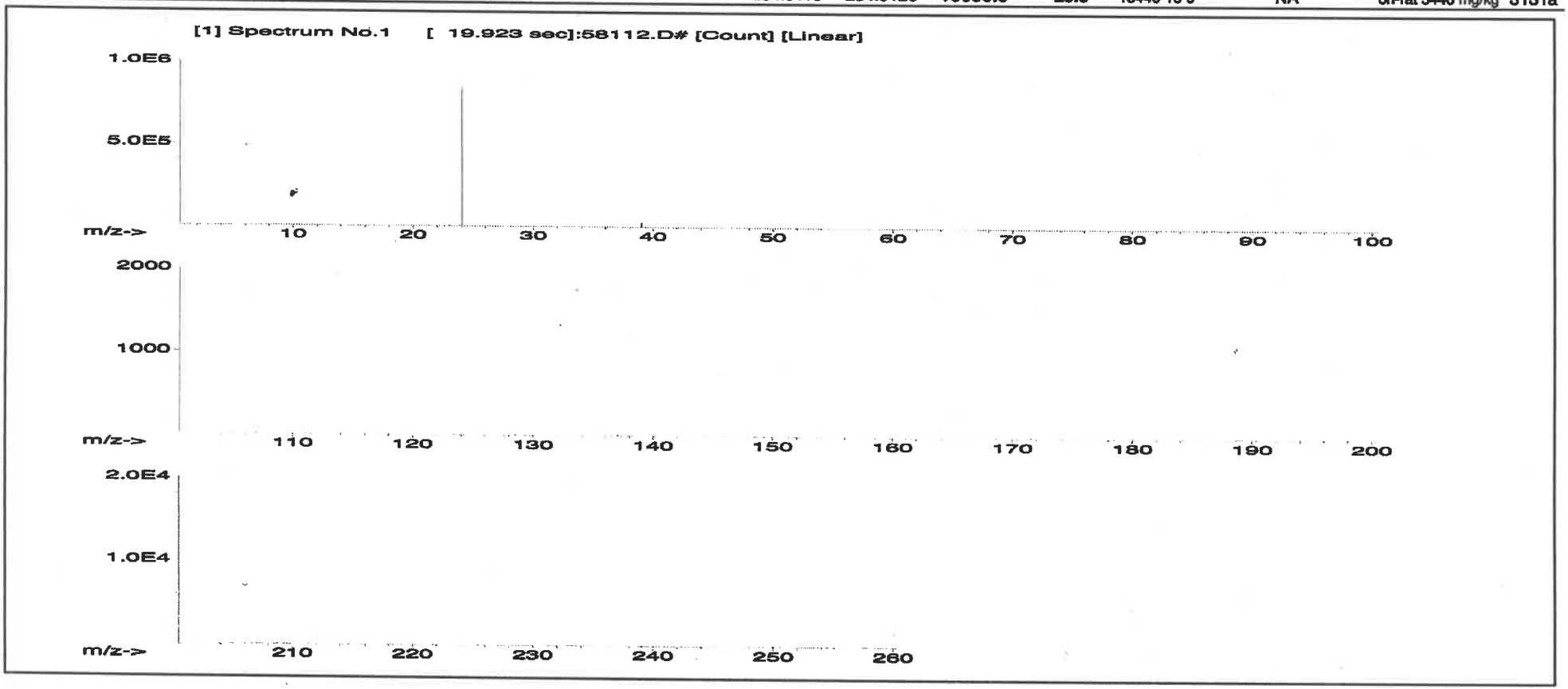
5E-05 Balance Uncertainty

M5768, M5769 (BP) R: 1/3/24

Formulated By: Lawrence Barry 091823

Reviewed By: Pedro L. Rentas 091823

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Magnesium nitrate hexahydrate (Mg)	IN030	MGD052023A1	10000	99.999	0.10	8.51	234.9118	234.9126	**10000.0**	**20.0**	13446-18-9	NA	ori-rat 5440 mg/kg	3131a



544

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	T	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

Certified by:

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

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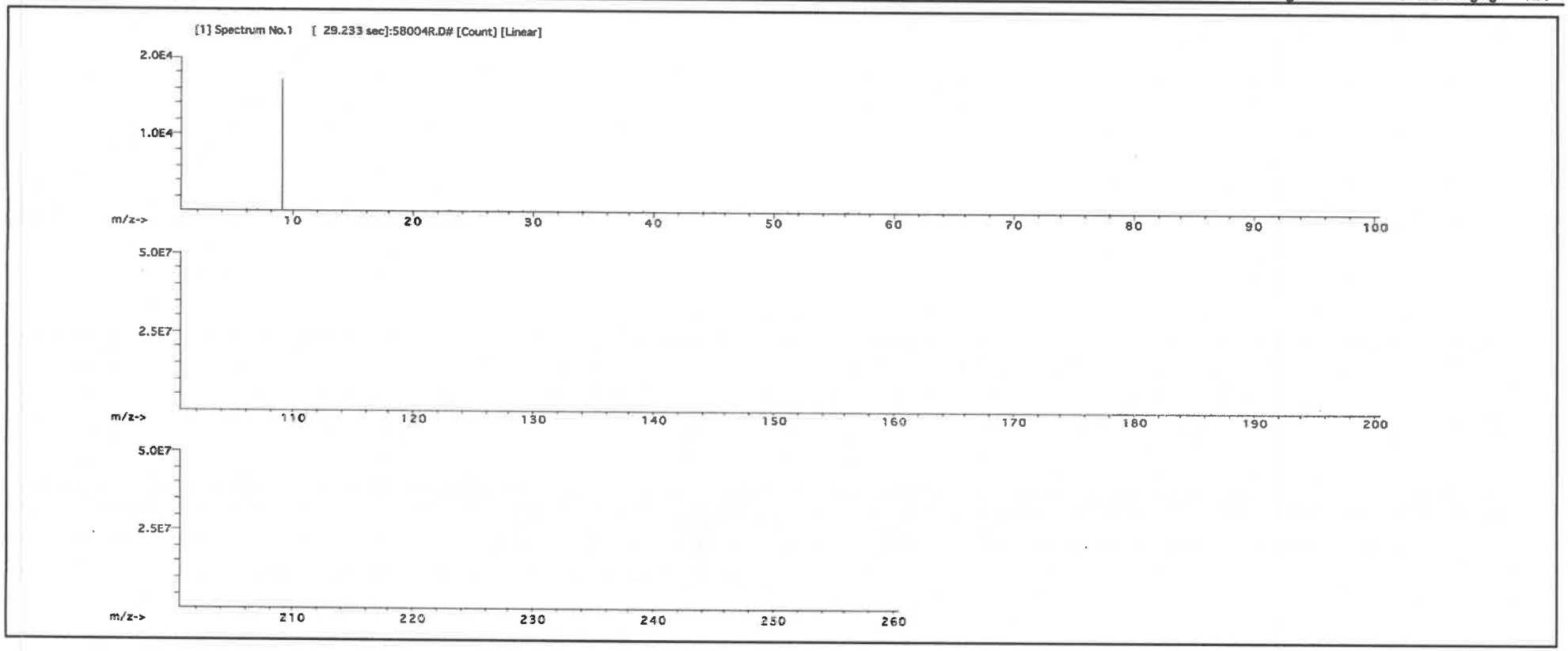
545

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:		
Part Number:	**57004**	24002546	Nitric Acid		
Lot Number:	**102523**				
Description:	**Beryllium (Be)**	2.0%	40.0 (mL)	Nitric Acid	
Expiration Date:	102526				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

Formulated By:	Benson Chan	102523
Reviewed By:	Pedro L. Rentas	102523

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.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Beryllium nitrate (Be)	58104	091423	0.1000	200.0	0.084	1000	10001.5	**1000.0**	**2.2**	13597-99-4	0.2ug/m3	intrvns-rat 3.16mg/kg	NA



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	T	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:

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 certifed (+/-) 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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CERTIFIED WEIGHT REPORT:

Part Number: 57050
Lot Number: 071123
Description: Tin (Sn)

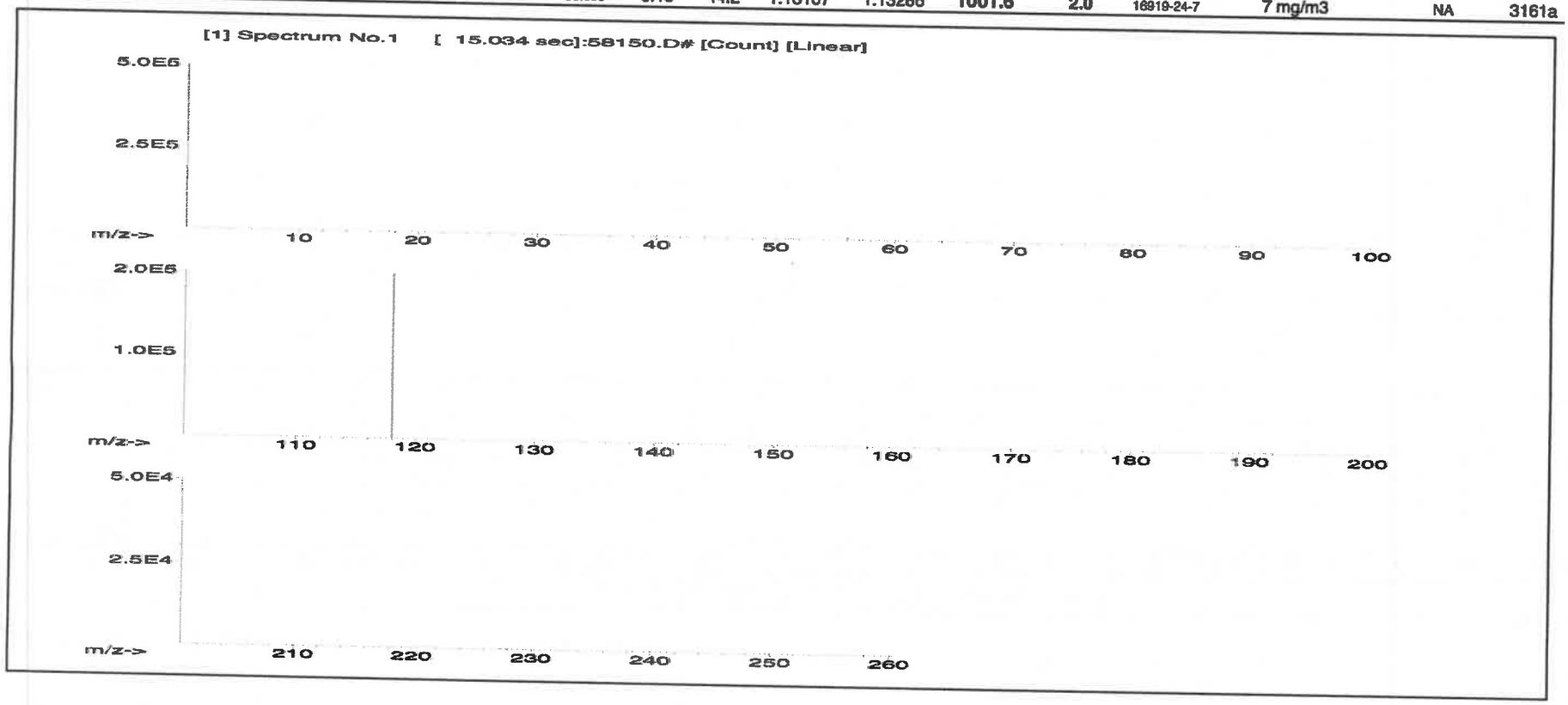
Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 499.93

	Lot #	
Solvents:	21110221	Nitric Acid
	22D0562008	Hydrochloric acid
2%	10.0	Nitric Acid
6%	30.0	Hydrochloric acid
	(mL)	

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium hexafluorostannate(IV) (Sn)	IN010	SND042023A1	1000	99.999	0.10	44.2	1.13107	1.13286	**1001.6**	**2.0**	16919-24-7	7 mg/m3	NA	3161a



548

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	<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	Sn	T	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 certifed (+/-) 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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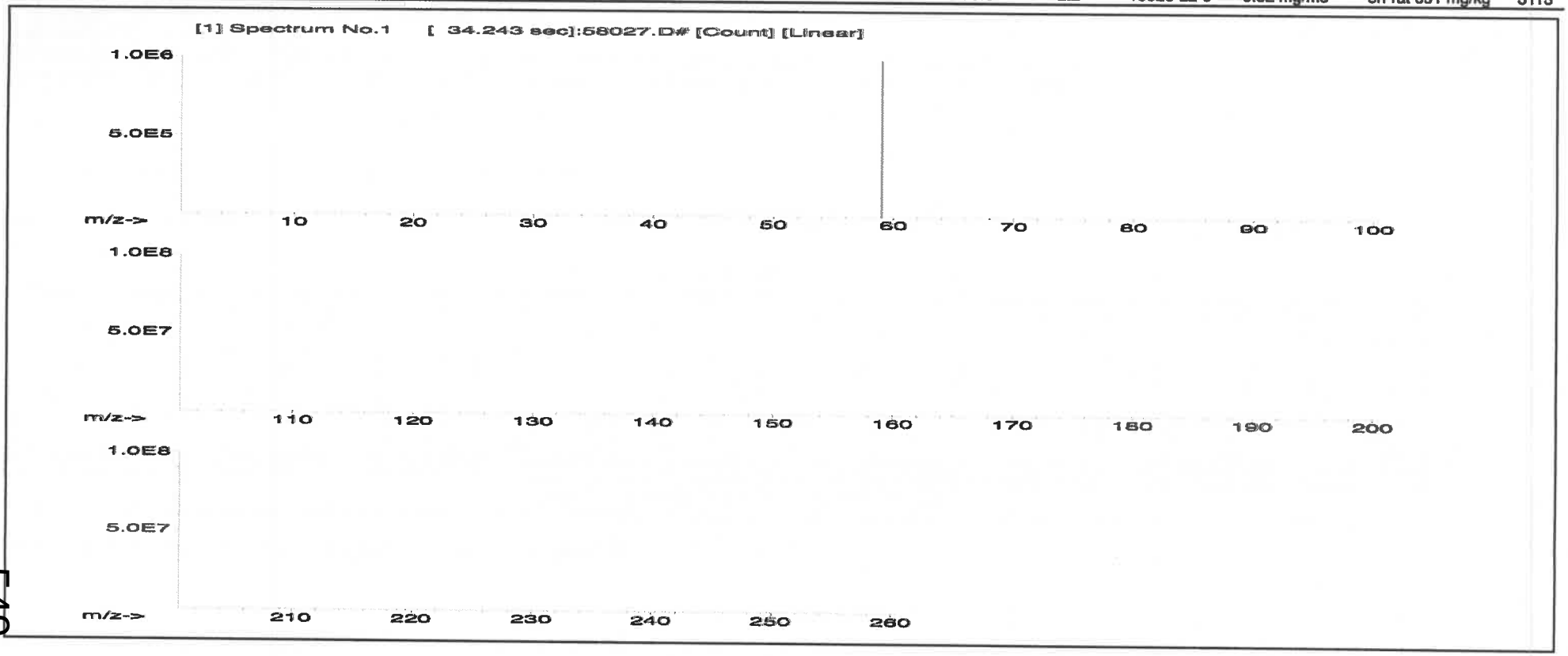
CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:		
Part Number:	**57027**	24002546	Nitric Acid		
Lot Number:	**091923**				
Description:	**Cobalt (Co)**	2.0%	40.0 (mL)	Nitric Acid	
Expiration Date:	091926				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

Formulated By: Lawrence Barry 091923

Reviewed By: Pedro L. Rentas 091923

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.) 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



549

Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	T	Gé	<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:

Certified by:

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

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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).

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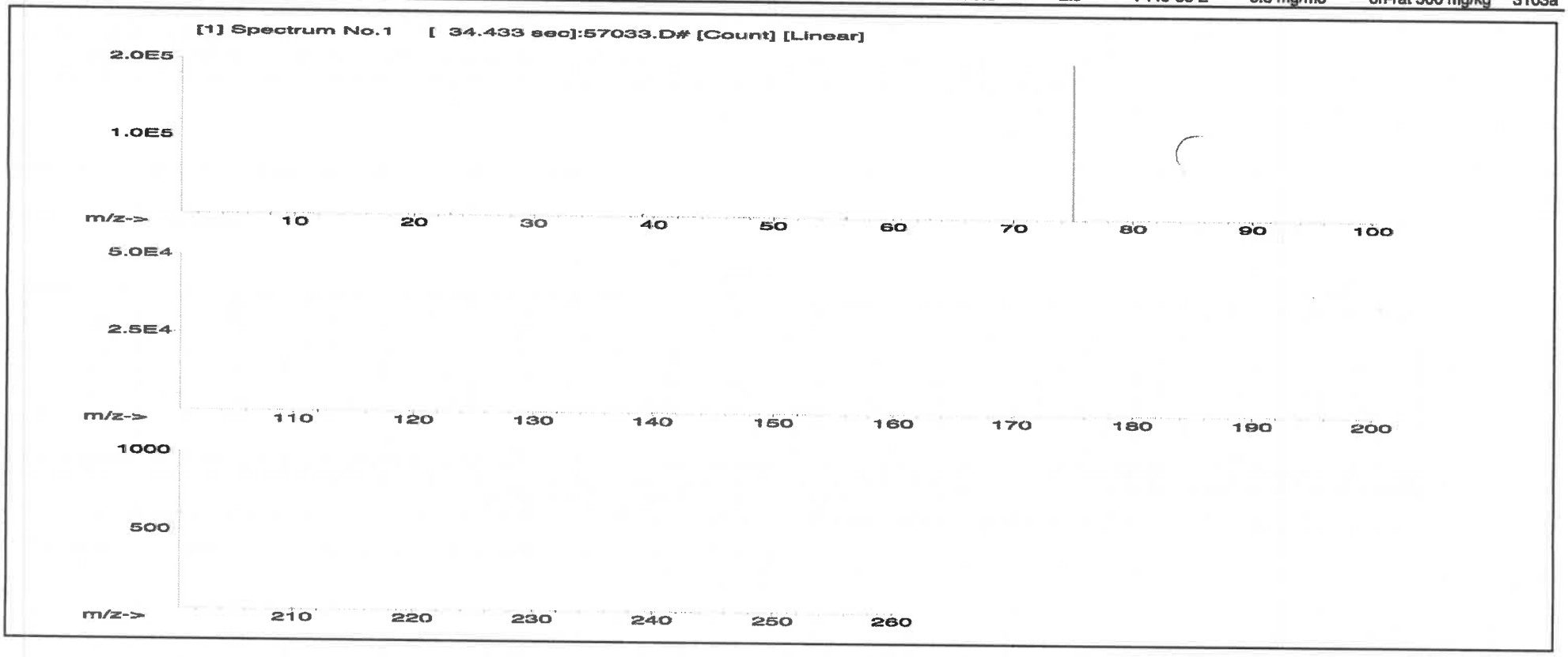
CERTIFIED **WEIGHT** REPORT:

		Lot #	Solvent:		
Part Number:	**57033**	24002546	Nitric Acid		
Lot Number:	**111323**				
Description:	**Arsenic (As)**	2.0%	80.0 (mL)	Nitric Acid	
Expiration Date:	111326				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	4000.0	0.06	Flask Uncertainty		

Formulated By:	Lawrence Barry	111323
Reviewed By:	Pedro L. Rentas	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)	SDS Information (Solvent Safety Info. On Attached pg.) 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	orl-rat 500 mg/kg	3103a



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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	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	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	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:

Certified by:

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

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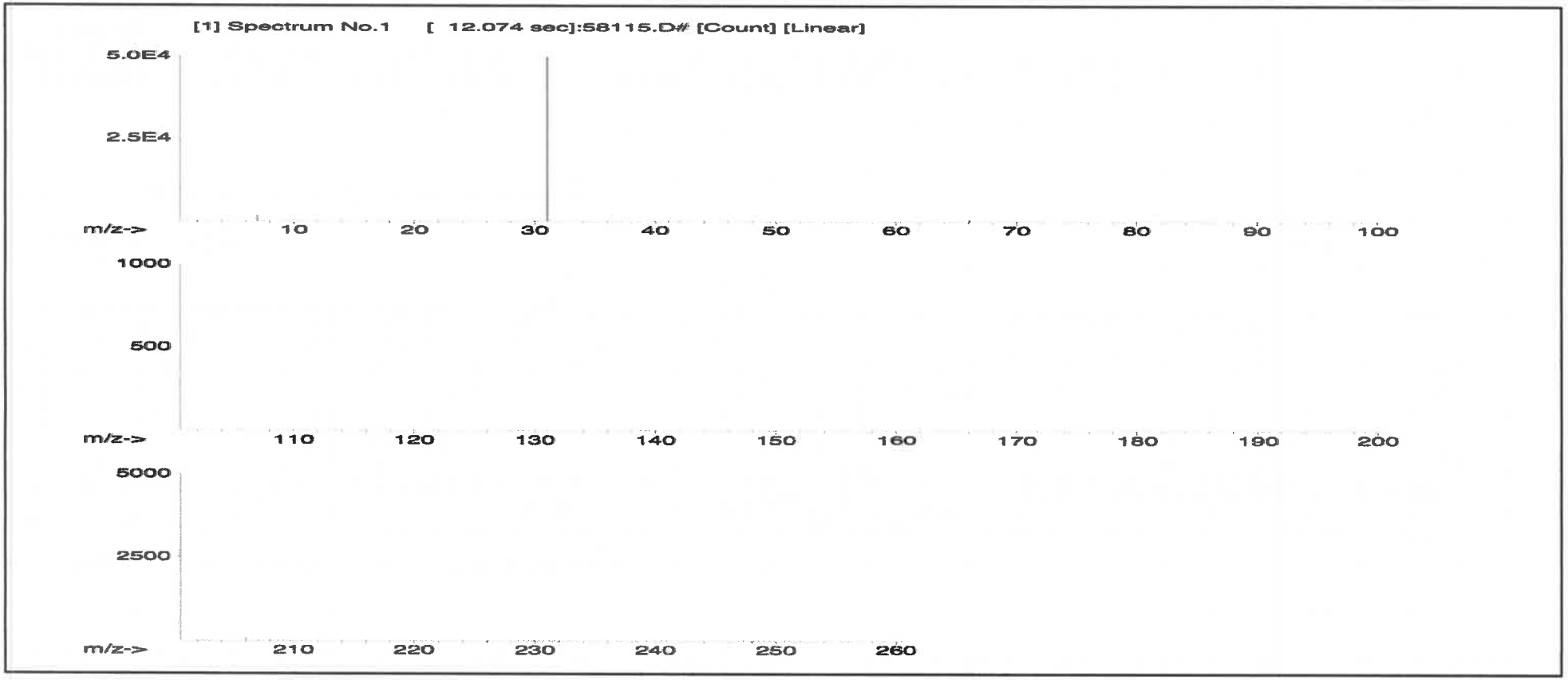
CERTIFIED WEIGHT REPORT:

			Lot #	
Part Number:	**57115**	**Solvent:**	21110221	Nitric Acid
Lot Number:	**041723**			
Description:	**Phosphorous (P)**	2%	40.0 (mL)	Nitric Acid
Expiration Date:	041726			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**10000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Weight shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

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

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium dihydrogen phosphate (P)	IN008	PV082019A1	10000	99.999	0.10	27.5	72.7287	72.7289	**10000.0**	**20.0**	7722-76-1	5 mg/m3	orl-rat >2000mg/kg	3186



Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	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:

Certified by:

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

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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).

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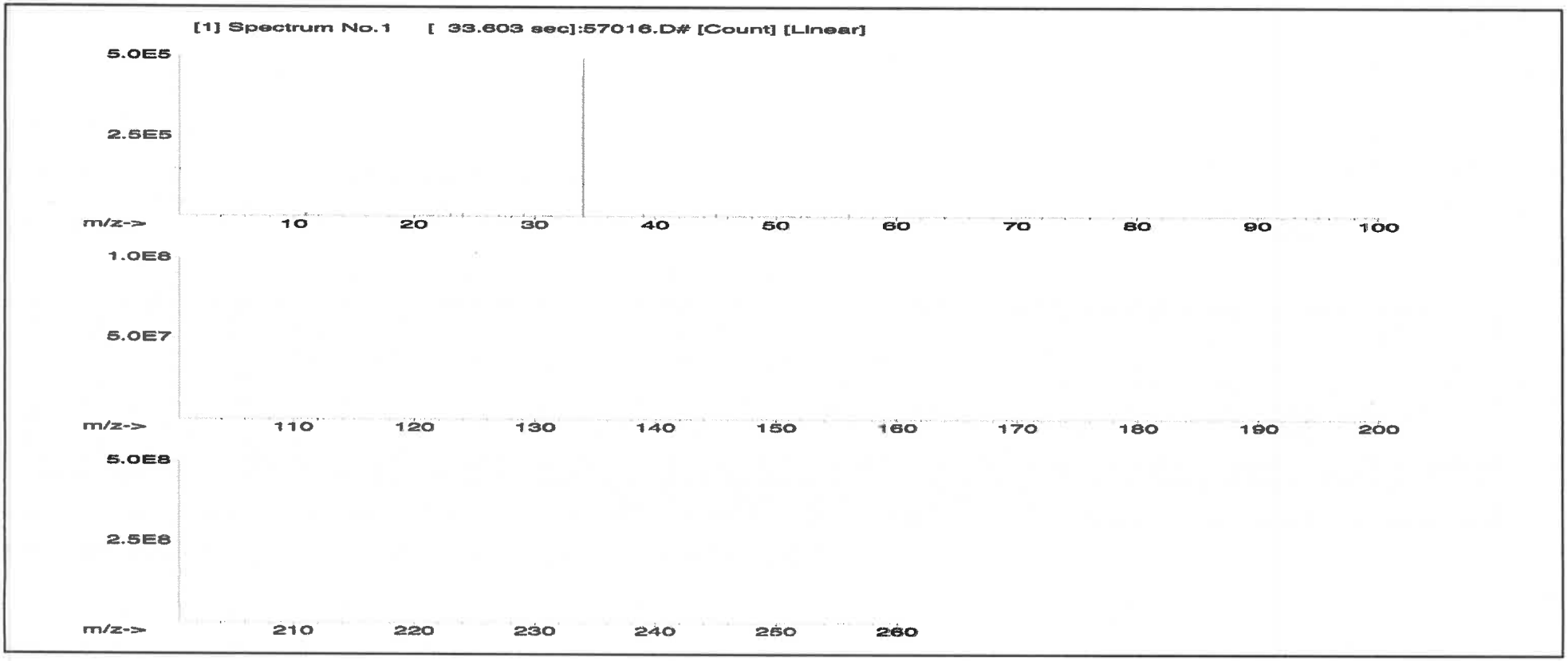
CERTIFIED WEIGHT REPORT:

Part Number:	**57016**	**Solvent:**	**Lot #** 122923	ASTM Type 1 Water
Lot Number:	**122923**			
Description:	**Sulfur (S)**			
Expiration Date:	122926			
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):	4000.0	0.06	Flask Uncertainty	

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

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium sulfate (S)	IN117	SLBR7225V	1000	99.9	0.10	24.3	16.4979	16.4980	**1000.0**	**2.0**	7783-20-2	NA	orl-rat 4250mg/kg	3181



556

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	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

(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 certifed (+/-) 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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557

CERTIFIED WEIGHT REPORT:

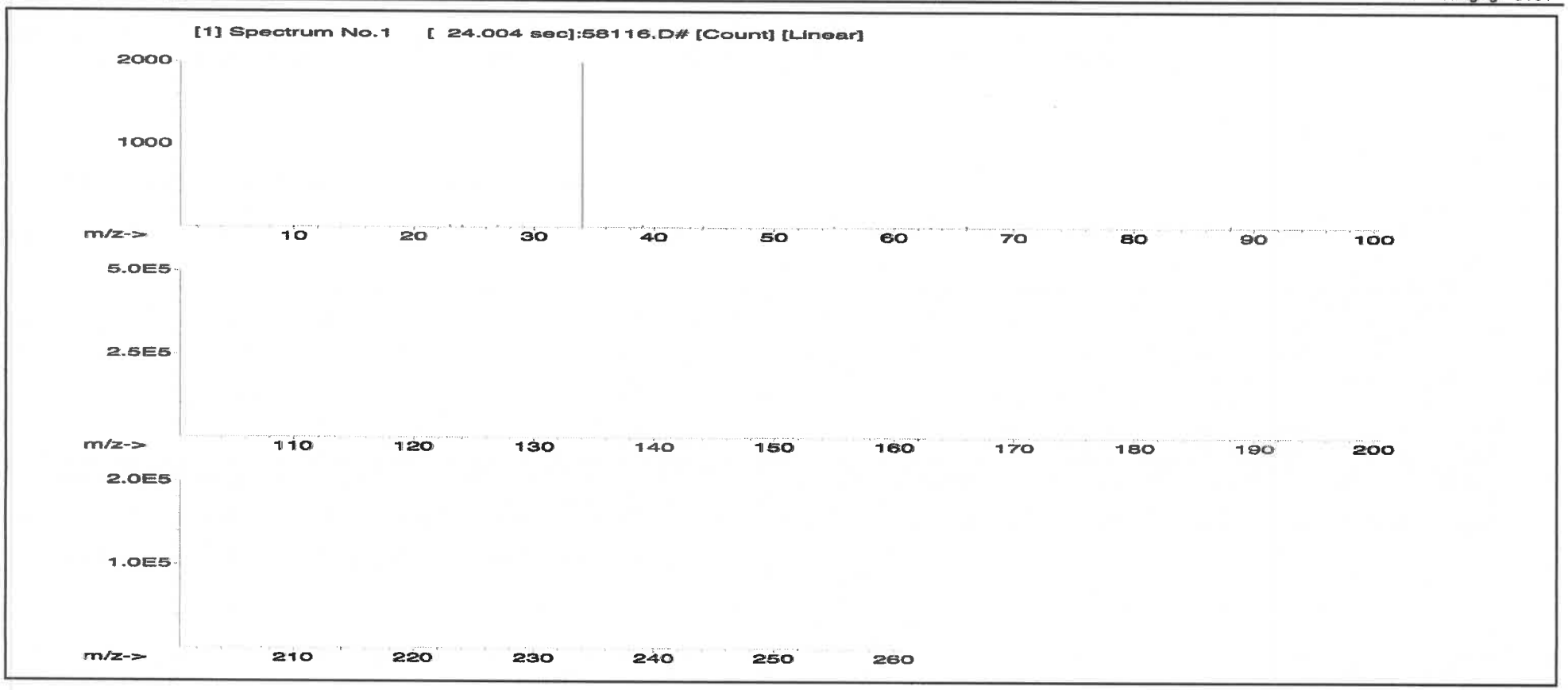
Part Number: 57116
Lot Number: 071123
Description: Sulfur (S)

Lot #
Solvent: 071123 ASTM Type 1 Water

Expiration Date: 071126
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): 1999.48 0.058 Flask Uncertainty

Formulated By:	Lawrence Barry 071123
Reviewed By:	Pedro L. Rentas 071123

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium sulfate (S)	IN117	SLBR7225V	10000	99.9	0.10	24.3	82.4675	82.4682	**10000.1**	**20.0**	7783-20-2	NA	ori-rat 4250mg/kg	3181



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	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

(T)= Target analyte

Physical Characterization:

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

Certified by:

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R: 02/09/24 M.5818

Lot #

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559

CERTIFIED WEIGHT REPORT:

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

Expiration Date: 122026
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1999.48 0.058 Flask Uncertainty

Solvent: 24002546 Nitric Acid

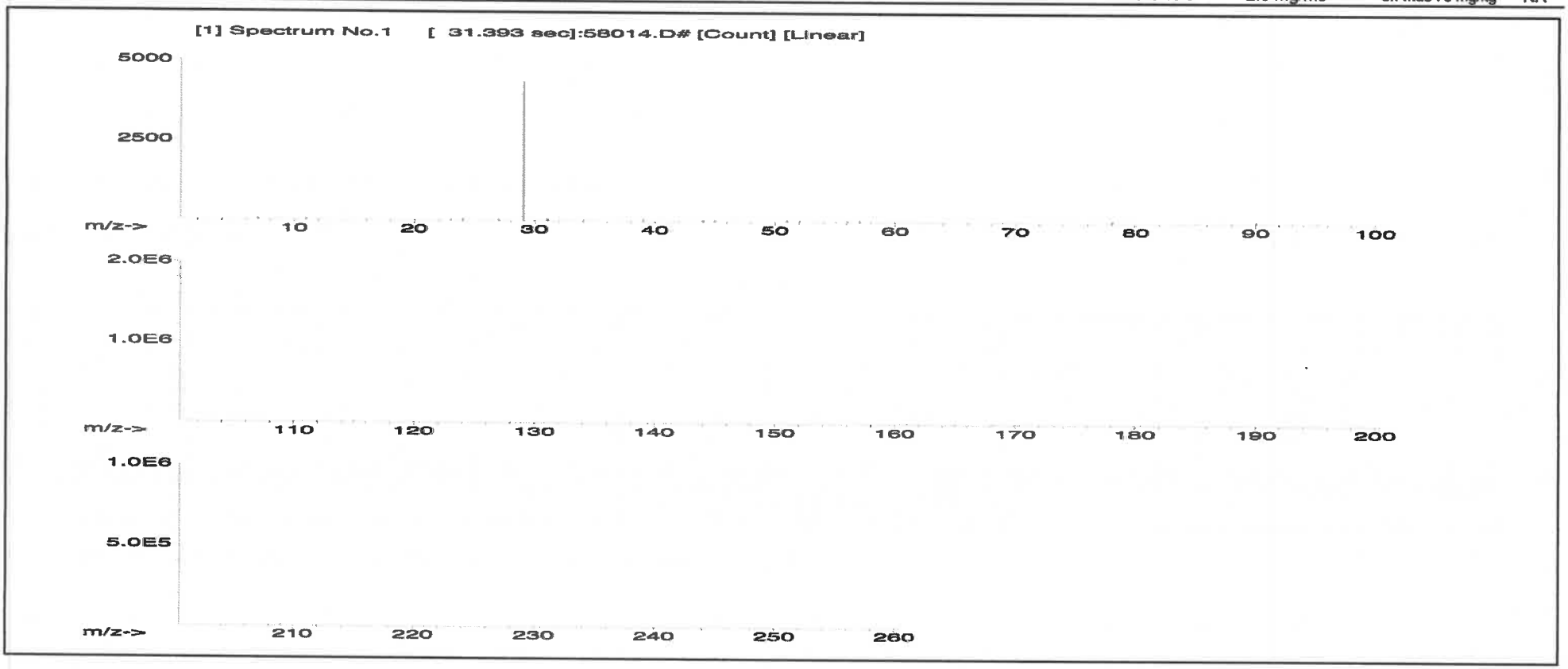
2% 40.0 (mL) Nitric Acid

5E-05 Balance Uncertainty

Aleah O'Brady
Formulated By: Aleah O'Brady 122023

Pedro Rentas
Reviewed By: Pedro L. Rentas 122023

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium hexafluorosilicate (Si)	IN009	SID082022A1	1000	99.999	0.10	14.4	13.8854	13.8855	**1000.0**	**2.0**	16919-19-0	2.5 mg/m3	orl-mus 70 mg/kg	NA



560

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	T	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(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.
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561

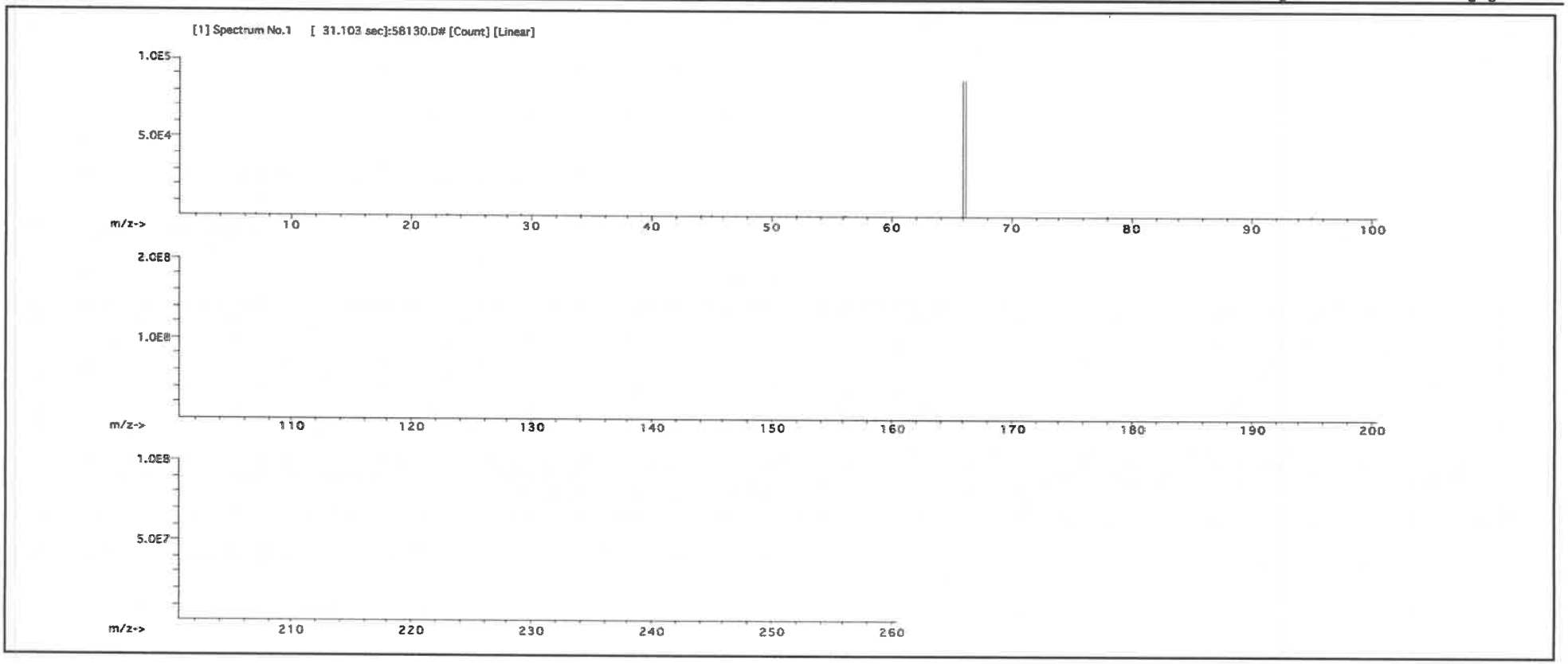
CERTIFIED WEIGHT REPORT:

Part Number:	**58030**			
Lot Number:	**111623**			
Description:	**Zinc (Zn)**			
		Solvent:	24002546	Nitric Acid
		2%	60.0 (mL)	Nitric Acid
Expiration Date:	111626			
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):	3000.4	0.06	Flask Uncertainty	

Lot #

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

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Zinc nitrate hexahydrate (Zn)	IN016	ZNE032021A1	1000	99.999	0.10	24.3	12.3475	12.3502	**1000.2**	**2.0**	10196-18-6	1 mg/m3	orl-rat 1190mg/kg	3168



562

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	T
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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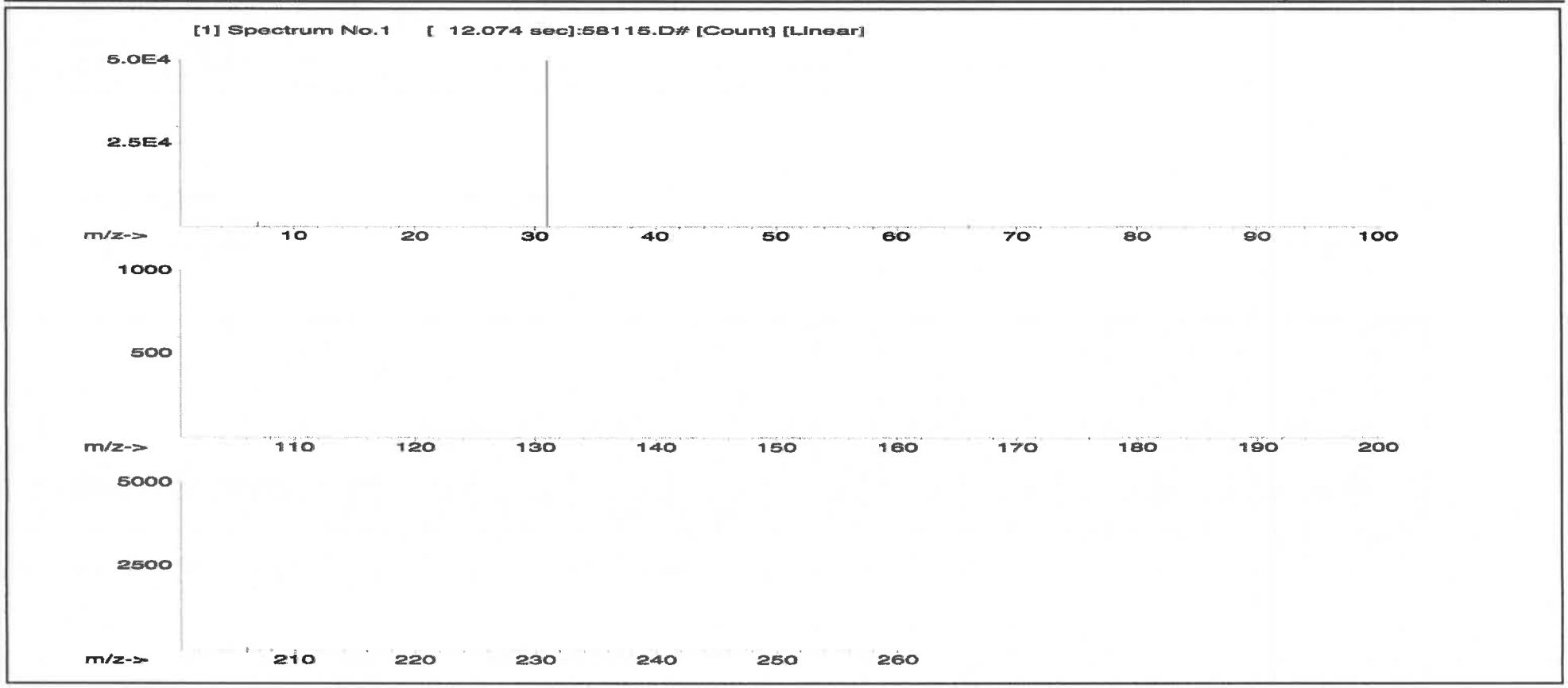
563

CERTIFIED WEIGHT REPORT:

Part Number:	**57015**		**Lot #**		
Lot Number:	**091123**	**Solvent:**	24002546	Nitric Acid	
Description:	**Phosphorous (P)**	2%	40.0 (mL)	Nitric Acid	
Expiration Date:	091126				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

Formulated By:	Lawrence Barry	091123
Reviewed By:	Pedro L. Rentas	091123

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Ammonium dihydrogen phosphate (P)	IN008	PV082019A1	1000	99.999	0.10	27.5	7.2729	7.2730	**1000.0**	**2.0**	7722-76-1	5 mg/m3	orl-rat >2000mg/k	3186



564

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	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:

Certified by:

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

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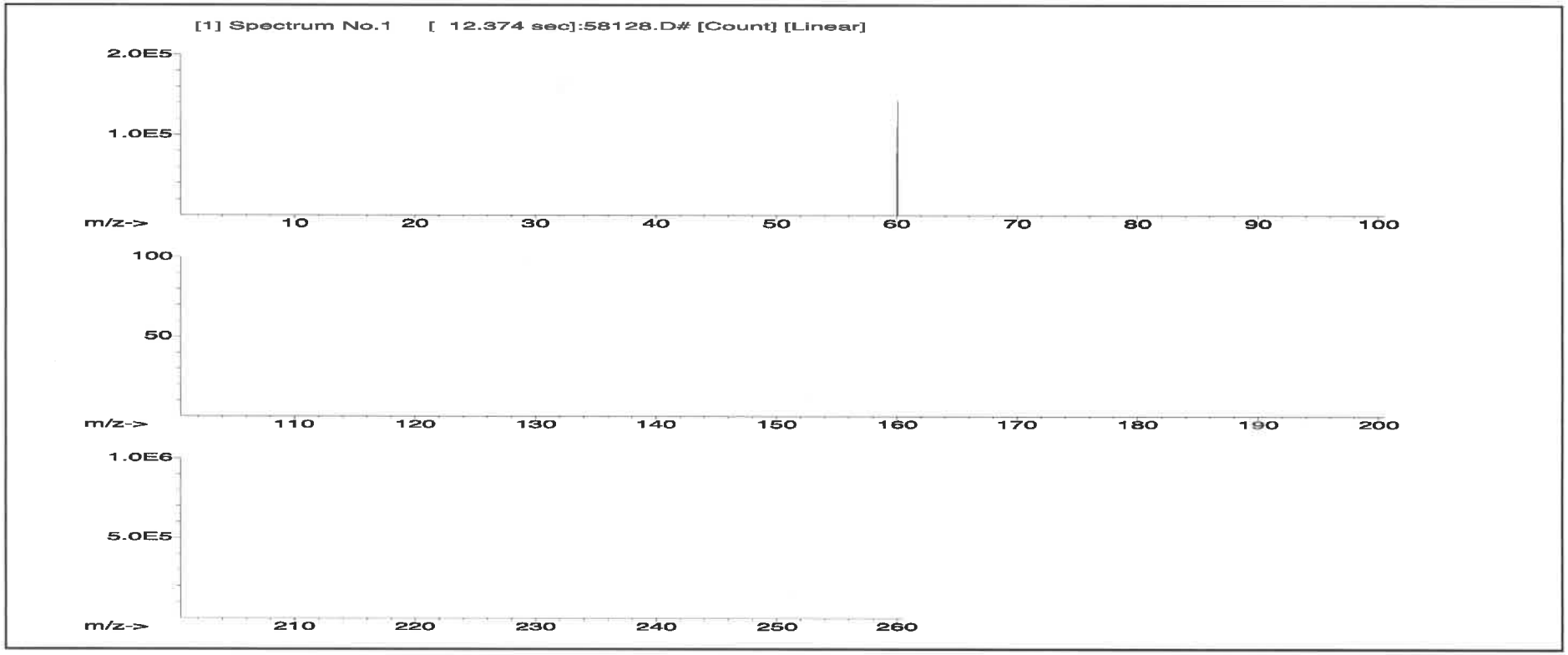
565

CERTIFIED WEIGHT REPORT:

			Lot #	
Part Number:	**57028**	**Solvent:**	24002546	Nitric Acid
Lot Number:	**041124**			
Description:	**Nickel (Ni)**			
		2%	5.0 (mL)	Nitric Acid
Expiration Date:	041127			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Weight shown below was diluted to (mL):	249.85	0.002	Flask Uncertainty	

Formulated By:	Brian Geddes	041124
Reviewed By:	Pedro L. Rentas	041124

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Nickel(II) nitrate hexahydrate (Ni)	IN033	NIM052023A1	1000	99.999	0.10	20.2	1.2369	1.2369	**1000.0**	**2.0**	13478-00-7	1 mg/m3	orl-rat 1620 mg/kg	3136



566

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	T	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	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:

Certified by:

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

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M5962 R! 06/14/24

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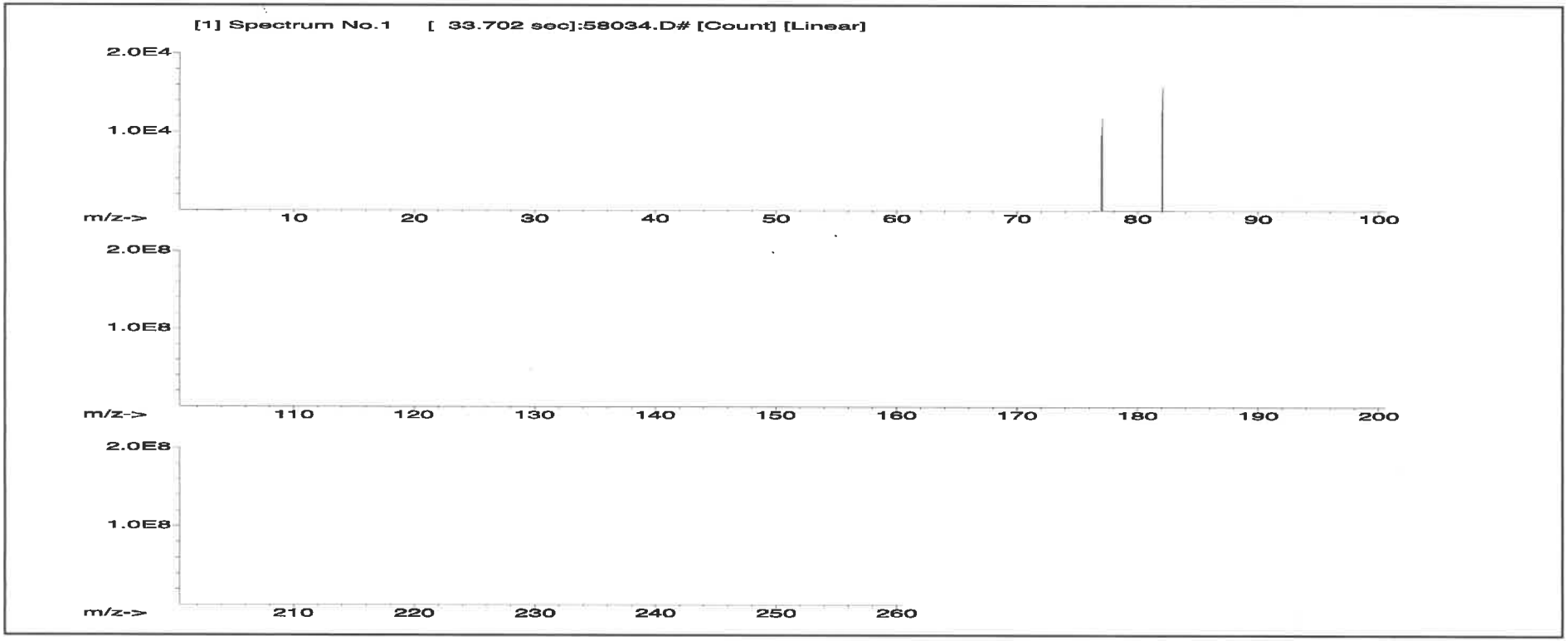
567

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57034**	24002546	Nitric Acid	
Lot Number:	**060624**			
Description:	**Selenium (Se)**			
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	060627			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty	

Formulated By:	Benson Chan	060624
Reviewed By:	Pedro L. Rentas	060624

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.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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	orl-rat 6700 mg/kg	3149



568

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	T	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	<0.2	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 certifed (+/-) 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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inorganicventures.com

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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).

ACCREDITED Testing Laboratory Certificate 883.01 — ACCREDITED Reference Material Producer Certificate 883.02

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:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\,(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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,79Br1 6O,190Os2+,190Pt 2+
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

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

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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).

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Custom Grade Solution
Catalog Number:	CGTI1
Lot Number:	T2-TI719972
Matrix:	2% (v/v) HNO3 tr. HF
Value / Analyte(s):	1 000 µg/mL ea: Titanium
Starting Material:	Ti Metal
Starting Material Lot#:	2094
Starting Material Purity:	99.9975%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL

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

Assay Information:

Assay Method #1 **1002 ± 4 µg/mL**
ICP Assay NIST SRM 3162a Lot Number: 130925

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

X_i = mean of Assay Method i with standard uncertainty $u_{char\ i}$
w_i = the weighting factors for each method calculated using the inverse square of the variance

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = (\Sigma(w_i)^2\ (u_{char\ i})^2)^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty
u_{lts} = long term stability standard uncertainty (storage)
u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)\ (u_{char\ a})$

X_a = mean of Assay Method A with
$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\ (u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char\ a}$ = the errors from characterization
u_{bb} = bottle to bottle homogeneity standard uncertainty
u_{lts} = long term stability standard uncertainty (storage)
u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

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

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

M	Ag	<	0.000536	M	Eu	<	0.000268	O	Na	<	0.032670	M	Se		0.001204	O	Zn	<	0.003267
O	Al		0.000872	O	Fe		0.003225	O	Nb	<	0.043560	O	Si		0.004735	O	Zr	<	0.043560
M	As	<	0.008586	M	Ga	<	0.000268	M	Nd	<	0.000268	M	Sm	<	0.000268				
M	Au	<	0.004577	M	Gd	<	0.000268	O	Ni	<	0.010890	M	Sn		0.000096				
O	B	<	0.008929	M	Ge	<	0.002146	M	Os	<	0.000269	O	Sr		0.000096				
M	Ba	<	0.002683	M	Hf		0.002161	O	P	<	0.054450	M	Ta		0.010560				
M	Be	<	0.005366	M	Hg	<	0.003231	M	Pb	<	0.001073	M	Tb	<	0.000268				
M	Bi	<	0.001609	M	Ho	<	0.000268	M	Pd	<	0.000268	M	Te	<	0.001341				
O	Ca		0.000676	M	In	<	0.002683	M	Pr	<	0.000268	M	Th	<	0.053663				
M	Cd	<	0.000268	M	Ir	<	0.000269	M	Pt	<	0.000536	s	Ti	<					
M	Ce	<	0.000268	M	K		0.001172	M	Rb	<	0.000268	M	Tl	<	0.000268				
M	Co	<	0.004293	M	La	<	0.000268	M	Re	<	0.000268	M	Tm	<	0.000268				
M	Cr		0.000752	O	Li	<	0.027225	M	Rh	<	0.000268	M	U	<	0.000268				
M	Cs	<	0.000268	M	Lu	<	0.000268	M	Ru	<	0.000269	M	V	<	0.019855				
O	Cu	<	0.010890	O	Mg	<	0.005445	i	S	<		M	W		0.000473				
M	Dy	<	0.000268	O	Mn	<	0.003267	M	Sb	<	0.006976	M	Y	<	0.002146				
M	Er	<	0.000268	M	Mo		0.000774	O	Sc	<	0.004900	M	Yb	<	0.000536				

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

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 47.87 +4 6 Ti(F)6-2

Chemical Compatibility - Soluble in concentrated HCl, HF, H3PO4 H2SO4 and HNO3. Avoid neutral to basic media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.

Stability - 2-100 ppb levels stable (Alone or mixed with all other metals) as the Ti(F)6-2 for months in 1% HNO3 / LDPE container. 1-10,000 ppm single element solutions as the Ti(F)6-2 chemically stable for years in 2-5% HNO3 / trace HF in an LDPE container.

Ti Containing Samples (Preparation and Solution) - Metal (Soluble in H2O / HF caution -powder reacts violently); Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H2O / HF / H2SO4); Oxide - high temperature history (~800EC) brookite (fuse in Pt0 with K2S2O7); Ores (fuse in Pt0 with KF + K2S2O7 - no KF if silica not present); Organic Matrices (Dry ash at 450EC in Pt0 and dissolve by heating with 1:1:1 H2O / HF / H2SO4 or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystalline form).

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

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 48 amu	14 ppt	N/A	32S16O, 32S14N, 14N16O18O, 14N17N2, 36Ar12C, 48Ca, [96X=2 (where X = Zr, Mo, Ru)]
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	Ce, Ar, Ni
ICP-OES 334.941 nm	0.0038 / 0.000028 µg/mL	1	Nb, Ta, Cr, U
ICP-OES 336.121 nm	0.0053 / 0.000034 µg/mL	1	W, Mo, Co

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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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

June 17, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- June 17, 2027

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M5981 R:6/11/24

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

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:		
Part Number:	**57092**	24002546	Nitric Acid		
Lot Number:	**060724**				
Description:	**Uranium (U)**	2.0%	40.0 (mL)	Nitric Acid	
Expiration Date:	060727				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Volume shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty		

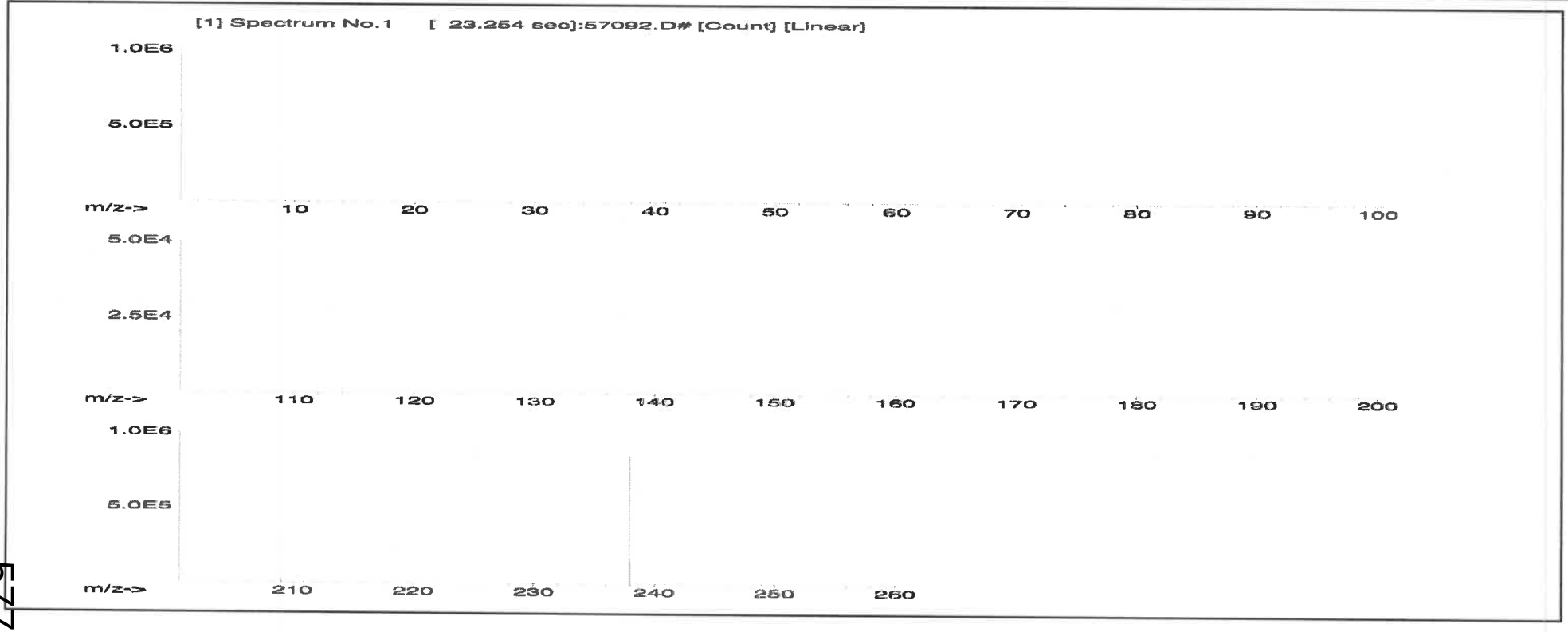
Giovanni Esposito

Formulated By:	Giovanni Esposito	060724

Pedro Rentas

Reviewed By:	Pedro L. Rentas	060724

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.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Uranyl nitrate hexahydrate (U)	58192	041524	0.1000	200.0	0.084	1000	10001.5	**1000.0**	**2.2**	13520-83-7	0.05 mg/m3	orl-rat 1040 mg/kg	3164



577

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	T
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 certifed (+/-) 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).

578

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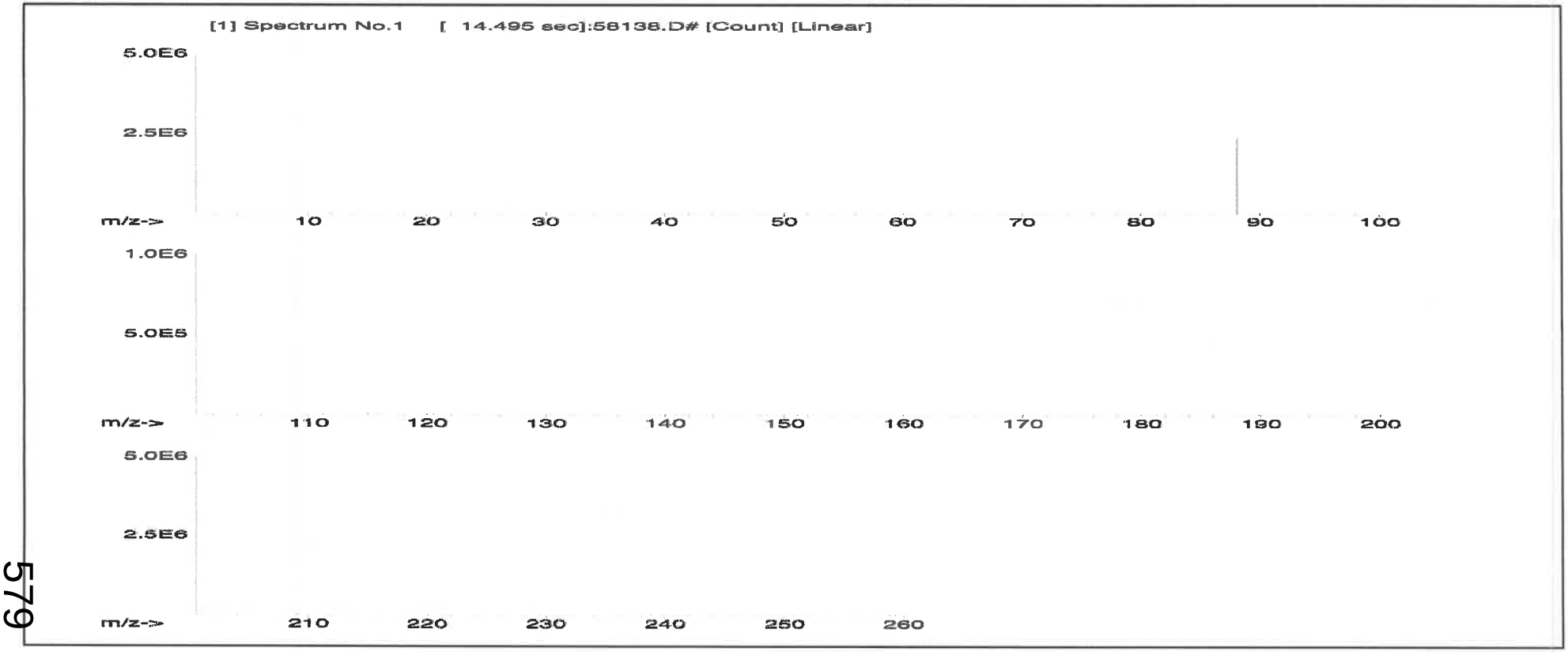
45982 R: 6/11/24

CERTIFIED WEIGHT REPORT:

Part Number:	**57038**			**Lot #**	
Lot Number:	**031524**	**Solvent:**	24002546	Nitric Acid	
Description:	**Strontium (Sr)**				
		2%	40.0 (mL)	Nitric Acid	
Expiration Date:	031527				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.07	0.100	Flask Uncertainty		

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

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Strontium nitrate (Sr)	IN017	SRZ022018A1	1000	99.997	0.10	41.2	4.85470	4.85502	**1000.1**	**2.0**	10042-76-9	NA	orl-rat >2000mg/kg	3153a



579

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	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:

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 certifed (+/-) 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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Certified Reference Material CRM

M5983 R: 6/11/24

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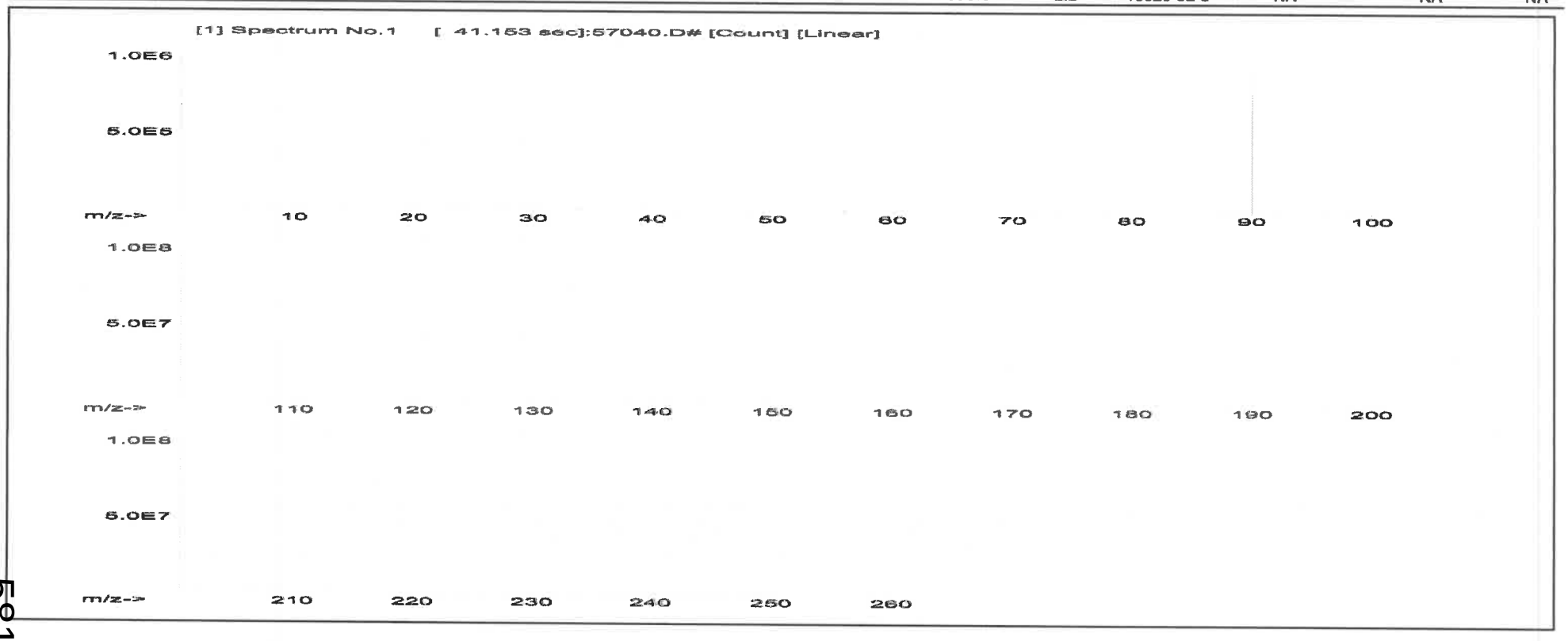
CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	57040	21110221	Nitric Acid	
Lot Number:	071423			
Description:	Zirconium (Zr)	2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	071426			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	1000			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty	

Formulated By:	Benson Chan	071423
Reviewed By:	Pedro L. Rentas	071423

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.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Zirconyl chloride octahydrate (Zr)	58140	070621	0.1000	200.0	0.084	1000	10000.3	**1000.0**	**2.2**	13520-92-8	NA	NA	NA



581

Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	T

(T) = Target analyte

Physical Characterization:

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

Certified by:

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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).

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Certified Reference Material CRM

R: 01/03/24 M6033

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583

CERTIFIED WEIGHT REPORT:

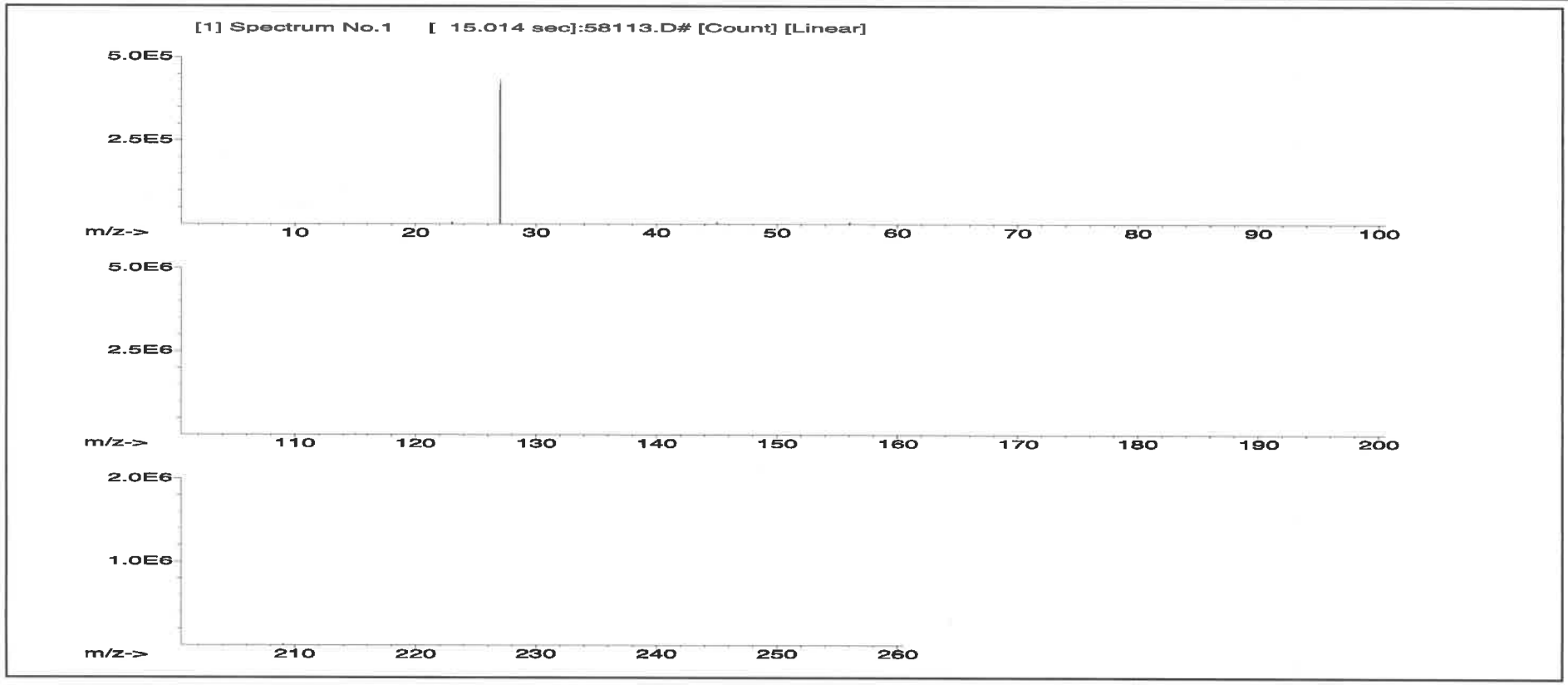
Part Number:	**58113**		**Solvent:**	20510011	Nitric Acid
Lot Number:	**011623**				
Description:	**Aluminum (Al)**				
			2%	40.0 (mL)	Nitric Acid
Expiration Date:	011626				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**10000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.02	0.058	Flask Uncertainty		

Lot #

Giovanni Esposito

Formulated By:	Giovanni Esposito	011623
Reviewed By:	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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Aluminum nitrate nonahydrate (Al)	IN022	ALM112021A1	10000	99.999	0.10	7.30	273.9779	274.0078	**10001.1**	**20.0**	7784-27-2	2 mg/m3	orl-rat 3671 mg/kg	3101a



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

avantor™ | J.T.Baker®

Received — 08/01/2024
paper
M6039
M6040

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

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6 %
ACS - Color (APHA)	≤ 10	5
ACS - Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.192
ACS - Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS - Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS - Free Chlorine (as Cl_2)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO_4)	≤ 0.05 ppm	0.03 ppm
Sulfate (SO_4)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO_3)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH_4)	≤ 3 ppm	< 1 ppm
Trace Impurities - Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities - Aluminum (Al)	≤ 10.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities - Barium (Ba)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities - Beryllium (Be)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities - Bismuth (Bi)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities - Boron (B)	≤ 20.0 ppb	2.2 ppb
Trace Impurities - Cadmium (Cd)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	31.0 ppb
Trace Impurities - Chromium (Cr)	≤ 1.0 ppb	0.5 ppb
Trace Impurities - Cobalt (Co)	≤ 1.0 ppb	0.2 ppb
Trace Impurities - Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities - Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities - Gold (Au)	≤ 4.0 ppb	< 0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities - Iron (Fe)	≤ 15 ppb	3 ppb

>>> Continued on page 2 >>>

For questions on this Certificate of Analysis please contact Technical Services at 855 282 6867 or +1 610 386 1700

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

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

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

>>> Continued on page 3 >>>

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

avantor™ | J.T.Baker®

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

Test	Specification	Result

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

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

Jamie Croak
Director Quality Operations, Bioscience Production

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Certificate of Analysis

R 8/19/24, M60055

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).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	IV-STOCK-12
Lot Number:	U2-MEB734294
Matrix:	5% (v/v) HNO3
Value / Analyte(s):	10 µg/mL ea:

Barium, Beryllium,
Bismuth, Cerium,
Cobalt, Indium,
Lithium, Nickel,
Lead, Uranium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Barium, Ba	10.01 ± 0.04 µg/mL	Beryllium, Be	10.01 ± 0.05 µg/mL
Bismuth, Bi	10.01 ± 0.06 µg/mL	Cerium, Ce	10.01 ± 0.04 µg/mL
Cobalt, Co	10.01 ± 0.05 µg/mL	Indium, In	10.01 ± 0.04 µg/mL
Lead, Pb	10.00 ± 0.04 µg/mL	Lithium, Li	10.01 ± 0.04 µg/mL
Nickel, Ni	10.01 ± 0.04 µg/mL	Uranium, U	10.01 ± 0.05 µg/mL

Density: 1.025 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ba	ICP Assay	3104a	140909
Ba	Calculated		See Sec. 4.2
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Bi	ICP Assay	3106	180815
Ce	ICP Assay	3110	160830
Ce	EDTA	928	928
Ce	Calculated		See Sec. 4.2
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Co	Calculated		See Sec. 4.2
In	ICP Assay	3124a	110516
In	EDTA	928	928
In	Calculated		See Sec. 4.2
Li	ICP Assay	3129a	100714
Li	Calculated		See Sec. 4.2
Li	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
Ni	Calculated		See Sec. 4.2
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Pb	Calculated		See Sec. 4.2
U	ICP Assay	traceable to 3164	R2-U689597
U	Calculated		See Sec. 4.2

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\,(u_{char\ i})^2)]^{½}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{½}$

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

Certified Abundance:

IV's Certified Abundance

Isotope	Atom %
Uranium 238U	99.8 ± 0.1
Uranium 235U	0.19 ± 0.05

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

June 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

- June 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

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

avantor™ | J.T.Baker®

M6094
M6095.

metdig
10/21/24.

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

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.6 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.192
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl_2)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO_4)	≤ 0.05 ppm	0.03 ppm
Sulfate (SO_4)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO_3)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH_4)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	2.2 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	31.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	< 0.2 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	3 ppb

>>> Continued on page 2 >>>

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

avantor™ | J.T.Baker®

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

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

>>> Continued on page 3 >>>

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

avantor™ | J.T.Baker®

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

Test	Specification	Result

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

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

Jamie Croak
Director Quality Operations, Bioscience Production

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

M6109
M6110
M6111

Received date 9/29/24 Met dig.

avantor™ | J.T.Baker®

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

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.6 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.190
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 >>>

For questions on this Certificate of Analysis please contact Technical Services at 855 282 6867 or +1 610 386 1700

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

avantor™ | J.T.Baker®

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™ | J.T.Baker®

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

Test	Specification	Result

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

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

James T Ethier

Jamie Ethier
Vice President Global Quality

Nitric Acid 69%
CMOS

M6112
M6113
M6114
M6115
M6116
M6117

Receive:
9/29/24
Met dig

avantor™ | J.T.Baker®

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™ | J.T.Baker®

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

avantor™ | J.T.Baker®

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

Test	Specification	Result

For Microelectronic Use

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

Ken Koehnlein
Sr. Manager, Quality Assurance

Nitric Acid 69%
CMOS

M6112
M6113
M6114
M6115
M6116
M6117

Receive:
9/29/24
Met dig

avantor™ | J.T.Baker®

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™ | J.T.Baker®

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

avantor™ | J.T.Baker®

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

Test	Specification	Result

For Microelectronic Use

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

Ken Koehnlein
Sr. Manager, Quality Assurance

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

R: 01/03/24 M5806, M5807

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

603

CERTIFIED WEIGHT REPORT:

Part Number: 58111
Lot Number: 122223
Description: Sodium (Na)

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

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	60.0 (mL)	Nitric Acid	

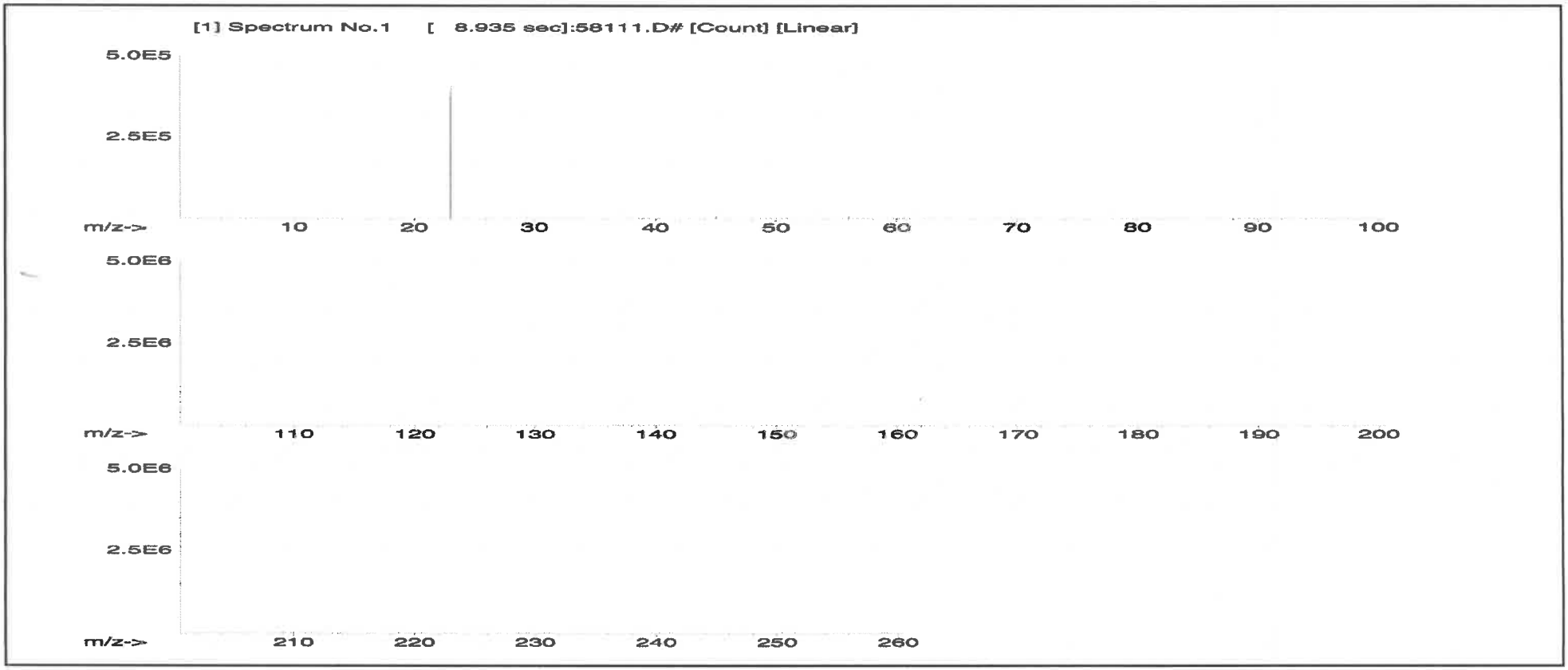
5E-05 Balance Uncertainty

Aleah O'Brady

Formulated By: Aleah O'Brady 122223

Reviewed By: Pedro L. Rentas 122223

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Sodium nitrate (Na)	IN036	NAV012015I1	10000	99.999	0.10	26.9	111.5406	111.5479	**10000.7**	**20.0**	7631-99-4	5 mg/m3	orl-rat 3430 mg/kg	3152a



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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	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	T	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
* All standard containers are meticulously cleaned prior to use.
* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
* Standards are certifed (+/-) 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).

INORGANIC VENTURES™

Refine your results. Redefine your industry.

A: 4/11/22

Certificate of Analysis

M5738, M5739, M5740, M5741, M5742, M5743

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).

ACCREDITED Testing Laboratory Certificate 883.01

ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	6020ISS
Lot Number:	S2-MEB709511
Matrix:	7% (v/v) HNO3
Value / Analyte(s):	10 µg/mL ea:

Bismuth, Holmium,
Indium, 6-Lithium,
Rhodium, Scandium,
Terbium, Yttrium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
6-Lithium, Li6	10.00 ± 0.03 µg/mL	Bismuth, Bi	10.00 ± 0.05 µg/mL
Holmium, Ho	10.00 ± 0.05 µg/mL	Indium, In	10.00 ± 0.04 µg/mL
Rhodium, Rh	10.00 ± 0.07 µg/mL	Scandium, Sc	10.00 ± 0.04 µg/mL
Terbium, Tb	10.00 ± 0.04 µg/mL	Yttrium, Y	10.00 ± 0.04 µg/mL

Density: 1.035 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Bi	ICP Assay	3106	180815
Bi	Calculated		See Sec. 4.2
Ho	ICP Assay	3123a	090408
Ho	EDTA	928	928
In	ICP Assay	3124a	110516
In	EDTA	928	928
In	Calculated		See Sec. 4.2
Li6	Gravimetric		See Sec. 4.2
Rh	ICP Assay	3144	070619
Sc	ICP Assay	3148a	100701
Sc	EDTA	928	928
Tb	ICP Assay	3157a	100518
Tb	EDTA	928	928
Tb	Calculated		See Sec. 4.2
Y	ICP Assay	3167a	120314
Y	EDTA	928	928
Y	Calculated		See Sec. 4.2

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

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

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2 (u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM} = (X_a)(u_{char\ a})$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Certified Abundance:

IV's Certified Abundance

Isotope	Atom %
Lithium Li6	95.6 ± 0.3
Lithium Li7	4.4 ± 0.1

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

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

N/A

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 03, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- September 03, 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

QATS LABORATORY INORGANIC REFERENCE MATERIAL INTERFERENCE CHECK SAMPLE SET FOR ICP-MS (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 an 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-0803" and for the ICSAB mixture use "ICSA-0803+ICSB-0803".**

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 the Contracting Officer, Ross Miller at miller.ross@epa.gov. If directed by Ross Miller, 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*

This interference check sample set is to be used to verify elemental isobaric correction factors of inductively coupled plasma-mass spectrometers (ICP-MS). This reference material set consists of two (2) concentrated solutions. The ICSA solution contains several interferent elements and species; for a complete listing refer to the CLP SOW. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be, Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for the ICP-MS ICS 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-0803, Inferferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 1% v/v HNO_3. Analyze this solution by ICP-MS.

ICSB-0803, Analytes, mixed with ICSA-0803, 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 1% v/v HNO_3. Analyze this ICSAB solution by ICP-MS.

(D) *"CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-MS 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-MS ICSA-0803, AND ICSA-0803 MIXED WITH ICSB-0803

ICSA: M5873

ICSB: M5874

Element	CRQL	Part A (µg/L)	Lower Limit (µg/L)	Upper Limit (µg/L)	Part A +Part B (µg/L)	Lower Limit (µg/L)	Upper Limit (µg/L)
Al	20.0	[100000]			[100000]		
Sb	2.0	(1.5)	-2.5	5.5	(22.0)	18.0	26.0
As	1.0	(0.1)	-1.9	2.1	19.0	16.2	21.9
Ba	10.0	(1.2)	-18.8	21.2	(22.0)	2.0	42.0
Be	1.0	(0)	-2.0	2.0	19.0	16.2	21.9
Cd	1.0	(0.7)	-1.3	2.7	20.0	17.0	23.0
Ca	500	[100000]			[100000]		
C		[200000]			[200000]		
Cl		[1000000]			[1000000]		
Cr	2.0	(21.0)	17.0	25.0	40.0	34.0	46.0
Co	1.0	(1.0)	-1.0	3.0	20.0	17.0	23.0
Cu	2.0	(8.0)	4.0	12.0	(25.0)	21.0	29.0
Fe	200	[100000]			[100000]		
Pb	1.0	(4.0)	2.0	6.0	25.0	21.3	28.8
Mg	500	[100000]			[100000]		
Mn	1.0	(7.0)	5.0	9.0	27.0	23.0	31.1
Mo		[2000]			[2000]		
Ni	1.0	(6.0)	4.0	8.0	24.0	20.4	27.6
P		[100000]			[100000]		
K	500	[100000]			[100000]		
Se	5.0	(0.3)	-9.7	10.3	(19.0)	9.0	29.0
Ag	1.0	(0)	-2.0	2.0	18.0	15.3	20.7
Na	500	[100000]			[100000]		
S		[100000]			[100000]		
Tl	1.0	(0)	-2.0	2.0	21.0	17.9	24.2
Ti		[2000]			[2000]		
V	5.0	(0.5)	-9.5	10.5	(19.0)	9.0	29.0
Zn	5.0	(11.0)	1.0	21.0	(29.0)	19.0	39.0

[ ] Indicates analytes that do not require ICP-MS determination in the ICS.
The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 2 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.

QATS LABORATORY INORGANIC REFERENCE MATERIAL INTERFERENCE CHECK SAMPLE SET FOR ICP-MS (ICSA WITH ICSB)

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ICSB-0803, Analytes, mixed with ICSA-0803, 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 1% v/v HNO_3. Analyze this ICSAB solution by ICP-MS.

(D) *"CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-MS 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-MS ICSA-0803, AND ICSA-0803 MIXED WITH ICSB-0803

ICSA: M5873

ICSB: M5874

Element	CRQL	Part A (µg/L)	Lower Limit (µg/L)	Upper Limit (µg/L)	Part A +Part B (µg/L)	Lower Limit (µg/L)	Upper Limit (µg/L)
Al	20.0	[100000]			[100000]		
Sb	2.0	(1.5)	-2.5	5.5	(22.0)	18.0	26.0
As	1.0	(0.1)	-1.9	2.1	19.0	16.2	21.9
Ba	10.0	(1.2)	-18.8	21.2	(22.0)	2.0	42.0
Be	1.0	(0)	-2.0	2.0	19.0	16.2	21.9
Cd	1.0	(0.7)	-1.3	2.7	20.0	17.0	23.0
Ca	500	[100000]			[100000]		
C		[200000]			[200000]		
Cl		[1000000]			[1000000]		
Cr	2.0	(21.0)	17.0	25.0	40.0	34.0	46.0
Co	1.0	(1.0)	-1.0	3.0	20.0	17.0	23.0
Cu	2.0	(8.0)	4.0	12.0	(25.0)	21.0	29.0
Fe	200	[100000]			[100000]		
Pb	1.0	(4.0)	2.0	6.0	25.0	21.3	28.8
Mg	500	[100000]			[100000]		
Mn	1.0	(7.0)	5.0	9.0	27.0	23.0	31.1
Mo		[2000]			[2000]		
Ni	1.0	(6.0)	4.0	8.0	24.0	20.4	27.6
P		[100000]			[100000]		
K	500	[100000]			[100000]		
Se	5.0	(0.3)	-9.7	10.3	(19.0)	9.0	29.0
Ag	1.0	(0)	-2.0	2.0	18.0	15.3	20.7
Na	500	[100000]			[100000]		
S		[100000]			[100000]		
Tl	1.0	(0)	-2.0	2.0	21.0	17.9	24.2
Ti		[2000]			[2000]		
V	5.0	(0.5)	-9.5	10.5	(19.0)	9.0	29.0
Zn	5.0	(11.0)	1.0	21.0	(29.0)	19.0	39.0

[ ] Indicates analytes that do not require ICP-MS determination in the ICS.
The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 2 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.

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

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

R: 01/03/24 M5802, M5803

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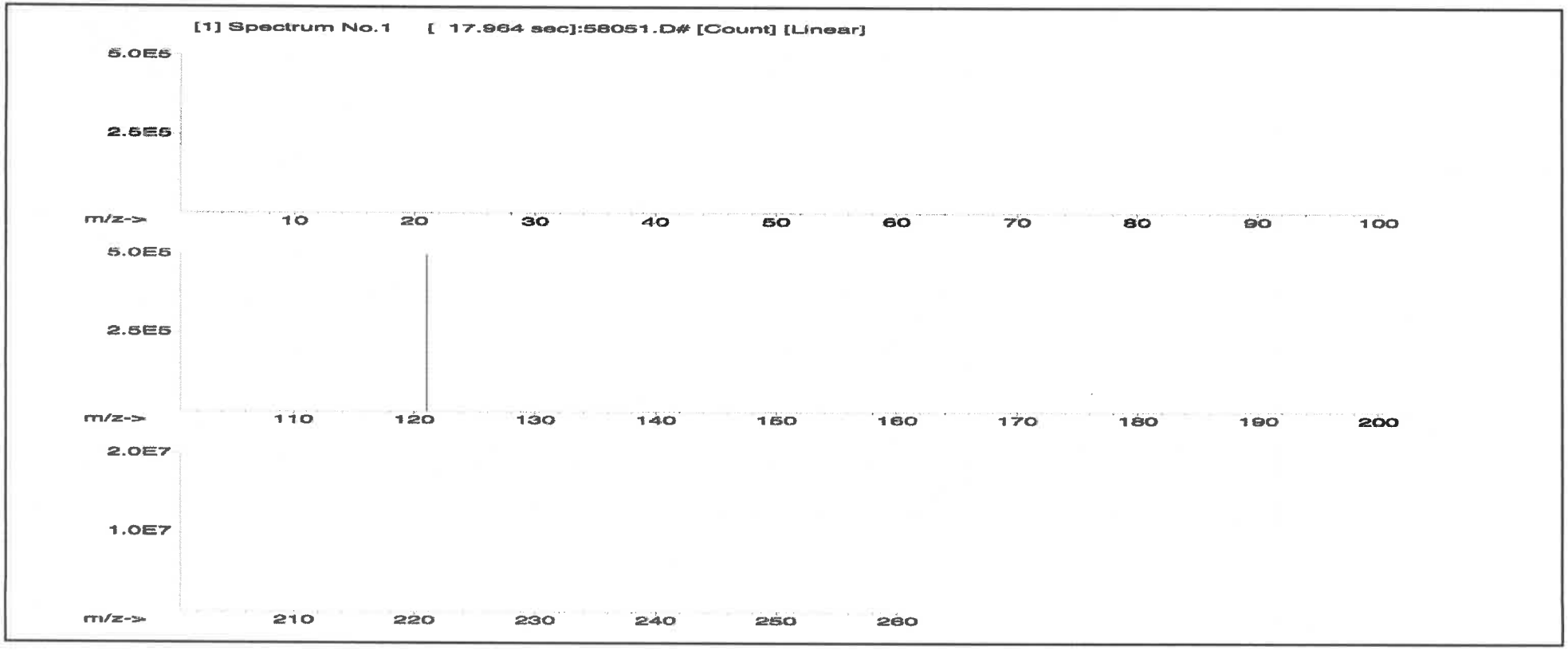
CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57051**	24002546	Nitric Acid	
Lot Number:	**120523**			
Description:	**Antimony (Sb)**			
		2.0%	60.0 (mL)	Nitric Acid
Expiration Date:	120526			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	3000.41	0.058	Flask Uncertainty	

Formulated By:	Lawrence Barry	120523
Reviewed By:	Pedro L. Rentas	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)	SDS Information (Solvent Safety Info. On Attached pg.) 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	orl-rat 7000 mg/kg	3102a



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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	Pr	<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 certifed (+/-) 0.5% of the stated value, unless otherwise stated.
* All Standards should be stored with caps tight and under appropriate laboratory conditions.
* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

Absolute Standards, Inc.
800-368-1131
www.absolutestandards.com

Certified Reference Material CRM

M6030

R: 8/5/24

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

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CERTIFIED WEIGHT REPORT:

Part Number: 57047
Lot Number: 122823
Description: Silver (Ag)

Expiration Date: 122826
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

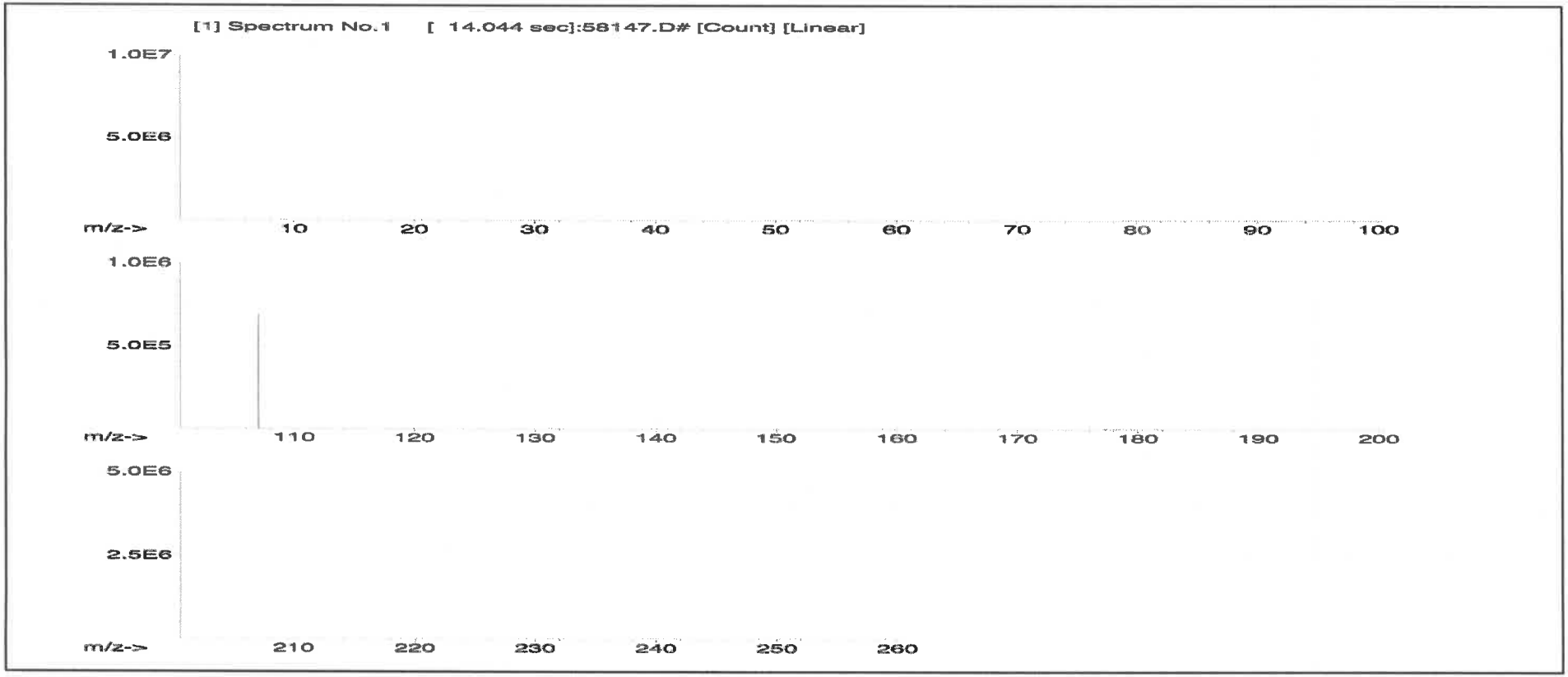
Weight shown below was diluted to (mL): 4000.30 ± 0.058 Flask Uncertainty

	Lot #		
Solvent:	24002546	Nitric Acid	
2%	80.0 (mL)	Nitric Acid	

5E-05 Balance Uncertainty

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

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Silver nitrate (Ag)	IN035	J0612AGA1	1000.0	99.9999	0.10	63.7	6.27992	6.27998	**1000.0**	**2.0**	7761-88-8	10 ug/m3	NA	3151



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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	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	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 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).

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Certified Reference Material CRM

R: 03/16/23 M5473, M5474, M5475, M5476

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AR-1539 Certificate Number
https://Absolutestandards.com

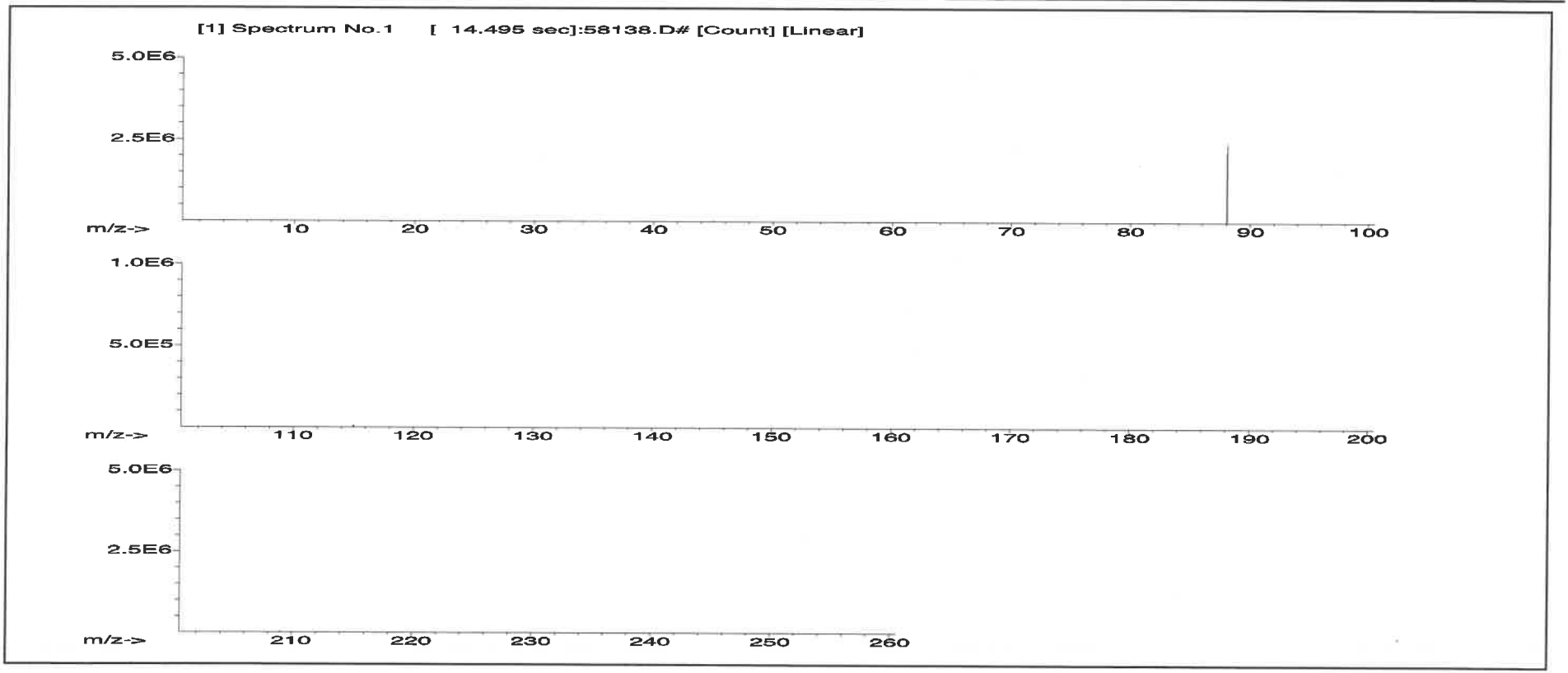
917

CERTIFIED WEIGHT REPORT:

Part Number:	**56138**		**Lot #**		
Lot Number:	**082922**	**Solvent:**	20510011	Nitric Acid	
Description:	**Strontium (Sr)**	2%	20.0 (mL)	Nitric Acid	
Expiration Date:	082925				
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. Rentas	082922

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Strontium nitrate (Sr)	IN017	SRZ022018A1	10000	99.997	0.10	41.2	24.2756	24.2758	**10000.1**	**20.0**	10042-76-9	NA	orl-rat >2000mg/kg	3153a



618

Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	T	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

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).
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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).

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R ! 8/5/24

M6023

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619

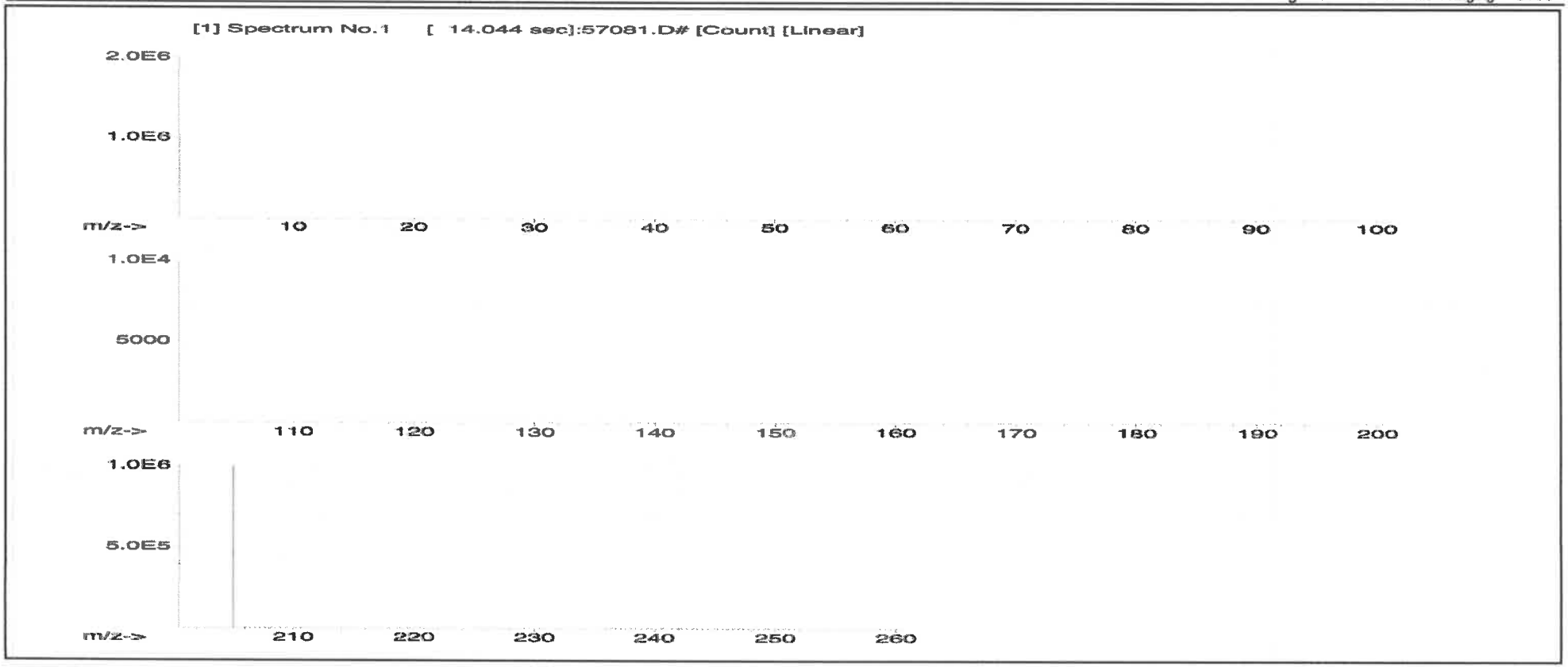
CERTIFIED WEIGHT REPORT:

Part Number:	**57081**		**Lot #**		
Lot Number:	**062724**	**Solvent:**	24002546	Nitric Acid	
Description:	**Thallium (Tl)**	2%	40.0 (mL)	Nitric Acid	
Expiration Date:	062727				
Recommended Storage:	Ambient (20 °C)				
Nominal Concentration (µg/mL):	**1000**				
NIST Test Number:	6UTB	5E-05	Balance Uncertainty		
Weight shown below was diluted to (mL):	2000.1	0.10	Flask Uncertainty		

Aleah O'Brady

Formulated By:	Aleah O'Brady	062724
Reviewed By:	Pedro L. Rentas	062724

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)	SDS Information (Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Thallium nitrate (Tl)	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



620

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	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	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
* Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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621

CERTIFIED WEIGHT REPORT:

		Lot #	Solvent:	
Part Number:	**57023**			
Lot Number:	**062424**			
Description:	**Vanadium (V)**	24002546	Nitric Acid	
		2.0%	40.0 (mL)	Nitric Acid
Expiration Date:	062427			
Recommended Storage:	Ambient (20 °C)			
Nominal Concentration (µg/mL):	**1000**			
NIST Test Number:	6UTB	5E-05	Balance Uncertainty	
Volume shown below was diluted to (mL):	2000.3	0.06	Flask Uncertainty	

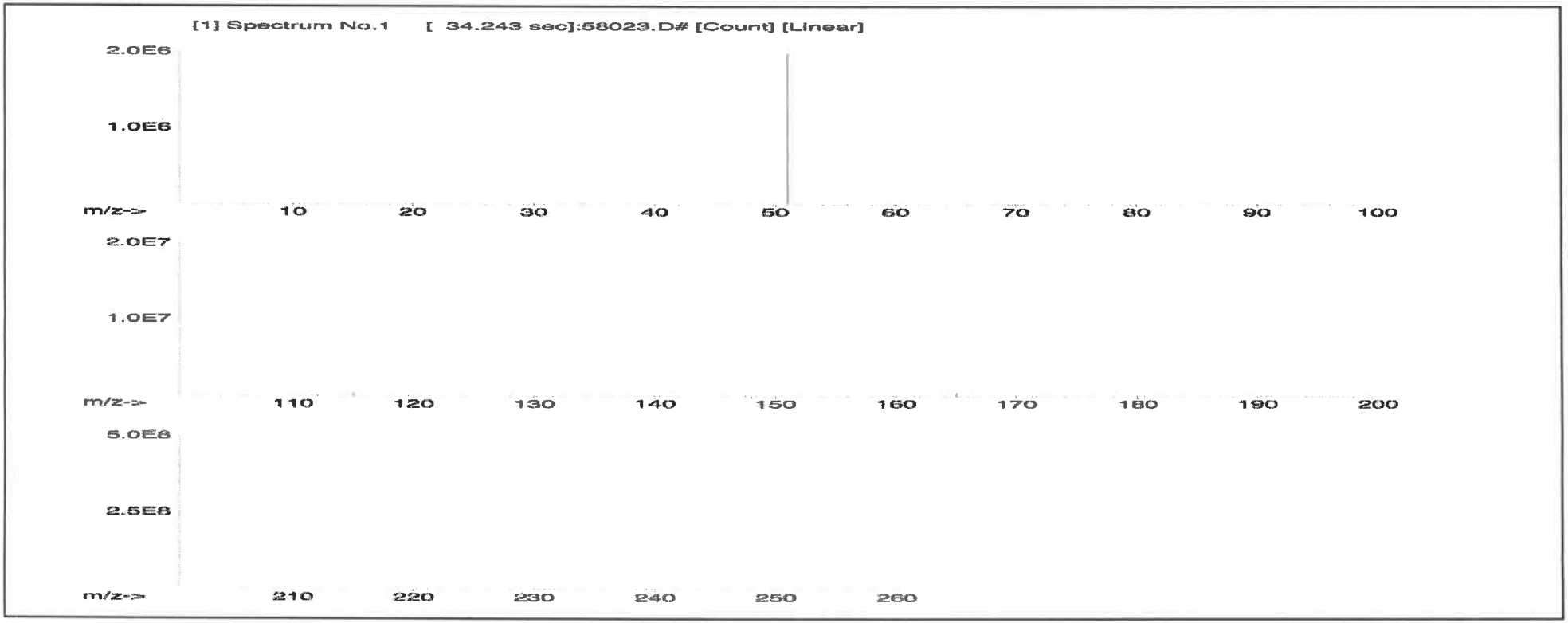
Aleah O'Brady

Formulated By:	Aleah O'Brady	062424

Pedro Rentas

Reviewed By:	Pedro L. Rentas	062424

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.) 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	orl-rat 58.1mg/kg	3165



622

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	T
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:

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Certified by:

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Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB165237

SOP ID : M200.8-Trace Elements-22, MSFAM01.1-Metals ICPMS-2

SDG No : MX1007

Matrix : WATER

Pippete ID: ICP A

Balance ID : N/A

Filter paper ID : N/A

pH Strip ID : M6069

Hood ID : #3

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

Start Digest Date: 11/27/2024 **Time :** 11:05 **Temp :** 96 °C

End Digest Date: 11/27/2024 **Time :** 13:10 **Temp :** 96 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: Jpp

Supervisor Signature:

Temp : 1. 96°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
LCSW	0.50	MP83045
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
1:1 HNO3	1.00	MP83122
1:1 HCL	0.50	MP83105
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

HOT BLOCK#1 CELL#55 : 96

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
11/27/24 13:20	Jpp/Met dig	53 (Contacts Cam)
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Water Metals Preparation Sheet

PB165237

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
P4917-04	MX1010	<2	50	50	Colorless	Colorless	Clear	N/A	N/A	22
PB165237BL	PBW237	<2	50	50	Colorless	Colorless	Clear	N/A	N/A	23
PB165237BS	LCS237	<2	50	50	Colorless	Colorless	Clear	N/A	MP83045	24

Alliance TECHNICAL GROUP

Soil/Sludge Metals Preparation Sheet

PB165238

SOP ID : M200.8-Trace Elements-22, MSFAM01.1-Metals ICPMS-2

SDG No : MX1007

Matrix : SOIL

Pippete ID: ICP A

Balance ID : M SC-2

Filter paper ID : N/A

pH Strip ID : N/A

Hood ID : #3

Block ID: 1. HOT BLOCK #3 2. N/A

Start Digest Date: 11/27/2024 **Time :** 10:45 **Temp :** 96 °C

End Digest Date: 11/27/2024 **Time :** 11:25 **Temp :** 96 °C

Digestion tube ID: M6054

Block thermometer ID: MET-DIG. #3

Dig Technician Signature:

Supervisor Signature:

Temp : 1. 96°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
LCSS	1.00	MP83046
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
1:1 HNO3	4.00	MP83122
1:4 HCl Solution	10.00	MP82128
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

HOT BLOCK #3 CELL#34 :96

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
11/27/24 12:00	Met Dig	Lab
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Soil/Sludge Metals Preparation Sheet

PB165238

Lab Sample ID	Client Sample ID	pH	Initial Weight (g)	Final Vol (ml)	Color Before	Color After	Texture	Artifact	Comment	Prep Pos
P4917-01	MX1007	N/A	1.34	500	Colorless	Colorless	Medium	N/A	N/A	31
PB165238BL	PBS238	N/A	1.00	500	Colorless	Colorless	Fine	N/A	N/A	32
PB165238BS	LCS238	N/A	1.00	500	Colorless	Colorless	Fine	N/A	MP83046	33

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

Instrument ID: P7

Daily Analysis Runlog For Sequence/QCBatch ID # LB133719

Review By	Sarabjit Jaswal	Review On	12/4/2024 11:46:00 AM
Supervise By	Mohan Bera	Supervise On	12/6/2024 1:08:32 AM

STD. NAME	STD REF.#
ICAL Standard	MP83014,MP83039,MP83038,MP83036,MP83034,MP83035,MP83033,MP83032,MP83016
ICV Standard	MP83041
CCV Standard	MP83042
ICSA Standard	MP83043,MP83044
CRI Standard	
LCS Standard	MP83045,MP83046
Chk Standard	MP83050,MP83049

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	TUNE	TUNE001	TUNE	12/03/24 12:30		Jaswal	OK
2	S00	S0	CAL1	12/03/24 13:12		Jaswal	OK
3	S02	S02	CAL3	12/03/24 13:15		Jaswal	OK
4	S03	S03	CAL4	12/03/24 13:18		Jaswal	OK
5	S04	S04	CAL5	12/03/24 13:21		Jaswal	OK
6	S05	S05	CAL6	12/03/24 13:24		Jaswal	OK
7	S06	S06	CAL7	12/03/24 13:27		Jaswal	OK
8	S07	S07	CAL8	12/03/24 13:29		Jaswal	OK
9	S08	S08	CAL9	12/03/24 13:32		Jaswal	OK
10	ICV001	ICV001	ICV	12/03/24 13:47	Inst. paused for calibration review	Jaswal	OK
11	ICB001	ICB001	ICB	12/03/24 13:58	Inst. paused for review	Jaswal	OK
12	ICSA001	ICSA001	ICSA	12/03/24 14:26	Inst. paused for review	Jaswal	OK
13	ICSAB001	ICSAB001	ICSAB	12/03/24 14:29		Jaswal	OK
14	CCV001	CCV001	CCV	12/03/24 14:32		Jaswal	OK
15	CCB001	CCB001	CCB	12/03/24 14:36		Jaswal	OK
16	PB165237BL	PBW237	MB	12/03/24 14:47		Jaswal	OK
17	PB165237BS	LCS237	LCS	12/03/24 14:50		Jaswal	OK
18	PB165238BL	PBS238	MB	12/03/24 14:54		Jaswal	OK

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

Instrument ID: P7

Daily Analysis Runlog For Sequence/QCBatch ID # LB133719

Review By	Sarabjit Jaswal	Review On	12/4/2024 11:46:00 AM
Supervise By	Mohan Bera	Supervise On	12/6/2024 1:08:32 AM

STD. NAME	STD REF.#
ICAL Standard	MP83014,MP83039,MP83038,MP83036,MP83034,MP83035,MP83033,MP83032,MP83016
ICV Standard	MP83041
CCV Standard	MP83042
ICSA Standard	MP83043,MP83044
CRI Standard	
LCS Standard	MP83045,MP83046
Chk Standard	MP83050,MP83049

19	PB165238BS	LCS238	LCS	12/03/24 14:57		Jaswal	OK
20	PB165241BL	PBS241	MB	12/03/24 15:00	Not Use	Jaswal	Not Ok
21	PB165241BS	LCS241	LCS	12/03/24 15:03	Not Use	Jaswal	Not Ok
22	P4917-04	MX1010	SAM	12/03/24 15:12		Jaswal	OK
23	P4917-01	MX1007	SAM	12/03/24 15:15		Jaswal	OK
24	CCV002	CCV002	CCV	12/03/24 15:18		Jaswal	OK
25	CCB002	CCB002	CCB	12/03/24 15:27	Inst. paused for review	Jaswal	OK
26	P4495-10	PT-MET-SOIL	SAM	12/03/24 15:33	Not Use	Jaswal	Not Ok
27	P4495-10DL	PT-MET-SOIL	SAM	12/03/24 15:38	Not Use	Jaswal	Not Ok
28	P4495-10RE	PT-MET-SOIL	SAM	12/03/24 15:40	Not Use	Jaswal	Not Ok
29	P4495-10REDL	PT-MET-SOIL	SAM	12/03/24 15:43	Not Use	Jaswal	Not Ok
30	CCV003	CCV003	CCV	12/03/24 15:46		Jaswal	OK
31	CCB003	CCB003	CCB	12/03/24 15:53	Inst. paused for review	Jaswal	OK

ERA

A Waters Company

Instructions for Catalog # 540QR

Metals in Soil

Revision 111122

Description:

- This standard is packaged in a 2-ounce glass jar containing approximately 30 grams of soil.
- This standard is not preserved.
- The standard can be stored at room temperature.
- The standard will contain all the analytes listed in the ranges specified on the data reporting form.

Before you Begin:

- The Mercury in this standard should be determined using the digestion and analytical procedures in the current version of EPA method 7471, or equivalent.
- The other metals in this standard should be determined using EPA digestion methods 3050 or 3051 followed by your normal analysis procedures.
- This standard should not be analyzed for Hexavalent Chromium. A separate standard, ERA catalog number 921QR, is available for Hexavalent Chromium.
- Although all ERA soil standards have been thoroughly blended prior to shipping, the standards should be homogenized prior to taking an aliquot for analysis due to settling which may occur during shipping.
- The percent moisture of this standard should be determined, and your analytical results adjusted accordingly and reported on a dry weight basis.

Instructions:

1. Open the Metals in Soil standard in a fume hood to avoid inhalation of dust.
2. Mix the sample well prior to removing aliquots for analysis.
3. Digest and analyze the standard using your normal procedures.
4. Determine the percent moisture of an aliquot of the Metals in Soil standard.
5. Report your results as mg/kg on a dry weight basis.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Safety Data Sheets (SDS) for all ERA products are available through our website www.eraqc.com.

ERA

A Waters Company

Instructions for Catalog # 500QR
WatR™Pollution Trace Metals

Revision 030512

Description:

- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 2% (v/v) nitric acid.
- The concentrate can be stored at room temperature.
- The diluted standard will contain all the analytes listed in the ranges specified on the data reporting form.

Before you begin:

- The sample resulting from the dilution described below will have a nitric acid concentration of approximately 0.02% before any acid is added. You may add a volume of acid different from the 2 to 5 mL of HNO_3 suggested in order to matrix match your calibration standards or meet any other method criteria.
- If analyzing this standard using colorimetric techniques, it may be necessary to pH adjust the sample prior to analysis. If using colorimetric techniques, it is acceptable to omit the addition of the 2-5 mL nitric acid suggested.
- While it is technically not necessary to digest this standard prior to analysis, digestion should be performed if this is your normal procedure.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:

1. Add 100-200 mL of deionized water and approximately 2 to 5 mL of nitric acid to a clean 500 mL class A volumetric flask.
2. Shake the Trace Metals vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 500 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as µg/L for the diluted sample.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA

A Waters Company

Instructions for Catalog # 541QR
Cyanide in Soil
Revision 030512

Description:
- This standard is packaged in a 2-ounce glass jar containing approximately 40 grams of soil.
- This standard is not preserved.
- The standard can be stored at room temperature.
- The standard will contain Reactive and Total Cyanide in the range specified on the data reporting form.

Before you Begin:
- This standard is designed to be distilled using the procedures in the most recent revisions of EPA methods 9010, 9012 or equivalent.
- Although all ERA soil standards have been thoroughly blended prior to shipping, the standards should be homogenized prior to taking an aliquot for analysis due to settling which may occur during shipping.
- The percent moisture of this standard should be determined and your analytical results adjusted accordingly and reported on a dry weight basis.

Instructions:
1. Open the Cyanide in Soil standard in a fume hood to avoid inhalation of dust.
2. Mix the sample well prior to removing aliquots for analysis.
3. Distill and analyze the standard using your normal procedures.
4. Determine the percent moisture of an aliquot of the Cyanide in Soil standard.
5. Report your results as mg/kg on a dry weight basis.

Safety:
ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA

A Waters Company

Instructions for Catalog #666QR
WatR™Supply Mercury

Revision 030512

Description:

- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 1% (v/v) nitric acid and 0.04% (w/v) potassium dichromate.
- The concentrate can be stored at room temperature.
- The diluted standard will contain Mercury in the range specified on the data reporting form.

Before you begin:

- This standard has been prepared as a concentrate and must be diluted prior to analysis.
- The USEPA *Criteria Document* requires that Mercury be present as a mixture of organic and inorganic forms and must, therefore, be analyzed as Total Mercury.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:

1. Add 100-200 mL of deionized water and approximately 2 to 5 mL of nitric acid to a clean 500 mL class A volumetric flask.
2. Shake the Mercury vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 500 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as µg/L for the diluted sample.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA

A Waters Company

Instructions for Catalog # 697QR

WatR™Supply Metals

Revision 030512

Description:

- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 2% (v/v) nitric acid.
- The concentrate can be stored at room temperature.
- The diluted standard will contain all the analytes listed in the ranges specified on the data reporting form.

Before you begin:

- This standard has been prepared as a concentrate and must be diluted prior to analysis.
- The sample resulting from the dilution described below will have a nitric acid concentration of approximately 0.01% before any acid is added. You may add a volume of acid different from the 2 to 5 mL of nitric acid suggested in order to match the matrix of your calibration standards or to meet any other method requirements.
- If analyzing this standard using colorimetric techniques, it may be necessary to pH adjust the sample prior to analysis. If using colorimetric techniques, it is acceptable to omit the addition of the 2-5 mL nitric acid suggested.
- While it is technically not necessary to digest this standard prior to analysis, digestion should be performed if this is your normal procedure.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:

1. Add 100-200 mL of deionized water and approximately 2 to 5 mL of nitric acid to a clean 1000 mL class A volumetric flask.
2. Shake the Metals vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 1000 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as µg/L for the diluted sample.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA
A Waters Company

Instructions for Catalog # 983QR
WatR™Supply Cyanide
Revision 030512

Description:
- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 0.25%(w/v) sodium hydroxide.
- The concentrate can be stored at room temperature.
- The diluted standard will contain Total Cyanide in the range specified on the data reporting form.

Before you begin:
- This standard has been prepared as a concentrate and must be diluted prior to analysis.
- This standard does not require distillation prior to analysis.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:
1. Add 100-200 mL of deionized water and approximately 1 to 2 mL of 50% sodium hydroxide to a clean 1000 mL class A volumetric flask.
2. Shake the Cyanide vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 1000 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as mg/L for the diluted sample.

Safety:
ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

EPA SAMPLE NO.

MX1007

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51882 MA No. : SDG No.: MX1007

Matrix: SOIL Lab Sample ID: P4917-01

% Solids: 100 Date Received: 11/19/2024

Analytical Method: Hg

Concentration Units (µg/L, mg/L, mg/kg dry weight, µg, or µg/cm²): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7439-97-6	Mercury	9.0	D	12/03/2024	1635

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

Comments:

EPA SAMPLE NO.

MX1011

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51882 MA No. : SDG No.: MX1007

Matrix: Water Lab Sample ID: P4917-05

% Solids: Date Received: 11/19/2024

Analytical Method: Hg

Concentration Units (µg/L, mg/L, mg/kg dry weight, µg, or µg/cm²): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
7439-97-6	Mercury	8.3		12/04/2024	1054

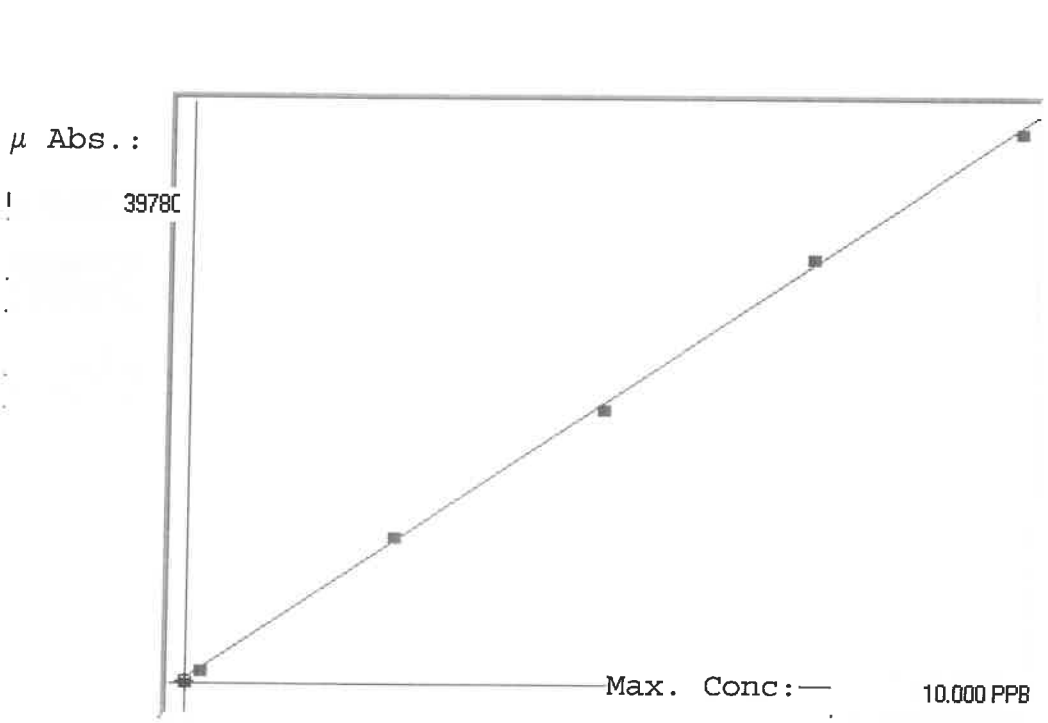
NOTE: Hardness (total) is reported in mg/L

Comments:

Reviewed By:Jaswal
On:12/6/2024 12:22:16 AM
Inst Id :CV1

LB133714

SFAM01.1 INSTRUMENT ID: CV1



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B= 2.5128e-004 slope

C= -8.0939e-002 y-intercept

Rho= 0.9997324

Accept=Accepted

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	#D
0.00	0.000	-0.041	-0.041	158	0.000	158	0				1
0.05	0.050					442	0				1 5
0.20	0.200	0.190	-0.010	1078	0.0 %	1078					3
2.50	2.500	2.587	0.087	10619	0.0 %	10619					1 2
5.00	5.000	4.911	-0.089	19865	0.0 %	19865					2
7.50	7.500	7.638	0.138	30719	0.0 %	30719					1 1
10.0	10.000	9.915	-0.085	39780	0.0 %	39780					

Reviewed By:Jaswal
On:12/6/2024 12:22:16 AM
Inst Id :CV1

LB133714

INSTRUMENT ID : CV1

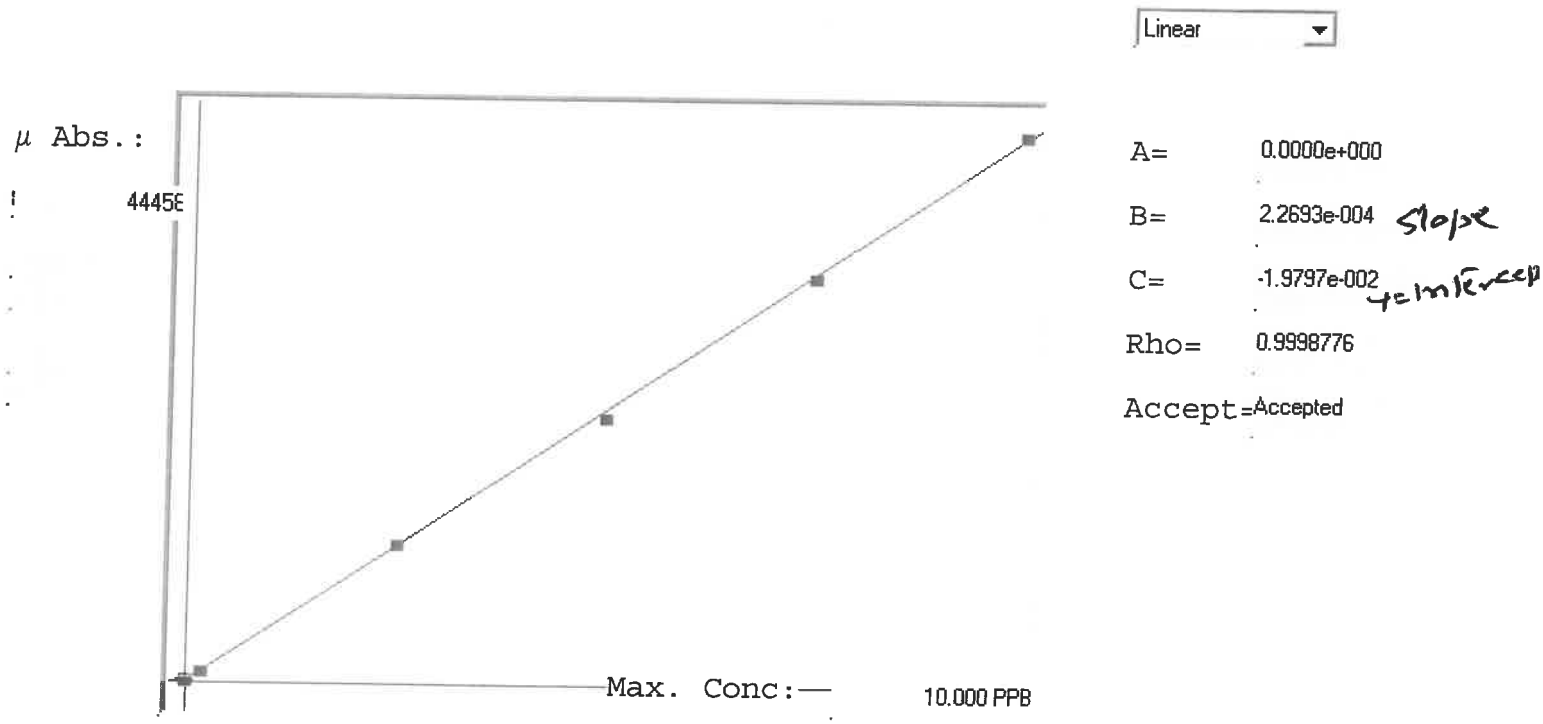
Sample ID	Extended ID	µ Abs.	Conc.	Stnd Conc	Method	Units	Date	Type
0	S0	158	-	0	SFAM01.1	PPB	12/3/2024 15:52	Std
0.2	S01	1078	-	0.2	SFAM01.1	PPB	12/3/2024 15:54	Std
2.5	S02	10619	-	2.5	SFAM01.1	PPB	12/3/2024 15:57	Std
5	S03	19865	-	5	SFAM01.1	PPB	12/3/2024 15:59	Std
7.5	S04	30719	-	7.5	SFAM01.1	PPB	12/3/2024 16:01	Std
10	S05	39780	-	10	SFAM01.1	PPB	12/3/2024 16:03	Std
ICV004	ICV004	16550	4.0778	-	SFAM01.1	PPB	12/3/2024 16:06	SMPL
ICB004	ICB004	21	-0.0757	-	SFAM01.1	PPB	12/3/2024 16:09	SMPL
CCV079	CCV079	20200	4.9949	-	SFAM01.1	PPB	12/3/2024 16:11	SMPL
CCB079	CCB079	-2	-0.0814	-	SFAM01.1	PPB	12/3/2024 16:13	SMPL
PB165352BL	PBS352	222	-0.0252	-	SFAM01.1	PPB	12/3/2024 16:15	SMPL
P4917-01	MX1007	182784	45.8491	-	SFAM01.1	PPB	12/3/2024 16:25	SMPL
P4917-01DLX10	MX1007	19608	4.8462	-	SFAM01.1	PPB	12/3/2024 16:35	SMPL
CCV080	CCV080	19042	4.7039	-	SFAM01.1	PPB	12/3/2024 16:37	SMPL
CCB080	CCB080	-58	-0.0955	-	SFAM01.1	PPB	12/3/2024 16:39	SMPL

Reviewed By:Jaswal
On:12/6/2024 12:22:23 AM
Inst Id :CV1

LB133725

SFAM01.1

INSTRUMENT ID: CV1



slope

y=intercept

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0.00	0.000	0.024	0.024	191	0.000	191	0			
0.05	0.050					442	0			
0.20	0.200	0.208	0.008	1005	0.0 %	1005				
2.50	2.500	2.544	0.044	11297	0.0 %	11297				
5.00	5.000	4.895	-0.105	21656	0.0 %	21656				
7.50	7.500	7.460	-0.040	32962	0.0 %	32962				
10.0	10.000	10.069	0.069	44458	0.0 %	44458				

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4
2
-2
-1
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Reviewed By:Jaswal
On:12/6/2024 12:22:23 AM
Inst Id :CV1

LB133725

INSTRUMENT ID : CV1

Sample ID	Extended ID	µ Abs.	Conc.		Stnd Conc	Method	Units	Date	Type
0	S0	191	-		0	SFAM01.1	PPB	12/4/2024 10:18	Std
0.2	S01	1005	-		0.2	SFAM01.1	PPB	12/4/2024 10:21	Std
2.5	S02	11297	-		2.5	SFAM01.1	PPB	12/4/2024 10:23	Std
5	S03	21656	-		5	SFAM01.1	PPB	12/4/2024 10:25	Std
7.5	S04	32962	-		7.5	SFAM01.1	PPB	12/4/2024 10:27	Std
10	S05	44458	-		10	SFAM01.1	PPB	12/4/2024 10:30	Std
ICV005	ICV005	17923	4.0475	-		SFAM01.1	PPB	12/4/2024 10:33	SMPL
ICB005	ICB005	87	-0.0001	-		SFAM01.1	PPB	12/4/2024 10:35	SMPL
CCV081	CCV081	21459	4.85	-		SFAM01.1	PPB	12/4/2024 10:37	SMPL
CCB081	CCB081	46	-0.0094	-		SFAM01.1	PPB	12/4/2024 10:40	SMPL
PB165367BL	PBW367	24	-0.0144	-		SFAM01.1	PPB	12/4/2024 10:42	SMPL
P4776-01	MDL-WATER	371	0.0644	-		SFAM01.1	PPB	12/4/2024 10:47	SMPL
PB165368BL	PBW368	27	-0.0137	-		SFAM01.1	PPB	12/4/2024 10:49	SMPL
P4917-05	MX1011	36850	8.3427	-		SFAM01.1	PPB	12/4/2024 10:54	SMPL
CCV082	CCV082	20515	4.6358	-		SFAM01.1	PPB	12/4/2024 10:58	SMPL
CCB082	CCB082	-62	-0.0339	-		SFAM01.1	PPB	12/4/2024 11:01	SMPL

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Prep Standard - Chemical Standard Summary

Order ID : P4917

Test : Mercury

Prepbatch ID : PB165352,PB165368,

Sequence ID/Qc Batch ID: LB133714,LB133725,

Standard ID :
MP83207,MP83208,MP83209,MP83210,MP83427,MP83429,MP83430,MP83431,MP83432,MP83433,MP83434,MP834
35,MP83436,MP83437,MP83438,MP83439,MP83442,MP83446,MP83447,MP83449,MP83450,MP83451,MP83452,MP
83453,MP83454,MP83455,MP83456,MP83457,MP83461,

Chemical ID :
M4371,M4465,M4916,M5062,M5673,M5882,M5884,M5953,M6119,M6121,M6126,W3112,

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Fax : 908 789 8922

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3965	2:1 H2SO4 : HNO3	MP83207	11/11/2024	05/09/2025	Mohan Bera	None	None	Sarabjit Jaswal 11/11/2024

FROM 1600.00000ml of M5673 + 800.00000ml of M6119 = Final Quantity: 3200.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
65	POTASSIUM PERMANGANATE SOLUTION 5 %	MP83208	11/11/2024	05/11/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 11/11/2024

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

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
66	POTASSIUM PERSULFATE SOLUTION 5 %	MP83209	11/11/2024	05/11/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 11/11/2024

FROM 100.00000ml of M4465 + 2000.00000ml of W3112 = Final Quantity: 2000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
67	SODIUM CHLORIDE - HYDROXYL- CHLORIDE SOLUTION	MP83210	11/11/2024	05/11/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 11/11/2024

FROM 2000.00000ml of W3112 + 240.00000gram of M4371 + 240.00000gram of M5884 = Final Quantity: 2000.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
68	STANNOUS CHLORIDE SOLUTION	MP83427	12/03/2024	12/04/2024	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 12/03/2024

FROM 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6121 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP83429	12/03/2024	12/04/2024	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 12/03/2024

FROM 1.00000ml of M6126 + 2.50000ml of M5062 + 96.50000ml of W3112 = Final Quantity: 100.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1340	Hg 0.00 PPB STD	MP83430	12/03/2024	12/04/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6126 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1341	Hg 0.2 PPB STD	MP83431	12/03/2024	12/04/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6126 + 247.30000ml of W3112 + 0.20000ml of MP83429 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1342	Hg 2.5 PPB STD	MP83432	12/03/2024	12/04/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6126 + 245.00000ml of W3112 + 2.50000ml of MP83429 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1343	Hg 5.0 PPB STD	MP83433	12/03/2024	12/04/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6126 + 242.50000ml of W3112 + 5.00000ml of MP83429 = Final Quantity: 250.000 ml

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Fax : 908 789 8922

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1344	Hg 7.5 PPB STD	MP83434	12/03/2024	12/04/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6126 + 240.00000ml of W3112 + 7.50000ml of MP83429 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1345	Hg 10.0 PPB STD	MP83435	12/03/2024	12/04/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6126 + 237.50000ml of W3112 + 10.00000ml of MP83429 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1346	Hg ICV SOLUTION	MP83436	12/03/2024	12/04/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M5953 + 2.50000ml of M6126 + 245.00000ml of W3112 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1351	ICB (Hg 0.00 PPB SOLUTION)	MP83437	12/03/2024	12/04/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 2.50000ml of M6126 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1358	CCV (Hg 5.0 PPB SOLUTION)	MP83438	12/03/2024	12/04/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 485.00000ml of W3112 + 5.00000ml of M6126 + 10.00000ml of MP83429 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1352	CCB (Hg 0.00 PPB SOLUTION)	MP83439	12/03/2024	12/04/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/03/2024

FROM 495.00000ml of W3112 + 5.00000ml of M6126 = Final Quantity: 500.000 ml

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Fax : 908 789 8922

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
887	AQUA REGIA FOR HG ON 7471A	MP83442	12/03/2024	12/04/2024	Mohan Bera	None	None	Sarabjit Jaswal 12/03/2024

FROM 150.00000ml of M6121 + 50.00000ml of M6126 = Final Quantity: 200.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP83446	12/04/2024	12/05/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/06/2024

FROM 1.00000ml of M6126 + 2.50000ml of M5062 + 96.50000ml of W3112 = Final Quantity: 100.000 ml

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Fax : 908 789 8922

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1340	Hg 0.00 PPB STD	MP83447	12/04/2024	12/05/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/06/2024

FROM 2.50000ml of M6126 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1341	Hg 0.2 PPB STD	MP83449	12/04/2024	12/05/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/06/2024

FROM 2.50000ml of M6126 + 247.30000ml of W3112 + 0.20000ml of MP83446 = Final Quantity: 250.000 ml

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Fax : 908 789 8922

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1342	Hg 2.5 PPB STD	MP83450	12/04/2024	12/05/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/06/2024

FROM 2.50000ml of M6126 + 245.00000ml of W3112 + 2.50000ml of MP83446 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1343	Hg 5.0 PPB STD	MP83451	12/04/2024	12/05/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/06/2024

FROM 2.50000ml of M6126 + 242.50000ml of W3112 + 5.00000ml of MP83446 = Final Quantity: 250.000 ml

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Fax : 908 789 8922

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1344	Hg 7.5 PPB STD	MP83452	12/04/2024	12/05/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/06/2024

FROM 2.50000ml of M6126 + 240.00000ml of W3112 + 7.50000ml of MP83446 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1345	Hg 10.0 PPB STD	MP83453	12/04/2024	12/05/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/06/2024

FROM 2.50000ml of M6126 + 237.50000ml of W3112 + 10.00000ml of MP83446 = Final Quantity: 250.000 ml

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Fax : 908 789 8922

Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1346	Hg ICV SOLUTION	MP83454	12/04/2024	12/05/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/06/2024

FROM 2.50000ml of M5953 + 2.50000ml of M6126 + 245.00000ml of W3112 = Final Quantity: 250.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1351	ICB (Hg 0.00 PPB SOLUTION)	MP83455	12/04/2024	12/05/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/06/2024

FROM 2.50000ml of M6126 + 247.50000ml of W3112 = Final Quantity: 250.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1358	CCV (Hg 5.0 PPB SOLUTION)	MP83456	12/04/2024	12/05/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/06/2024

FROM 485.00000ml of W3112 + 5.00000ml of M6126 + 10.00000ml of MP83446 = Final Quantity: 500.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1352	CCB (Hg 0.00 PPB SOLUTION)	MP83457	12/04/2024	12/05/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/06/2024

FROM 495.00000ml of W3112 + 5.00000ml of M6126 = Final Quantity: 500.000 ml

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Metals STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
68	STANNOUS CHLORIDE SOLUTION	MP83461	12/04/2024	12/05/2024	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 12/06/2024

FROM 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6121 = Final Quantity: 500.000 ml

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-2196-01 / Hydroxylamine Hydrochloride, Crystal (cs/4x500g)	0000215387	06/25/2025	07/01/2019 / RICHARD	06/07/2019 / RICHARD	M4371

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

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

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	03/20/2028	09/21/2023 / mohan	09/05/2023 / mohan	M5673

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

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CHEMICAL RECEIPT LOG BOOK

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV5-0415	01/01/2025	07/01/2024 / mohan	03/30/2023 / mohan	M5953

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	05/09/2025	11/09/2024 / Janvi	10/09/2024 / Janvi	M6119

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	0000275677	05/13/2025	11/13/2024 / Eman	10/13/2024 / Eman	M6121

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

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

Certificate of Analysis

ThermoFisher SCIENTIFIC

M5882 M3

Certificate of Analysis

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120633

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalog Number	T142	Quality Test / Release Date	08/17/2023
Lot Number	232820		
Description	STANNOUS CHLORIDE, DIHYDRATE CERTIFIED ACS (Suitable for Mercury Determination)		
Country of Origin	United States	Suggested Retest Date	Aug/2028
Chemical Origin	Inorganic-non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear crystals
ASSAY	%	Inclusive Between 98 - 103	100.65
CALCIUM	%	<= 0.005	0.0017
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IRON (Fe)	%	<= 0.003	0.0011
LEAD (Pb)	%	<= 0.01	0.0006
MERCURY (Hg)	ppm	<= 0.05	<0.05
POTASSIUM (K)	%	<= 0.005	0.0001
SODIUM (Na)	%	<= 0.01	<0.01
SOLUBILITY IN HCL	PASS/FAIL	= PASS TEST	PASS TEST
SULFATE (SO4)	PASS/FAIL	= P.T. (ABOUT 0.003%)	P.T. (ABOUT 0.003%)

Harout Sahagian - Quality Control Supervisor - Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
If there are any questions with this certificate, please call at (800) 227-6701.
*Based on suggested storage condition.

M4371

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

Rec – 06.07.19

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

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay ($NH_2OH \cdot HCl$) (by $KMnO_4$ titrn)	>= 96.0 %	99.1
Clarity of Alcohol Solution	Passes Test	PT
Residue after Ignition	<= 0.050 %	0.017
Titrable Free Acid (meq/g)	<= 0.25	0.19
Ammonium (NH_4)	Passes Test	PT
Sulfur Compounds (as SO_4)	<= 0.005 %	< 0.003
Trace Impurities - ACS - Heavy Metals (as Pb)	<= 5 ppm	4
Trace Impurities - Iron (Fe)	<= 5 ppm	< 3
Trace Impurities - Mercury (Hg)	<= 0.050 ppm	< 0.005

For Laboratory, Research or Manufacturing Use

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

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

James Ethier
Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

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ThermoFisher SCIENTIFIC

M4913-16

MB

Certificate of Analysis

1 Reagent Lane
Fair Lawn, NJ 07410
201.796.7100 tel
201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120632

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

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

Julian Burton

Julian Burton - Quality Control Manager – Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
If there are any questions with this certificate, please call at (800) 227-6701.
*Based on suggested storage condition.

INORGANIC VENTURES
Refine your results. Redefine your industry.

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

M5062
M5063
M3

1.0 ACCREDITATION / REGISTRATION

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

ACCREDITED Testing Laboratory Certificate 883.01 ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

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

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.001 ± 0.053 µg/mL

Density: 1.020 g/mL (measured at 20 ± 4 °C)

Assay Information:

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

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

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

k = coverage factor = 2

$u_{char} = [\Sigma((w_i)^2\ (u_{char\ i})^2)]^{1/2}$ where $u_{char\ i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = (X_a)\,(u_{char\ a})$$

X_a = mean of Assay Method A with

$u_{char\ a}$ = the standard uncertainty of characterization Method A

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

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4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

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

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

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

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

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

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

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 22, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- September 22, 2026

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Supervisor, Product Documentation

Certificate Approved By:

Michael Booth
Director, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

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

9673- 33

avantor™ | J.T.Baker®

Material No.: 9673-33
Batch No.: 23D2462010
Manufactured Date: 2023-03-22
Retest Date: 2028-03-20
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (H_2SO_4)	95.0 – 98.0 %	96.1 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Substances Reducing Permanganate (as SO2)	≤ 2 ppm	< 2 ppm
Ammonium (NH_4)	≤ 1 ppm	1 ppm
Chloride (Cl)	≤ 0.1 ppm	< 0.1 ppm
Nitrate (NO_3)	≤ 0.2 ppm	< 0.1 ppm
Phosphate (PO_4)	≤ 0.5 ppm	< 0.1 ppm
Trace Impurities – Aluminum (Al)	≤ 30.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 4.0 ppb	< 2.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	8.5 ppb
Trace Impurities – Cadmium (Cd)	≤ 2.0 ppb	< 0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 6.0 ppb	< 0.4 ppb
Trace Impurities – Cobalt (Co)	≤ 0.5 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gold (Au)	≤ 10.0 ppb	0.5 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 100.0 ppb
Trace Impurities – Iron (Fe)	≤ 50.0 ppb	1.3 ppb
Trace Impurities – Lead (Pb)	≤ 0.5 ppb	< 0.5 ppb
Trace Impurities – Magnesium (Mg)	≤ 7.0 ppb	0.8 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Nickel (Ni)	≤ 2.0 ppb	0.3 ppb
Trace Impurities – Potassium (K)	≤ 500.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se)	≤ 50.0 ppb	< 0.1 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	31.5 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb

>>> Continued on page 2 >>>

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

avantor™ | J.T.Baker®

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

Test	Specification	Result
Trace Impurities – Sodium (Na)	≤ 500.0 ppb	5.4 ppb
Trace Impurities – Strontium (Sr)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.8 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	0.4 ppb

For Laboratory,Research,or Manufacturing Use

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

James T Ethier

Jamie Ethier
Vice President Global Quality

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

MT884
MB

avantor™ | J.T.Baker®

Material No.: 3624-01
Batch No.: 0000281938
Manufactured Date: 2021-06-07
Retest Date: 2026-06-07
Revision No.: 1

Certificate of Analysis

Test	Specification	Result
Assay (NaCl) (by Ag titrn)	≥ 99.0 %	100.0 %
pH of 5% Solution at 25°C	5.0 - 9.0	6.3
Insoluble Matter	≤ 0.005 %	0.003 %
Iodide (I)	≤ 0.002 %	< 0.002 %
Bromide (Br)	≤ 0.01 %	< 0.01 %
Chlorate and Nitrate (as NO_3)	≤ 0.003 %	< 0.001 %
ACS - Phosphate (PO_4)	≤ 5 ppm	< 5 ppm
Sulfate (SO_4)	≤ 0.004 %	< 0.004 %
Barium (Ba)	Passes Test	Passes Test
ACS - Heavy Metals (as Pb)	≤ 5 ppm	< 5 ppm
Iron (Fe)	≤ 2 ppm	< 1 ppm
Calcium (Ca)	≤ 0.002 %	< 0.001 %
Magnesium (Mg)	≤ 0.001 %	< 0.001 %
Potassium (K)	≤ 0.005 %	0.001 %

For Laboratory,Research,or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs
Country of Origin: USA
Packaging Site: Paris Mfg Ctr & DC

James T Ethier

Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Mansford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700

668

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.

MSS28 - 37
MSS53
3/30/23

Contains Metals in Dilute Acidic or Cyanide in Basic Aqueous Solutions
HAZARDOUS MATERIAL

Safety Data Sheets Available Upon Request

(A) *SAMPLE DESCRIPTION*

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. **For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-1014", "ICV5-0415", and "ICV6-0400", respectively.**

(B) *BREAKAGE OR MISSING ITEMS*

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) *ANALYSIS OF SAMPLES*

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in µg/L (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

ICV1-1014 For ICP-AES analysis, use a 10-fold dilution by pipetting 10 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.

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

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

M6119

Recive → 10/9/24
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™ | J.T.Baker®

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

avantor™ | J.T.Baker®

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

Test	Specification	Result

For Microelectronic Use

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

Ken Koehnlein
Sr. Manager, Quality Assurance

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

avantor™ | J.T.Baker®

R → 10/13/24
Met dig

M 6121

Material No.: 9530-33
Batch No.: 0000275677
Manufactured Date: 2020/12/16
Retest Date: 2025/12/15
Revision No: 1

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.190
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	1
ACS - Free Chlorine (as Cl_2)	<= 0.5 ppm	< 0.5
Phosphate (PO_4)	<= 0.05 ppm	< 0.03
Sulfate (SO_4)	<= 0.5 ppm	< 0.3
Sulfite (SO_3)	<= 0.8 ppm	0.3
Ammonium (NH_4)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	29.7
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

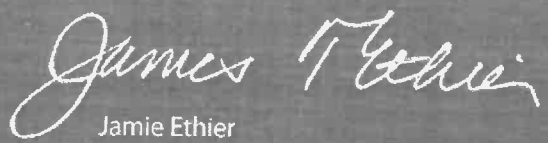
674

Material No.: 9530-33
Batch No.: 0000275677

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

For Laboratory, Research or Manufacturing Use
Product Information (not specifications):
Appearance (clear, fuming liquid)
Meets ACS Specifications

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



Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

675

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

R -> 11/12/24

M6126

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

Certificate of Analysis

Test	Specification	Result
Assay (HNO_3)	69.0 - 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO_4)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities - Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	2.3 ppb
Trace Impurities - Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities - Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	100 ppb
Trace Impurities - Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities - Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities - Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

avantor™ | J.T.Baker®

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

Test	Specification	Result

For Microelectronic Use

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

Jamie Croak
Director Quality Operations, Bioscience Production

Alliance TECHNICAL GROUP

Soil/Sludge Mercury Preparation Sheet

PB165352

SOP ID : M7471B-Mercury-18, MSFAM01.1-Mercury in Soil-2

SDG No : MX1007

Matrix : SOIL

Pippete ID: HG A

Balance ID : M SC-3

Filter paper ID : NA

pH Strip ID : NA

Hood ID : #1

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

Start Digest Date: 12/03/2024 **Time :** 10:15 **Temp :** 94 °C

End Digest Date: 12/03/2024 **Time :** 10:45 **Temp :** 94 °C

Digestion tube ID: M6054

Block thermometer ID: HG-DIG#1

Dig Technician Signature: MB

Supervisor Signature: [signature]

Temp : 1. 94°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
ICV	100mL	MP83436
CCV	100mL	MP83438
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
AQUA REGIA	5.0mL	MP83442
KMnO4 (5%)	15.0mL	MP83208
Hydroxylamine HCL (12%)	6.0mL	MP83210
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

LAB SAMPLE ID	CLIENT SAMPLE ID	Wt(g)/Vol(ml)	Comment
0.0 ppb	S0	100mL	MP83430
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	100mL	MP83431
2.5 ppb	S2.5	100mL	MP83432
5.0 ppb	S5.0	100mL	MP83433
7.5 ppb	S7.5	100mL	MP83434
10.0 ppb	S10.0	100mL	MP83435
ICV	ICV	100mL	MP83436
ICB	ICB	100mL	MP83437
CCV	CCV	100mL	MP83438
CCB	CCB	100mL	MP83439
CRI	CRI	N/A	N/A
CHK STD	CHK STD	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

N/A

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
12/3/24 @ 11:05	MB- DIG. LAB	MB- DIG LAB
	Preparation Group	**Analysis Group** 678

Alliance TECHNICAL GROUP

Soil/Sludge Mercury Preparation Sheet

PB165352

Lab Sample ID	Client Sample ID	Initial Weight (g)	Final Vol (ml)	pH	Comment	Prep Pos
P4917-01	MX1007	0.54	100	NA	N/A	1-1
PB165352BL	PBS352	0.50	100	NA	N/A	2

MB 12/07/2024

Alliance TECHNICAL GROUP

Water Mercury Preparation Sheet

PB165368

SOP ID : ~~N/A~~ M7470A-Mercury-19,MSFAM01.1-Mercury in Water-2

SDG No : ~~N/A~~ MX1007

Matrix : WATER

Pippete ID: HG A

Balance ID : N/A

Filter paper ID : N/A

pH Strip ID : ~~N/A~~ M4909

Hood ID : ~~N/A~~ #1

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

Start Digest Date: 12/04/2024 **Time :** 07:40 **Temp :** 93 °C

End Digest Date: 12/04/2024 **Time :** 09:40 **Temp :** 94 °C

Digestion tube ID: M6054

Block thermometer ID: ~~N/A~~ HG-DIG#1

Dig Technician Signature: MB

Supervisor Signature: AL

Temp : 1. 93°C 2. N/A

Standared Name	MLS USED	STD REF. # FROM LOG
ICV	100mL	MP83454
CCV	100mL	MP83456
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
HNO3/H2SO4(1:2)	7.5mL	MP83207
KMnO4 (5%)	15.0mL	MP83208
K2S2O8 (5%)	8.0mL	MP83209
Hydroxylamine HCL (12%)	6.0mL	MP83210
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

LAB SAMPLE ID	CLIENT SAMPLE ID	Wt(g)/Vol(ml)	Comment
0.0 ppb	S0	100mL	MP83447
0.05 ppb	S0.05	N/A	N/A
0.2 ppb	S0.2	100mL	MP83449
2.5 ppb	S2.5	100mL	MP83450
5.0 ppb	S5.0	100mL	MP83451
7.5 ppb	S7.5	100mL	MP83452
10.0 ppb	S10.0	100mL	MP83453
ICV	ICV	100mL	MP83454
ICB	ICB	100mL	MP83455
CCV	CCV	100mL	MP83456
CCB	CCB	100mL	MP83457
CRI	CRI	N/A	N/A
CHK STD	CHK STD	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

N/A

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
12/4/24 @ 10:05	MB – Hg. DIG	MB / MCLAB (GS)
	Preparation Group	Analysis Group 680

Alliance TECHNICAL GROUP

Water Mercury Preparation Sheet

PB165368

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Comment	Prep Pos
P4917-05	MX1011	100	100	N/A	N/A	N/A
PB165368BL	PBW368	100	100	N/A	N/A	N/A

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

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB133714

Review By	Mohan Bera	Review On	12/6/2024 12:21:15 AM
Supervise By	Sarabjit Jaswal	Supervise On	12/6/2024 12:22:16 AM

STD. NAME	STD REF.#
ICAL Standard	MP83430,MP83431,MP83432,MP83433,MP83434,MP83435
ICV Standard	MP83436
CCV Standard	MP83438
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	MP83437,MP83439,MP83427

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	12/03/24 15:52		Mohan	OK
2	S0.2	S01	CAL2	12/03/24 15:54		Mohan	OK
3	S2.5	S02	CAL3	12/03/24 15:57		Mohan	OK
4	S5	S03	CAL4	12/03/24 15:59		Mohan	OK
5	S7.5	S04	CAL5	12/03/24 16:01		Mohan	OK
6	S10	S05	CAL6	12/03/24 16:03		Mohan	OK
7	ICV004	ICV004	ICV	12/03/24 16:06		Mohan	OK
8	ICB004	ICB004	ICB	12/03/24 16:09		Mohan	OK
9	CCV079	CCV079	CCV	12/03/24 16:11		Mohan	OK
10	CCB079	CCB079	CCB	12/03/24 16:13		Mohan	OK
11	PB165352BL	PBS352	MB	12/03/24 16:15		Mohan	OK
12	P4917-01	MX1007	SAM	12/03/24 16:25	High	Mohan	Dilution
13	P4917-01DL	MX1007	SAM	12/03/24 16:35	Report 10X	Mohan	Confirms
14	CCV080	CCV080	CCV	12/03/24 16:37		Mohan	OK
15	CCB080	CCB080	CCB	12/03/24 16:39		Mohan	OK

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Instrument ID: CV1

Daily Analysis Runlog For Sequence/QCBatch ID # LB133725

Review By	Mohan Bera	Review On	12/6/2024 12:21:22 AM
Supervise By	Sarabjit Jaswal	Supervise On	12/6/2024 12:22:23 AM

STD. NAME	STD REF.#
ICAL Standard	MP83447,MP83449,MP83450,MP83451,MP83452,MP83453
ICV Standard	MP83454
CCV Standard	MP83456
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	MP83455,MP83457,MP83461

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	12/04/24 10:18		Mohan	OK
2	S0.2	S01	CAL2	12/04/24 10:21		Mohan	OK
3	S2.5	S02	CAL3	12/04/24 10:23		Mohan	OK
4	S5	S03	CAL4	12/04/24 10:25		Mohan	OK
5	S7.5	S04	CAL5	12/04/24 10:27		Mohan	OK
6	S10	S05	CAL6	12/04/24 10:30		Mohan	OK
7	ICV005	ICV005	ICV	12/04/24 10:33		Mohan	OK
8	ICB005	ICB005	ICB	12/04/24 10:35		Mohan	OK
9	CCV081	CCV081	CCV	12/04/24 10:37		Mohan	OK
10	CCB081	CCB081	CCB	12/04/24 10:40		Mohan	OK
11	PB165367BL	PBW367	MB	12/04/24 10:42		Mohan	OK
12	P4776-01	MDL-WATER-QT4-20	SAM	12/04/24 10:47		Mohan	OK
13	PB165368BL	PBW368	MB	12/04/24 10:49		Mohan	OK
14	P4917-05	MX1011	SAM	12/04/24 10:54		Mohan	OK
15	CCV082	CCV082	CCV	12/04/24 10:58		Mohan	OK
16	CCB082	CCB082	CCB	12/04/24 11:01		Mohan	OK

ERA

A Waters Company

Instructions for Catalog # 540QR

Metals in Soil

Revision 111122

Description:

- This standard is packaged in a 2-ounce glass jar containing approximately 30 grams of soil.
- This standard is not preserved.
- The standard can be stored at room temperature.
- The standard will contain all the analytes listed in the ranges specified on the data reporting form.

Before you Begin:

- The Mercury in this standard should be determined using the digestion and analytical procedures in the current version of EPA method 7471, or equivalent.
- The other metals in this standard should be determined using EPA digestion methods 3050 or 3051 followed by your normal analysis procedures.
- This standard should not be analyzed for Hexavalent Chromium. A separate standard, ERA catalog number 921QR, is available for Hexavalent Chromium.
- Although all ERA soil standards have been thoroughly blended prior to shipping, the standards should be homogenized prior to taking an aliquot for analysis due to settling which may occur during shipping.
- The percent moisture of this standard should be determined, and your analytical results adjusted accordingly and reported on a dry weight basis.

Instructions:

1. Open the Metals in Soil standard in a fume hood to avoid inhalation of dust.
2. Mix the sample well prior to removing aliquots for analysis.
3. Digest and analyze the standard using your normal procedures.
4. Determine the percent moisture of an aliquot of the Metals in Soil standard.
5. Report your results as mg/kg on a dry weight basis.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Safety Data Sheets (SDS) for all ERA products are available through our website www.eraqc.com.

ERA

A Waters Company

Instructions for Catalog # 500QR
WatR™Pollution Trace Metals

Revision 030512

Description:

- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 2% (v/v) nitric acid.
- The concentrate can be stored at room temperature.
- The diluted standard will contain all the analytes listed in the ranges specified on the data reporting form.

Before you begin:

- The sample resulting from the dilution described below will have a nitric acid concentration of approximately 0.02% before any acid is added. You may add a volume of acid different from the 2 to 5 mL of HNO_3 suggested in order to matrix match your calibration standards or meet any other method criteria.
- If analyzing this standard using colorimetric techniques, it may be necessary to pH adjust the sample prior to analysis. If using colorimetric techniques, it is acceptable to omit the addition of the 2-5 mL nitric acid suggested.
- While it is technically not necessary to digest this standard prior to analysis, digestion should be performed if this is your normal procedure.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:

1. Add 100-200 mL of deionized water and approximately 2 to 5 mL of nitric acid to a clean 500 mL class A volumetric flask.
2. Shake the Trace Metals vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 500 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as µg/L for the diluted sample.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA

A Waters Company

Instructions for Catalog # 541QR
Cyanide in Soil
Revision 030512

Description:
- This standard is packaged in a 2-ounce glass jar containing approximately 40 grams of soil.
- This standard is not preserved.
- The standard can be stored at room temperature.
- The standard will contain Reactive and Total Cyanide in the range specified on the data reporting form.

Before you Begin:
- This standard is designed to be distilled using the procedures in the most recent revisions of EPA methods 9010, 9012 or equivalent.
- Although all ERA soil standards have been thoroughly blended prior to shipping, the standards should be homogenized prior to taking an aliquot for analysis due to settling which may occur during shipping.
- The percent moisture of this standard should be determined and your analytical results adjusted accordingly and reported on a dry weight basis.

Instructions:
1. Open the Cyanide in Soil standard in a fume hood to avoid inhalation of dust.
2. Mix the sample well prior to removing aliquots for analysis.
3. Distill and analyze the standard using your normal procedures.
4. Determine the percent moisture of an aliquot of the Cyanide in Soil standard.
5. Report your results as mg/kg on a dry weight basis.

Safety:
ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA

A Waters Company

Instructions for Catalog #666QR
WatR™Supply Mercury

Revision 030512

Description:

- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 1% (v/v) nitric acid and 0.04% (w/v) potassium dichromate.
- The concentrate can be stored at room temperature.
- The diluted standard will contain Mercury in the range specified on the data reporting form.

Before you begin:

- This standard has been prepared as a concentrate and must be diluted prior to analysis.
- The USEPA *Criteria Document* requires that Mercury be present as a mixture of organic and inorganic forms and must, therefore, be analyzed as Total Mercury.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:

1. Add 100-200 mL of deionized water and approximately 2 to 5 mL of nitric acid to a clean 500 mL class A volumetric flask.
2. Shake the Mercury vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 500 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as µg/L for the diluted sample.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA

A Waters Company

Instructions for Catalog # 697QR

WatR™Supply Metals

Revision 030512

Description:

- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 2% (v/v) nitric acid.
- The concentrate can be stored at room temperature.
- The diluted standard will contain all the analytes listed in the ranges specified on the data reporting form.

Before you begin:

- This standard has been prepared as a concentrate and must be diluted prior to analysis.
- The sample resulting from the dilution described below will have a nitric acid concentration of approximately 0.01% before any acid is added. You may add a volume of acid different from the 2 to 5 mL of nitric acid suggested in order to match the matrix of your calibration standards or to meet any other method requirements.
- If analyzing this standard using colorimetric techniques, it may be necessary to pH adjust the sample prior to analysis. If using colorimetric techniques, it is acceptable to omit the addition of the 2-5 mL nitric acid suggested.
- While it is technically not necessary to digest this standard prior to analysis, digestion should be performed if this is your normal procedure.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:

1. Add 100-200 mL of deionized water and approximately 2 to 5 mL of nitric acid to a clean 1000 mL class A volumetric flask.
2. Shake the Metals vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 1000 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as µg/L for the diluted sample.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA

A Waters Company

Instructions for Catalog # 983QR

WatR™Supply Cyanide

Revision 030512

Description:

- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 0.25%(w/v) sodium hydroxide.
- The concentrate can be stored at room temperature.
- The diluted standard will contain Total Cyanide in the range specified on the data reporting form.

Before you begin:

- This standard has been prepared as a concentrate and must be diluted prior to analysis.
- This standard does not require distillation prior to analysis.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:

1. Add 100-200 mL of deionized water and approximately 1 to 2 mL of 50% sodium hydroxide to a clean 1000 mL class A volumetric flask.
2. Shake the Cyanide vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 1000 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as mg/L for the diluted sample.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

EPA SAMPLE NO.

MX1008

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51882 MA No. : SDG No.: MX1007

Matrix: SOIL Lab Sample ID: P4917-02

% Solids: 100 Date Received: 11/19/2024

Analytical Method: CN

Concentration Units (µg/L, mg/L, mg/kg dry weight, µg, or µg/cm²): mg/kg

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	78	D	11/22/2024	1117

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

Comments:

EPA SAMPLE NO.

MX1012

FORM 1 - IN

INORGANIC ANALYSIS DATA SHEET

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

Lab Code: ACE Case No.: 51882 MA No. : SDG No.: MX1007

Matrix: Water Lab Sample ID: P4917-06

% Solids: Date Received: 11/19/2024

Analytical Method: CN

Concentration Units (µg/L, mg/L, mg/kg dry weight, µg, or µg/cm²): ug/L

CAS No.	Analyte	Concentration	Q	Date Analyzed	Time Analyzed
57-12-5	Cyanide	340		11/22/2024	1125

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

Comments:

Reviewed By:Iwona
On:11/25/2024 9:25:04 AM
Inst Id :KONELAB

LB1

Test results — Aquakem 7.2AQ1 — Page: 1

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

11/22/2024 11:38 — Reviewed by : NF — Instrument ID : Konelab

Test: CNEPA-NEW

Sample Id	Result	Dil. 1 +	Response	Errors
ICV001 ICV001	95.943	0.0	0.088	
ICB001 ICB001	0.451	0.0	0.002	
CCV001 CCV001	248.209	0.0	0.224	
CCB001 CCB001	-0.194	0.0	0.001	
PB165195BL PBS195	-0.430	0.0	0.001	
P4776-04 MDL-SOILQT4-2024-08	4.250	0.0	0.005	
P4917-02 MX1008	1571.214	0.0	1.411	Test limit high
NF 11.22.2024 P4917-02 MX1008DL5	311.413	0.0	0.281	
PB165196BL PBW196	-1.112	0.0	0.001	
P4776-02-MS WATER-QT4-2024-08	4.154	0.0	0.005	
P4917-06 MX1012	343.151	0.0	0.309	
CCV002 CCV002	250.531	0.0	0.226	
CCB002 CCB002	-0.180	0.0	0.001	

N	13
Mean	217.492
SD	428.3808
CV%	196.96

Reviewed By:Iwona
On:11/25/2024 9:25:04 AM
Inst Id :KONELAB

Aquakem v. 7.2AQ1
Results from time period:
Fri Nov 22 09:55:11 2024
Fri Nov 22 11:25:30 2024

Sample Id	Sam/	Test short name	Tes	Result	Result	Result date and time
S0.0	A	CNEPA-NEW	P	-0.5935	µg/l	11/22/2024 10:12:24
S5.0	A	CNEPA-NEW	P	4.4952	µg/l	11/22/2024 10:12:25
S10.0	A	CNEPA-NEW	P	8.5446	µg/l	11/22/2024 10:12:26
S100.0	A	CNEPA-NEW	P	100.108	µg/l	11/22/2024 10:12:27
S250.0	A	CNEPA-NEW	P	254.8663	µg/l	11/22/2024 10:12:28
S500.0	A	CNEPA-NEW	P	497.5794	µg/l	11/22/2024 10:12:29
ICV001 ICV001	S	CNEPA-NEW	P	95.9432	µg/l	11/22/2024 11:10:13
ICB001 ICB001	S	CNEPA-NEW	P	0.451	µg/l	11/22/2024 11:10:14
CCV001 CCV001	S	CNEPA-NEW	P	248.2085	µg/l	11/22/2024 11:10:16
CCB001 CCB001	S	CNEPA-NEW	P	-0.1945	µg/l	11/22/2024 11:10:18
PB165195BL PBS195	S	CNEPA-NEW	P	-0.4297	µg/l	11/22/2024 11:10:21
P4776-04 MDL-SOIL-QT4-2024-08	S	CNEPA-NEW	P	4.2501	µg/l	11/22/2024 11:10:22
P4917-02 MX1008	S	CNEPA-NEW	P	1571.214	µg/l	11/22/2024 11:17:46
P4917-02DLX5 MX1008	S	CNEPA-NEW	P	311.4133	µg/l	11/22/2024 11:17:51
PB165196BL PBW196	S	CNEPA-NEW	P	-1.1124	µg/l	11/22/2024 11:25:21
P4776-02 MDL-WATER-QT4-2024-08	S	CNEPA-NEW	P	4.1542	µg/l	11/22/2024 11:25:22
P4917-06 MX1012	S	CNEPA-NEW	P	343.1507	µg/l	11/22/2024 11:25:26
CCV002 CCV002	S	CNEPA-NEW	P	250.5307	µg/l	11/22/2024 11:25:27
CCB002 CCB002	S	CNEPA-NEW	P	-0.1802	µg/l	11/22/2024 11:25:29

Reviewed By:Iwona
On:11/25/2024 9:25:04 AM
Inst Id :KONELAB

Calibration results — Aquakem 7.2AQ1 — Page: 1

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

11/22/2024 10:20 — Reviewed by : NF — Instrument ID : Konelab

Test CNEPA-NEW

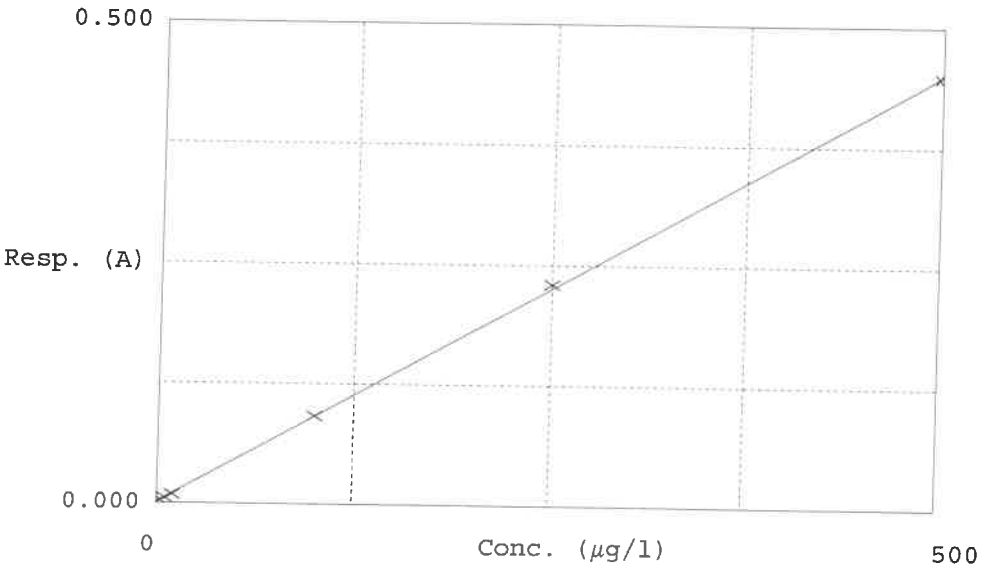
Accepted 11/22/2024 10:20

~~Factor~~ slope 1115 0.000897
~~Bias~~ intercept 0.002

NF
11.25.2024

Coeff. of det. 0.999837

Errors



	Calibrator	Response	Calc. con.	Conc.	Errors (Re)
1	0.0PPBCN ≤0.0	0.001	-0.5935	0.0000	
2	5.0PPBCN ≤5.0	0.006	4.4952	5.0000	-10.1
3	10PPBCN ≤10.0	0.009	8.5446	10.0000	-14.6
4	100PPBCN ≤100.0	0.091	100.1080	100.0000	0.1
5	250PPBCN ≤250.0	0.230	254.8663	250.0000	1.9
6	500PPBCN ≤500.0	0.448	497.5794	500.0000	-0.5

NF
11.22.2024

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Prep Standard - Chemical Standard Summary

Order ID : P4917

Test : Cyanide

Prepbatch ID : PB165195,PB165196,

Sequence ID/Qc Batch ID: LB133577,

Standard ID :
WP108075,WP108076,WP108640,WP108688,WP109089,WP110103,WP110390,WP110391,WP110837,WP110838,WP110839,WP110840,WP110841,WP110842,WP110843,WP110844,WP110845,WP110846,WP110847,

Chemical ID :
E3657,M5673,M5951,W2606,W2668,W2882,W3001,W3011,W3019,W3101,W3112,W3113,W3121,W3139,W3142,

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Fax : 908 789 8922

Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3214	Magnesium Chloride For Cyanide 2.5M(51%W/V)	WP108075	05/22/2024	10/24/2024	Rubina Mughal	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 05/24/2024

FROM 500.00000ml of W2606 + 510.00000gram of W3001 = Final Quantity: 1000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1714	Sulfuric Acid, 50% (v/v)	WP108076	05/22/2024	10/24/2024	Rubina Mughal	None	None	Iwona Zarych 05/24/2024

FROM 1000.00000ml of M5673 + 1000.00000ml of W2606 = Final Quantity: 2000.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
11	Sodium hydroxide absorbing solution 0.25 N	WP108640	07/05/2024	01/05/2025	Rubina Mughal	WETCHEM_SCALE_4 (WCSC-4)	None	Iwona Zarych 07/08/2024

FROM 21.00000L of W3112 + 210.00000gram of E3657 = Final Quantity: 21.000 L

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1581	Sodium hydroxide solution, 1.25N	WP108688	07/11/2024	01/11/2025	Niha Farheen Shaik	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 07/11/2024

FROM 50.00000gram of W3113 + 950.00000ml of W3112 = Final Quantity: 1000.000 ml

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Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
2816	CN-EPA Pyridine-Burbituric Acid solution	WP109089	08/07/2024	12/27/2024	Rubina Mughal	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 08/07/2024

FROM 15.00000gram of W2882 + 15.00000ml of M5951 + 75.00000ml of W3019 + 895.00000ml of W3112 = Final Quantity: 1000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
539	CN BUFFER	WP110103	10/08/2024	04/08/2025	Rubina Mughal	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 10/08/2024

FROM 138.00000gram of W2668 + 862.00000ml of W3112 = Final Quantity: 1000.000 ml

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

Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3214	Magnesium Chloride For Cyanide 2.5M(51%W/V)	WP110390	10/24/2024	04/24/2025	Niha Farheen Shaik	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 10/24/2024

FROM 500.00000ml of W3112 + 510.00000gram of W3001 = Final Quantity: 1000.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1714	Sulfuric Acid, 50% (v/v)	WP110391	10/24/2024	04/24/2025	Niha Farheen Shaik	None	None	Iwona Zarych 10/24/2024

FROM 1000.00000ml of M5673 + 1000.00000ml of W3112 = Final Quantity: 2000.000 ml

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Fax : 908 789 8922

Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1585	Cyanide Intermediate standard solution, 10PPM	WP110837	11/22/2024	11/23/2024	Niha Farheen Shaik	None	None	Iwona Zarych 11/22/2024

FROM 1.00000ml of W3142 + 79.00000ml of W3112 + 20.00000ml of WP108688 = Final Quantity: 100.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1586	Cyanide Cal Std, 500 PPB	WP110838	11/22/2024	11/23/2024	Niha Farheen Shaik	None	None	Iwona Zarych 11/22/2024

FROM 5.00000ml of WP110837 + 95.00000ml of WP108640 = Final Quantity: 0.100 L

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Fax : 908 789 8922

Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1587	Cyanide Cal Std, 250 PPB	WP110839	11/22/2024	11/23/2024	Niha Farheen Shaik	None	None	Iwona Zarych 11/22/2024

FROM 2.50000ml of WP110837 + 97.50000ml of WP108640 = Final Quantity: 0.100 L

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1588	Cyanide Cal Std, 100 PPB	WP110840	11/22/2024	11/23/2024	Niha Farheen Shaik	None	None	Iwona Zarych 11/22/2024

FROM 1.00000ml of WP110837 + 99.00000ml of WP108640 = Final Quantity: 0.100 L

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Fax : 908 789 8922

Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1589	Cyanide Cal Std, 10 PPB	WP110841	11/22/2024	11/23/2024	Niha Farheen Shaik	None	None	Iwona Zarych 11/22/2024

FROM 4.00000ml of WP110839 + 96.00000ml of WP108640 = Final Quantity: 0.100 L

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1590	Cyanide Cal Std, 5 PPB	WP110842	11/22/2024	11/23/2024	Niha Farheen Shaik	None	None	Iwona Zarych 11/22/2024

FROM 2.00000ml of WP110839 + 98.00000ml of WP108640 = Final Quantity: 0.100 L

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Fax : 908 789 8922

Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1591	Cyanide blank std, 0 PPB	WP110843	11/22/2024	11/23/2024	Niha Farheen Shaik	None	None	Iwona Zarych 11/22/2024

FROM 100.00000ml of WP108640 = Final Quantity: 0.100 L

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1592	Cyanide CCV Std, 250 PPB	WP110844	11/22/2024	11/23/2024	Niha Farheen Shaik	None	None	Iwona Zarych 11/22/2024

FROM 2.50000ml of WP110837 + 97.50000ml of WP108640 = Final Quantity: 0.100 L

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Fax : 908 789 8922

Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1763	Cyanide ICV Std	WP110845	11/22/2024	11/23/2024	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 11/22/2024

FROM 0.50000ml of W3011 + 49.50000ml of WP108640 = Final Quantity: 50.000 ml

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
3885	MDL std, 5ppb	WP110846	11/22/2024	11/23/2024	Niha Farheen Shaik	None	WETCHEM_PIPETTE_3 (WC)	Iwona Zarych 11/22/2024

FROM 2.00000ml of WP110839 + 98.00000ml of WP108640 = Final Quantity: 100.000 ml

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Fax : 908 789 8922

Wet Chemistry STANDARD PREPARATION LOG

Recipe ID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID	Supervised By
1582	Chloramine T solution, 0.014M	WP110847	11/22/2024	11/23/2024	Niha Farheen Shaik	WETCHEM_SCALE_5 (WCSC-5)	None	Iwona Zarych 11/25/2024

FROM 0.08000gram of W3139 + 20.00000ml of W3112 = Final Quantity: 20.000 ml

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Fax : 908 789 8922

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19510-5 / Sodium Hydroxide Pellets 2.5 Kg, Pk of 4	23B1556310	12/31/2025	12/04/2023 / Rajesh	12/01/2023 / Rajesh	E3657

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	03/20/2028	09/21/2023 / mohan	09/05/2023 / mohan	M5673

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	22G2862015	12/27/2024	07/04/2024 / Jaswal	06/23/2024 / Al-Terek	M5951

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	J3818-5 / SODIUM PHOSPHATE, MONOBAS/HYD, CRYS, ACS, 2.5 KG	0000225799	12/03/2025	04/05/2021 / Alexander	02/10/2020 / apatel	W2668

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	EM-BX0035-3 / Barbituric Acid, 100 gms	1.00132.0100	04/30/2025	12/07/2021 / jaswal	11/30/2021 / apatel	W2882

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	01237-10KG / Megnasium Chloride Hexahydrate ACS 10KG	002251-03319	06/06/2027	01/23/2023 / Iwona	06/06/2022 / Iwona	W3001

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	/ ICV-CN	ICV6-400	12/31/2024	01/03/2024 / Iwona	02/20/2020 / Iwona	W3011

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
SIGMA ALDRICH	270970-1L / Pyridine 1L	SHBQ2113	04/03/2028	04/03/2023 / Iwona	04/03/2023 / Iwona	W3019

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	470112-662 / TEST STRIPES, NITRATE/NITRITE, PK50	402403	04/30/2026	05/02/2024 / Iwona	04/10/2024 / Iwona	W3101

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	PC19510-7 / Sodium Hydroxide Pellets 12 Kg	23B1556310	12/31/2025	07/08/2024 / Iwona	07/08/2024 / Iwona	W3113

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CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	140444 / TEST PAPERS,PH 0-14,.5 SENSI,100PK	HC446507	07/25/2029	07/25/2024 / Iwona	07/25/2024 / Iwona	W3121

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	JTE494-6 / CHLORAMINE-T BAKER 250GM	10239484	09/09/2029	09/09/2024 / Iwona	09/09/2024 / Iwona	W3139

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
PCI Scientific Supply, Inc.	RC2543-4 / CYANIDE STD 1000PPM 4OZ	1405J81	11/30/2024	09/25/2024 / Iwona	09/25/2024 / Iwona	W3142

~~W2918~~ W3001 Rec. 06/06/22 exp. 06/06/27

Chem-Impex International, Inc.

Tel: (630) 766-2112
E-mail: sales@chemimpex.com
Shipping and Correspondence:
935 Dillon Drive
Wood Dale, IL 60191

Fax: (630) 766-2218
Web site: www.chemimpex.com
Manufacturing site:
825 Dillon Drive
Wood Dale, IL 60191

Certificate of Analysis

Catalogue Number	01237
Product	**Magnesium chloride hexahydrate**
Lot Number	002251-03319
	Magnesium chloride•$6H_2O$
CAS Number	7791-18-6
Molecular Formula	$MgCl_2$•$6H_2O$
Molecular Weight	203.3

Appearance	Colorless crystals, very deliquescent
Heavy Metals	< 5 ppm
Anion	Nitrate : < 0.001% Phosphate : < 5 ppm Sulfate : < 0.002%
Cation	Ammonium : < 0.002% Barium : < 0.005% Calcium : 0.0006% Iron : < 5 ppm Manganese : 1.8 ppm Potassium : 0.0006% Sodium : 0.0008% Strontium : 0.0015%
Insoluble material	0.0025%
Assay by titration	100.29%
Grade	ACS reagent
Storage	Store at RT
Country of Origin	India

Certificate of Analysis

Catalog Number: 01237 **Lot Number: 002251-03319**

Remarks	See material safety data sheet for additional information
	For laboratory use only

The foregoing is a copy of the Certificate of Analysis as provided by our supplier

Bala Kumar
Quality Control Manager

Sigma-Aldrich.

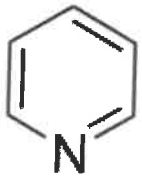
W3019
Rec 4/3/23

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sial.com
Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:
Pyridine - anhydrous, 99.8%

Product Number:	**270970**
Batch Number:	**SHBQ2113**
Brand:	SIAL
CAS Number:	110-86-1
MDL Number:	MFCD00011732
Formula:	C5H5N
Formula Weight:	79.10 g/mol
Quality Release Date:	15 DEC 2022



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

Larry Coers, Director
Quality Control
Sheboygan Falls, WI US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

VWR®

Certificate of Analysis

Sodium Hydroxide (Pellets)

Material: 0583
Grade: ACS GRADE
Batch Number: 23B1556310

Chemical Formula: NaOH
Molecular Weight: 40
CAS #: 1310-73-2
Appearance:

Pellets

Manufacture Date: 12/14/2022
Expiration Date: 12/31/2025

Storage: Room Temperature

TEST	SPECIFICATION	ANALYSIS	DISPOSITION
Calcium	<= 0.005 %	<0.005 %	PASS
Chloride	<= 0.005 %	0.002 %	PASS
Heavy Metals	<= 0.002 %	<0.002 %	PASS
Iron	<= 0.001 %	<0.001 %	PASS
Magnesium	<= 0.002 %	<0.002 %	PASS
Mercury	<= 0.1 ppm	<0.1 ppm	PASS
Nickel	<= 0.001 %	<0.001 %	PASS
Nitrogen Compounds	<= 0.001 %	<0.001 %	PASS
Phosphate	<= 0.001 %	<0.001 %	PASS
Potassium	<= 0.02 %	<0.02 %	PASS
Purity	>= 97.0 %	99.2 %	PASS
Sodium Carbonate	<= 1.0 %	0.5 %	PASS
Sulfate	<= 0.003 %	<0.003 %	PASS

Internal ID #: 710

Signature

We certify that this batch conforms to the specifications listed.

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

Leona Edwardson, Quality Control Sr. Manager - Solon
VWR Chemicals, LLC.
28600 Fountain Parkway, Solon OH 44139 USA

Additional Information

Analysis may have been rounded to significant digits in specification limits.

Product meets analytical specifications of the grades listed.

E 3657	E 3659
E 3654	E 3660

QATS LABORATORY INORGANIC REFERENCE MATERIAL INITIAL CALIBRATION VERIFICATION SOLUTIONS (ICV1, ICV5, AND ICV6)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

Contains Metals in Dilute Acidic or Cyanide in Basic Aqueous Solutions
HAZARDOUS MATERIAL

Safety Data Sheets Available Upon Request

W2160, W2161, W2162, W2163, W2164 Receive by AP on 9/2/2016

(A) *SAMPLE DESCRIPTION*

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. **For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-1014", "ICV5-0415", and "ICV6-0400", respectively.**

(B) *BREAKAGE OR MISSING ITEMS*

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) *ANALYSIS OF SAMPLES*

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in µg/L (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

ICV1-1014 For ICP-AES analysis, use a 10-fold dilution by pipetting 10 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.

ICV1-1014 For ICP-MS analysis, use a 50-fold dilution by pipetting 2 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.

ICV5-0415 For the cold vapor analysis of mercury by AA, use a 100-fold dilution by pipetting 1 mL of the ICV5 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) $K_2Cr_2O_7$ and 5% (v/v) nitric acid.

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

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

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

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

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

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

9673-33

avantor™ | J.T.Baker®

Material No.: 9673-33
Batch No.: 23D2462010
Manufactured Date: 2023-03-22
Retest Date: 2028-03-20
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (H_2SO_4)	95.0 – 98.0 %	96.1 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Substances Reducing Permanganate (as SO2)	≤ 2 ppm	< 2 ppm
Ammonium (NH_4)	≤ 1 ppm	1 ppm
Chloride (Cl)	≤ 0.1 ppm	< 0.1 ppm
Nitrate (NO_3)	≤ 0.2 ppm	< 0.1 ppm
Phosphate (PO_4)	≤ 0.5 ppm	< 0.1 ppm
Trace Impurities – Aluminum (Al)	≤ 30.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 4.0 ppb	< 2.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	8.5 ppb
Trace Impurities – Cadmium (Cd)	≤ 2.0 ppb	< 0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 6.0 ppb	< 0.4 ppb
Trace Impurities – Cobalt (Co)	≤ 0.5 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gold (Au)	≤ 10.0 ppb	0.5 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 100.0 ppb
Trace Impurities – Iron (Fe)	≤ 50.0 ppb	1.3 ppb
Trace Impurities – Lead (Pb)	≤ 0.5 ppb	< 0.5 ppb
Trace Impurities – Magnesium (Mg)	≤ 7.0 ppb	0.8 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Nickel (Ni)	≤ 2.0 ppb	0.3 ppb
Trace Impurities – Potassium (K)	≤ 500.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se)	≤ 50.0 ppb	< 0.1 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	31.5 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb

>>> Continued on page 2 >>>

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

avantor™ | J.T.Baker®

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

Test	Specification	Result
Trace Impurities – Sodium (Na)	≤ 500.0 ppb	5.4 ppb
Trace Impurities – Strontium (Sr)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.8 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	0.4 ppb

For Laboratory,Research,or Manufacturing Use

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

James T Ethier

Jamie Ethier
Vice President Global Quality

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

avantor™ | J.T.Baker®

MS947 MS948 MS949
MS950 MS951 MS952

Material No.: 9530-33
Batch No.: 22G2862015
Manufactured Date: 2022-06-15
Retest Date: 2027-06-14
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid-base titrn)	36.5 – 38.0 %	37.9 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.191
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl_2)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO_4)	≤ 0.05 ppm	< 0.03 ppm
Sulfate (SO_4)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO_3)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH_4)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	1.3 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	163.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.7 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	0.6 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	6 ppb

>>> Continued on page 2 >>>

For questions on this Certificate of Analysis please contact Technical Services at 855 282 6867 or +1 610 386 1700

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

avantor™ | J.T.Baker®

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

Test	Specification	Result
Trace Impurities - Lead (Pb)	≤ 1.0 ppb	< 0.5 ppb
Trace Impurities - Lithium (Li)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Magnesium (Mg)	≤ 10.0 ppb	2.9 ppb
Trace Impurities - Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities - Mercury (Hg)	≤ 0.5 ppb	0.1 ppb
Trace Impurities - Molybdenum (Mo)	≤ 10.0 ppb	< 3.0 ppb
Trace Impurities - Nickel (Ni)	≤ 4.0 ppb	< 0.3 ppb
Trace Impurities - Niobium (Nb)	≤ 1.0 ppb	0.8 ppb
Trace Impurities - Potassium (K)	≤ 9.0 ppb	< 2.0 ppb
Trace Impurities - Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities - Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities - Silver (Ag)	≤ 1.0 ppb	0.5 ppb
Trace Impurities - Sodium (Na)	≤ 100.0 ppb	2.3 ppb
Trace Impurities - Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Tantalum (Ta)	≤ 1.0 ppb	1.6 ppb
Trace Impurities - Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities - Tin (Sn)	≤ 5.0 ppb	4.0 ppb
Trace Impurities - Titanium (Ti)	≤ 1.0 ppb	1.5 ppb
Trace Impurities - Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities - Zinc (Zn)	≤ 5.0 ppb	0.8 ppb
Trace Impurities - Zirconium (Zr)	≤ 1.0 ppb	0.3 ppb

>>> Continued on page 3 >>>

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

avantor™ | J.T.Baker®

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

Test	Specification	Result

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

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

James T Ethier

Jamie Ethier
Vice President Global Quality

Certificate of Analysis

1.00132.0000 Barbituric acid for analysis EMSURE®
Batch N020065932

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

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

Ioannis Chartomatsidis
Responsible laboratory manager quality control

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

W2668 Received on 02/10/2020 by AP

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

(sodium dihydrogen phosphate, monohydrate)

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

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay ($NaH_2PO_4 \cdot H_2O$)	98.0 - 102.0 %	99.5
pH of 5% Solution at 25°C	4.1 - 4.5	4.3
Insoluble Matter	<= 0.01 %	< 0.01
Chloride (Cl)	<= 5 ppm	< 5
ACS - Sulfate (SO_4)	<= 0.003 %	< 0.003
Calcium (Ca)	<= 0.005 %	<0.005
Potassium (K)	<= 0.01 %	< 0.01
Heavy Metals (as Pb)	<= 0.001 %	< 0.001
Trace Impurities - Iron (Fe)	<= 0.001 %	< 0.001

For Laboratory, Research or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs

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

Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

721

Certificate of Analysis

Sodium Hydroxide (Pellets)

Material: **0583**

Grade: **ACS GRADE**

Batch Number: **23B1556310**

Chemical Formula: NaOH
Molecular Weight: 40
CAS #: 1310-73-2
Appearance:

Pellets

Manufacture Date: 12/14/2022
Expiration Date: 12/31/2025

Storage: Room Temperature

TEST	SPECIFICATION	ANALYSIS	DISPOSITION
Calcium	<= 0.005 %	<0.005 %	PASS
Chloride	<= 0.005 %	0.002 %	PASS
Heavy Metals	<= 0.002 %	<0.002 %	PASS
Iron	<= 0.001 %	<0.001 %	PASS
Magnesium	<= 0.002 %	<0.002 %	PASS
Mercury	<= 0.1 ppm	<0.1 ppm	PASS
Nickel	<= 0.001 %	<0.001 %	PASS
Nitrogen Compounds	<= 0.001 %	<0.001 %	PASS
Phosphate	<= 0.001 %	<0.001 %	PASS
Potassium	<= 0.02 %	<0.02 %	PASS
Purity	>= 97.0 %	99.2 %	PASS
Sodium Carbonate	<= 1.0 %	0.5 %	PASS
Sulfate	<= 0.003 %	<0.003 %	PASS

Internal ID #: 710

Signature

We certify that this batch conforms to the specifications listed.

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

Leona Edwardson, Quality Control Sr. Manager - Solon
VWR Chemicals, LLC.
28600 Fountain Parkway, Solon OH 44139 USA

Additional Information

Analysis may have been rounded to significant digits in specification limits.

Product meets analytical specifications of the grades listed.

Certificate of Analysis

Sodium Hydroxide (Pellets)

Material: **0583**

Grade: **ACS GRADE**

Batch Number: **23B1556310**

Chemical Formula:	NaOH	Manufacture Date:	12/14/2022
Molecular Weight:	40	Expiration Date:	12/31/2025
CAS #:	1310-73-2		
Appearance:		Storage:	Room Temperature

Pellets

Spec Set: 0583ACS

Internal ID #: 710

Signature

We certify that this batch conforms to the specifications listed.

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

Leona Edwardson, Quality Control Sr. Manager - Solon
VWR Chemicals, LLC.
28600 Fountain Parkway, Solon OH 44139 USA

Additional Information

Analysis may have been rounded to significant digits in specification limits.

Product meets analytical specifications of the grades listed.

ThermoFisher SCIENTIFIC

Certificate of Analysis

W3139 Received on 9/9/24 by IZ

Product No.:	A12044
Product:	Chloramine-T trihydrate, 98%
Lot No.:	10239484

Appearance:	White powder
Melting Point:	166°C(dec)
Assay (Iodometric titration):	100.5%
Identification (FTIR):	Conforms

Order our products online **thermofisher.com/chemicals**

This document has been electronically generated and does not require a signature.

Products are processed under ISO 9001:2015 quality management systems and samples are tested for conformance to the noted specifications. Certain data may have been supplied by third parties. We disclaim the implied warranties of merchantability and fitness for a particular purpose, and the accuracy of third party data or information associated with the product. Products are for research and development use only. Products are not for direct administration to humans or animals. It is the responsibility of the final formulator or end user to determine suitability, and to qualify and/or validate each product for its intended use.

RICCA CHEMICAL COMPANY®

448 West Fork Dr
Arlington, TX 76012
http://www.riccachemical.com
1-888-GO-RICCA
customerservice@riccachemical.com

Certificate of Analysis

Cyanide Standard, 1000 ppm CN^-

Lot Number: 1405J81 **Product Number:** 2543

Manufacture Date: MAY 20, 2024
Expiration Date: NOV 2024

This standard is prepared using accurate volumetric techniques from material that has been assayed against Silver Nitrate solution certified traceable to NIST Standard Reference Material 999. The certified value reported is the prepared value based upon the method of preparation of the material. The uncertainty in the prepared value is the combined uncertainty based on the stability of the assayed Potassium Cyanide, and the uncertainty in the mass and volume measurements.
Use 0.16% (w/v) (0.04 N) Sodium Hydroxide or 0.225 % (w/v) (0.04 N) Potassium Hydroxide to make dilutions of this standard. Restandardize weekly if extreme accuracy is required.

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Potassium Cyanide	151-50-8	ACS
Sodium Hydroxide	1310-73-2	Reagent

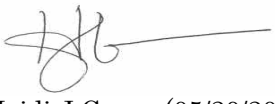
Test	Specification	Result
Appearance	Colorless liquid	Passed
Cyanide (CN^-)	995-1005 ppm	1000 ppm

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

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

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

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



Heidi J Green (05/20/2024)
Operations Manager

This test report shall not be reproduced, except in full, without the written approval of Ricca Chemical Company.

Alliance TECHNICAL GROUP

Soil/Sludge Cyanide Preparation Sheet

PB165195

SOP ID : MSFAM01.1-Cyanide-2

SDG No : MX1007

Matrix : SOIL

Pippete ID : WC

Balance ID : WC SC-7

Hood ID : HOOD#1

Block ID : MC-1, MC-2

Weigh By : JP

Start Digest Date: 11/22/2024 **Time :** 08:10 **Temp :** 123 °C

End Digest Date: 11/22/2024 **Time :** 09:40 **Temp :** 127 °C

Digestion tube ID : M5595

Filter paper ID : N/A

pH Meter ID : N/A

Block Thermometer ID : WC CYANIDE

Prep Technician Signature: JM

Supervisor Signature: 12

Standared Name	MLS USED	STD REF. # FROM LOG
PBS003	50.0ML	W3112
MDL	50.0ML	WP110846
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
0.25N NaOH	50.0ML	WP108640
50% v/v H2SO4	5.0ML	WP110391
51% w/v MgCL2	2.0ML	WP110390
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

LAB SAMPLE ID	CLIENT SAMPLE ID	Wt(g)/Vol(ml)	Comment
S0	S0	50ML	WP110843
S5.0	S5.0	50ML	WP110842
S10.0	S10.0	50ML	WP110841
S100.0	S100.0	50ML	WP110840
S250.0	S250.0	50ML	WP110839
S500.0	S500.0	50ML	WP110838
ICV	ICV	50ML	WP110845
ICB	ICB	50ML	WP108640
CCV	CCV	50ML	WP110844
CCB	CCB	50ML	WP108640
Midrange	Midrange	N/A	N/A
HIGHSTD	HIGHSTD	N/A	N/A
LOWSTD	LOWSTD	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

MIDI-DISTILATION_SOIL; I-ST BATCH MC-2 START TEMP:123 C; MC-2 END TEMP: 127 C; Block Therm.ID: WC-CYANIDE-2

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
11.22.2024, 09:50	JM (Cell C)	NF(WC)
	Preparation Group	Analysis Group 727

Alliance TECHNICAL GROUP

Soil/Sludge Cyanide Preparation Sheet

PB165195

Lab Sample ID	Client Sample ID	Initial Weight (g)	Final Vol (ml)	pH	Sulfide	Oxidizing	Nitrate/ Nitrite	Comment	Prep Pos
P4776-04	MDL-SOIL-QT4-2024-08	1.01	50	N/A	N/A	N/A	N/A	N/A	N/A
P4917-02	MX1008	1.00	50	N/A	N/A	N/A	N/A	N/A	N/A
PB165195BL	PBS195	1.00	50	N/A	N/A	N/A	N/A	N/A	N/A

Alliance TECHNICAL GROUP

Water Cyanide Preparation Sheet

PB165196

SOP ID : MSFAM01.1-Cyanide-2

SDG No : MX1007

Matrix : WATER

Pippete ID : WC

Balance ID : N/A

Hood ID : HOOD#1

Block ID : MC-1, MC-2

Weigh By : N/A

Start Digest Date: 11/22/2024 **Time :** 08:10 **Temp :** 123 °C

End Digest Date: 11/22/2024 **Time :** 09:40 **Temp :** 127 °C

Digestion tube ID : M5595

Filter paper ID : N/A

pH Meter ID : N/A

Block Thermometer ID : WC CYANIDE

Prep Technician Signature: [signature]

Supervisor Signature: [signature]

Standared Name	MLS USED	STD REF. # FROM LOG
PBW	50.0ML	W3112
MDL	50.0ML	WP110846
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
0.25N NaOH	50.0ML	WP108640
50% v/v H2SO4	5.0ML	WP108076
51% w/v MgCL2	2.0ML	WP108075
pH Paper 0-14	N/A	W3121
Nitrate/Nitrite Strip	N/A	W3101
Lead Acetate strip	N/A	W3134
KI-starch paper	N/A	W2965
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

LAB SAMPLE ID	CLIENT SAMPLE ID	Wt(g)/Vol(ml)	Comment
S0	S0	50ML	WP110843
S5.0	S5.0	50ML	WP110842
S10.0	S10.0	50ML	WP110841
S100.0	S100.0	50ML	WP110840
S250.0	S250.0	50ML	WP110839
S500.0	S500.0	50ML	WP110838
ICV	ICV	50ML	WP110845
ICB	ICB	50ML	WP108640
CCV	CCV	50ML	WP110844
CCB	CCB	50ML	WP108640
Midrange	Midrange	N/A	N/A
HIGHSTD	HIGHSTD	N/A	N/A
LOWSTD	LOWSTD	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

MIDI-DISTILATION_AQUEOUS; I-ST BATCH MC-2 START TEMP:123 C; MC-2 END TEMP: 127 C; Block Therm.ID: WC-CYANIDE-2, PT prep: 5mL of the concentrate and 2mL of 50% NAOH into 1000mL DI water.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
11-22-2024, 09:50	[signature] (WC)	[signature] (WC)
	Preparation Group	Analysis Group

Alliance TECHNICAL GROUP

Water Cyanide Preparation Sheet

PB165196

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Sulfide	Oxidizing	Nitrate/ Nitrite	Comment	Prep Pos
P4776-02	MDL-WATER-QT4-2024-08	50	50	>10	Negative	Negative	Negative	N/A	N/A
P4917-06	MX1012	50	50	>10	Negative	Negative	Negative	N/A	N/A
PB165196BL	PBW196	50	50	>10	Negative	Negative	Negative	N/A	N/A

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

Instrument ID: KONELAB

Daily Analysis Runlog For Sequence/QCBatch ID # LB133577

Review By	Niha Farheen Shaik	Review On	11/25/2024 9:19:36 AM
Supervise By	Iwona Zarych	Supervise On	11/25/2024 9:25:04 AM

STD. NAME	STD REF.#
ICAL Standard	WP110843,WP110842,WP110841,WP110840,WP110839,WP110838
ICV Standard	WP110845
CCV Standard	WP110844
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	WP110103,WP109089,WP110847

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0.0	S0	CAL1	11/22/24 10:12		Niha	OK
2	S5.0	S01	CAL2	11/22/24 10:12		Niha	OK
3	S10.0	S02	CAL3	11/22/24 10:12		Niha	OK
4	S100.0	S03	CAL4	11/22/24 10:12		Niha	OK
5	S250.0	S04	CAL5	11/22/24 10:12		Niha	OK
6	S500.0	S05	CAL6	11/22/24 10:12		Niha	OK
7	ICV001	ICV001	ICV	11/22/24 11:10		Niha	OK
8	ICB001	ICB001	ICB	11/22/24 11:10		Niha	OK
9	CCV001	CCV001	CCV	11/22/24 11:10		Niha	OK
10	CCB001	CCB001	CCB	11/22/24 11:10		Niha	OK
11	PB165195BL	PBS195	MB	11/22/24 11:10		Niha	OK
12	P4776-04	MDL-SOIL-QT4-2024-	SAM	11/22/24 11:10		Niha	OK
13	P4917-02	MX1008	SAM	11/22/24 11:17	Cn High	Niha	Dilution
14	P4917-02DL	MX1008	SAM	11/22/24 11:17	5x For Cn	Niha	Confirms
15	PB165196BL	PBW196	MB	11/22/24 11:25		Niha	OK
16	P4776-02	MDL-WATER-QT4-20	SAM	11/22/24 11:25		Niha	OK
17	P4917-06	MX1012	SAM	11/22/24 11:25		Niha	OK
18	CCV002	CCV002	CCV	11/22/24 11:25		Niha	OK

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

Instrument ID: KONELAB

Daily Analysis Runlog For Sequence/QCBatch ID # LB133577

Review By	Niha Farheen Shaik	Review On	11/25/2024 9:19:36 AM
Supervise By	Iwona Zarych	Supervise On	11/25/2024 9:25:04 AM

STD. NAME	STD REF.#
ICAL Standard	WP110843,WP110842,WP110841,WP110840,WP110839,WP110838
ICV Standard	WP110845
CCV Standard	WP110844
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	WP110103,WP109089,WP110847

19	CCB002	CCB002	CCB	11/22/24 11:25		Niha	OK

ERA

A Waters Company

Instructions for Catalog # 540QR

Metals in Soil

Revision 111122

Description:

- This standard is packaged in a 2-ounce glass jar containing approximately 30 grams of soil.
- This standard is not preserved.
- The standard can be stored at room temperature.
- The standard will contain all the analytes listed in the ranges specified on the data reporting form.

Before you Begin:

- The Mercury in this standard should be determined using the digestion and analytical procedures in the current version of EPA method 7471, or equivalent.
- The other metals in this standard should be determined using EPA digestion methods 3050 or 3051 followed by your normal analysis procedures.
- This standard should not be analyzed for Hexavalent Chromium. A separate standard, ERA catalog number 921QR, is available for Hexavalent Chromium.
- Although all ERA soil standards have been thoroughly blended prior to shipping, the standards should be homogenized prior to taking an aliquot for analysis due to settling which may occur during shipping.
- The percent moisture of this standard should be determined, and your analytical results adjusted accordingly and reported on a dry weight basis.

Instructions:

1. Open the Metals in Soil standard in a fume hood to avoid inhalation of dust.
2. Mix the sample well prior to removing aliquots for analysis.
3. Digest and analyze the standard using your normal procedures.
4. Determine the percent moisture of an aliquot of the Metals in Soil standard.
5. Report your results as mg/kg on a dry weight basis.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Safety Data Sheets (SDS) for all ERA products are available through our website www.eraqc.com.

ERA

A Waters Company

Instructions for Catalog # 500QR
WatR™Pollution Trace Metals

Revision 030512

Description:

- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 2% (v/v) nitric acid.
- The concentrate can be stored at room temperature.
- The diluted standard will contain all the analytes listed in the ranges specified on the data reporting form.

Before you begin:

- The sample resulting from the dilution described below will have a nitric acid concentration of approximately 0.02% before any acid is added. You may add a volume of acid different from the 2 to 5 mL of HNO_3 suggested in order to matrix match your calibration standards or meet any other method criteria.
- If analyzing this standard using colorimetric techniques, it may be necessary to pH adjust the sample prior to analysis. If using colorimetric techniques, it is acceptable to omit the addition of the 2-5 mL nitric acid suggested.
- While it is technically not necessary to digest this standard prior to analysis, digestion should be performed if this is your normal procedure.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:

1. Add 100-200 mL of deionized water and approximately 2 to 5 mL of nitric acid to a clean 500 mL class A volumetric flask.
2. Shake the Trace Metals vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 500 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as µg/L for the diluted sample.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA

A Waters Company

Instructions for Catalog # 541QR
Cyanide in Soil
Revision 030512

Description:
- This standard is packaged in a 2-ounce glass jar containing approximately 40 grams of soil.
- This standard is not preserved.
- The standard can be stored at room temperature.
- The standard will contain Reactive and Total Cyanide in the range specified on the data reporting form.

Before you Begin:
- This standard is designed to be distilled using the procedures in the most recent revisions of EPA methods 9010, 9012 or equivalent.
- Although all ERA soil standards have been thoroughly blended prior to shipping, the standards should be homogenized prior to taking an aliquot for analysis due to settling which may occur during shipping.
- The percent moisture of this standard should be determined and your analytical results adjusted accordingly and reported on a dry weight basis.

Instructions:
1. Open the Cyanide in Soil standard in a fume hood to avoid inhalation of dust.
2. Mix the sample well prior to removing aliquots for analysis.
3. Distill and analyze the standard using your normal procedures.
4. Determine the percent moisture of an aliquot of the Cyanide in Soil standard.
5. Report your results as mg/kg on a dry weight basis.

Safety:
ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA

A Waters Company

Instructions for Catalog #666QR

WatR™Supply Mercury

Revision 030512

Description:

- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 1% (v/v) nitric acid and 0.04% (w/v) potassium dichromate.
- The concentrate can be stored at room temperature.
- The diluted standard will contain Mercury in the range specified on the data reporting form.

Before you begin:

- This standard has been prepared as a concentrate and must be diluted prior to analysis.
- The USEPA *Criteria Document* requires that Mercury be present as a mixture of organic and inorganic forms and must, therefore, be analyzed as Total Mercury.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:

1. Add 100-200 mL of deionized water and approximately 2 to 5 mL of nitric acid to a clean 500 mL class A volumetric flask.
2. Shake the Mercury vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 500 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as µg/L for the diluted sample.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA

A Waters Company

Instructions for Catalog # 697QR

WatR™Supply Metals

Revision 030512

Description:

- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 2% (v/v) nitric acid.
- The concentrate can be stored at room temperature.
- The diluted standard will contain all the analytes listed in the ranges specified on the data reporting form.

Before you begin:

- This standard has been prepared as a concentrate and must be diluted prior to analysis.
- The sample resulting from the dilution described below will have a nitric acid concentration of approximately 0.01% before any acid is added. You may add a volume of acid different from the 2 to 5 mL of nitric acid suggested in order to match the matrix of your calibration standards or to meet any other method requirements.
- If analyzing this standard using colorimetric techniques, it may be necessary to pH adjust the sample prior to analysis. If using colorimetric techniques, it is acceptable to omit the addition of the 2-5 mL nitric acid suggested.
- While it is technically not necessary to digest this standard prior to analysis, digestion should be performed if this is your normal procedure.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:

1. Add 100-200 mL of deionized water and approximately 2 to 5 mL of nitric acid to a clean 1000 mL class A volumetric flask.
2. Shake the Metals vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 1000 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as µg/L for the diluted sample.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ERA

A Waters Company

Instructions for Catalog # 983QR

WatR™Supply Cyanide

Revision 030512

Description:

- This standard is packaged in a 15 mL screw-top vial containing approximately 14 mL of standard concentrate.
- This concentrate is preserved with approximately 0.25%(w/v) sodium hydroxide.
- The concentrate can be stored at room temperature.
- The diluted standard will contain Total Cyanide in the range specified on the data reporting form.

Before you begin:

- This standard has been prepared as a concentrate and must be diluted prior to analysis.
- This standard does not require distillation prior to analysis.
- This standard should be analyzed as soon as possible after the concentrate is diluted.

Instructions:

1. Add 100-200 mL of deionized water and approximately 1 to 2 mL of 50% sodium hydroxide to a clean 1000 mL class A volumetric flask.
2. Shake the Cyanide vial prior to opening.
3. Using a clean, dry, class A pipet, volumetrically pipet 5.0 mL of the concentrate into the 1000 mL volumetric flask.
4. Dilute the flask to final volume with deionized water.
5. Cap the flask and mix well.
6. Immediately analyze the diluted sample by your normal procedures.
7. Report your results as mg/L for the diluted sample.

Safety:

ERA products may be hazardous and are intended for use by professional laboratory personnel trained in the competent handling of such materials. Responsibility for the safe use of these products rests entirely with the buyer and/or user. Material Safety Data Sheets (MSDS) for all ERA products are available by calling 1-800-372-0122.

ORIGIN ID:LAAA (303) 431-8454
DIOSDADO ALVAREZ
ENVIRONMENTAL RESOURCE ASSOCIATES
16341 TABLE MOUNTAIN PKWY
GOLDEN, CO 80403
UNITED STATES US

SHIP DATE: 18NOV24
ACTWGT: 6.00 LB
CAD: 255458332/WSXI3600
DIMS: 12x7x9 IN

BILL RECIPIENT

TO SOHIL JODHANI
ALLIANCE TECHNICAL GROUP LLC
284 SHEFFIELD STREET
MOUNTAINSIDE NJ 07092
(571) 454-1564
INV:
PO:
REF: 096948.GDIT 33817
DEPT:

11-19-24
19.3 C
857

5BCJ5/5B2E/CGC4

FedEx Express
J244024091001uv

TUE - 19 NOV 5:00P
STANDARD OVERNIGHT
TRK# 0201 2819 2502 3487
07092
NJ-US EWR
NF KBCA

Alliance TECHNICAL GROUP 284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Login Summary Report

Order ID :	P4917	Order Date :	11/19/2024 9:57:00 AM	Project Mgr :	Deepak
Client :	USEPA CLP SMO	Project :	51882	Report Type :	USEPA CLP
Contact :	Anita Kapadia	Receive Date :	11/19/2024 9:57:00 AM	EDD Type :	EPA CLP
Date Sign Off :	11/19/2024 11:56:18 AM				

Sample ID	Client ID	Matrix	Sampling Date	Test	Test Group	Method	TAT Days	Fax Due Date	HC Due Date
P4917-01	MX1007	Solid	11/18/2024		PT				
				Mercury		SFAM_HG	15	12/10/2024	12/10/2024
				Metals CLP Full		SFAM_AES	15	12/10/2024	12/10/2024
				Metals CLP MS FULL		SFAM_MS	15	12/10/2024	12/10/2024
				Percent Solids		Chemtech -SOP	15	12/10/2024	12/10/2024
P4917-02	MX1008	Solid	11/18/2024		PT				
				Cyanide		SFAM_CN	15	12/10/2024	12/10/2024
				Percent Solids		Chemtech -SOP	15	12/10/2024	12/10/2024
P4917-03	MX1009	Water	11/18/2024		PT				
				Hardness, Total		SFAM_AES	15	12/10/2024	12/10/2024
				Metals CLP Full		SFAM_AES	15	12/10/2024	12/10/2024
P4917-04	MX1010	Water	11/18/2024		PT				
				Metals CLP MS		SFAM_MS	15	12/10/2024	12/10/2024
P4917-05	MX1011	Water	11/18/2024		PT				
				Mercury		SFAM_HG	15	12/10/2024	12/10/2024
P4917-06	MX1012	Water	11/18/2024		PT				
				Cyanide		SFAM_CN	15	12/10/2024	12/10/2024

WORKLIST(Hardcopy Internal Chain)

WorkList Name : PB165239 **WorkList ID :** 185746 **Department :** Digestion **Date :** 11-25-2024 11:52:06

741

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4917-01	MX1007	Solid	Metals CLP Full	Cool 4 deg C	USEP01	QA Of	11/18/2024	SFAM_AES

Date/Time 11/27/24 10:30

Raw Sample Received by: JSP (Met Dig) SO Metals Lab

Raw Sample Relinquished by: SO Metals Lab

Date/Time 11/27/24 11:05

Raw Sample Received by: SO Metals Lab

Raw Sample Relinquished by: JSP (Met Dig)

WORKLIST(Hardcopy Internal Chain)

WorkList Name : PB165240 **WorkList ID :** 185747 **Department :** Digestion **Date :** 11-25-2024 11:53:12

742

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4917-03	MX1009	Water	Metals CLP Full	Cool 4 deg C	USEP01	QA Of	11/18/2024	SFAM_AES

Date/Time 11/27/2024 10:30

Raw Sample Received by: JSP (Met Dig)

Raw Sample Relinquished by: [signature]

Date/Time 11/27/2024 12:05

Raw Sample Received by: [signature]

Raw Sample Relinquished by: JSP (Met Dig)

WORKLIST(Hardcopy Internal Chain)

WorkList Name : PB165237 **WorkList ID :** 185744 **Department :** Digestion **Date :** 11-25-2024 11:47:47

743

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4917-04	MX1010	Water	Metals CLP MS	Cool 4 deg C	USEP01	QA Of	11/18/2024	SFAM_MS

Date/Time 11/27/2024 10:45

Raw Sample Received by: JSP (Met Dig)

Raw Sample Relinquished by: SS (Metals QA)

Date/Time 11/27/2024 11:20

Raw Sample Received by: SS (Metals QA)

Raw Sample Relinquished by: JSP (Met Dig)

WORKLIST(Hardcopy Internal Chain)

WorkList Name : PB165238 **WorkList ID :** 185745 **Department :** Digestion **Date :** 11-25-2024 11:49:13

744

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4917-01	MX1007	Solid	Metals CLP MS FULL	Cool 4 deg C	USEP01	QA Of	11/18/2024	SFAM_MS

Date/Time 11/27/2024 10:30

Raw Sample Received by: dept (Met dig)

Raw Sample Relinquished by: [illegible] (Metals Lab)

Date/Time 11/27/2024 11:05

Raw Sample Received by: [illegible] Metals Lab

Raw Sample Relinquished by: dept Met dig

WORKLIST(Hardcopy Internal Chain)

WorkList Name : P4917_HgS **WorkList ID :** 186063 **Department :** Digestion **Date :** 12-03-2024 10:13:07

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4917-01	MX1007	Solid	Mercury	Cool 4 deg C	USEP01	QA Office	11/18/2024	SFAM_HG

745

Date/Time 12/3/24 @ 9:17

Raw Sample Received by: MB - DLS Lab

Raw Sample Relinquished by: SJ (Metal Supply)

Date/Time 12/3/24 @ 10:35

Raw Sample Received by: SJ - Metal Supply

Raw Sample Relinquished by: MB - DLS Lab

WORKLIST(Hardcopy Internal Chain)

WorkList Name : P4917_HgW **WorkList ID :** 186062 **Department :** Digestion **Date :** 12-03-2024 10:12:57

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4917-05	MX1011	Water	Mercury	Cool 4 deg C	USEP01	QA Office	11/18/2024	SFAM_HG

746

Date/Time 12/4/24 @ 7:20

Raw Sample Received by: AB - DIG. LAB

Raw Sample Relinquished by: AB. DIG. LAB

Date/Time 12/4/24 @ 7:45

Raw Sample Received by: AB - DIG. LAB

Raw Sample Relinquished by: AB - DIG. LAB

WORKLIST(Hardcopy Internal Chain)

WorkList Name : CN EPA -11222024 **WorkList ID :** 185697 **Department :** Distillation **Date :** 11-22-2024 07:45:15

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4776-04	MDL-SOIL-QT4-2024-08	Solid	Cyanide	Cool 4 deg C	CHEM02	QA Of	11/07/2024	SFAM_CN
P4917-02	MX1008	Solid	Cyanide	Cool 4 deg C	USEP01	QA Of	11/18/2024	SFAM_CN

747

Date/Time 11.22.2024, 07:50

Raw Sample Received by: JA (WC)

Raw Sample Relinquished by: SJ (QAO)

Date/Time NA

Raw Sample Received by:

Raw Sample Relinquished by:

WORKLIST(Hardcopy Internal Chain)

WorkList Name : CN EPA-11222024 **WorkList ID :** 185696 **Department :** Distillation **Date :** 11-22-2024 07:45:12

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P4776-02	MDL-WATER-QT4-2024-08	Water	Cyanide	1:1 NaOH to pH >12	CHEM02	QA Of	11/07/2024	SFAM_CN
P4917-06	MX1012	Water	Cyanide	Cool 4 deg C	USEP01	QA Of	11/18/2024	SFAM_CN

748

Date/Time 11.22.2024, 07:50

Raw Sample Received by: [illegible] Cool C/

Raw Sample Relinquished by: SJ (QAO)

Date/Time NA

Raw Sample Received by:

Raw Sample Relinquished by: