

DATA REPORTING QUALIFIERS- INORGANIC

For reporting results, the following “ Results Qualifiers” are used:

J	Indicates the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL), but greater than or equal to the Instrument Detection Limit (IDL).
U	Indicates the analyte was analyzed for, but not detected.
ND	Indicates the analyte was analyzed for, but not detected
E	Indicates the reported value is estimated because of the presence of interference
M	Indicates Duplicate injection precision not met.
N	Indicates the spiked sample recovery is not within control limits.
S	Indicates the reported value was determined by the Method of Standard Addition (MSA).
*	Indicates that the duplicate analysis is not within control limits.
+	Indicates the correlation coefficient for the MSA is less than 0.995.
D	Indicates the reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
M	Method qualifiers “P” for ICP instrument “PM” for ICP when Microwave Digestion is used “CV” for Manual Cold Vapor AA “AV” for automated Cold Vapor AA “CA” for MIDI-Distillation Spectrophotometric “AS” for Semi -Automated Spectrophotometric “C” for Manual Spectrophotometric “T” for Titrimetric “NR” for analyte not required to be analyzed
OR	Indicates the analyte’s concentration exceeds the calibrated range of the instrument for that specific analysis.
Q	Indicates the LCS did not meet the control limits requirements
H	Sample Analysis Out Of Hold Time



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LAB CHRONICLE

OrderID:	P5141	OrderDate:	12/5/2024 12:27:00 PM
Client:	VERINA CONSULTING GROUP, LLC	Project:	Rotor Clip - PO# 5183.0001
Contact:	Michael Valenzi	Location:	M11

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
P5141-01	WATER TREATMENT DISCHARGE	Water	Metals Group5	6010D	12/05/24	12/09/24	12/10/24	12/05/24



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Hit Summary Sheet
SW-846

SDG No.: P5141

Order ID: P5141

Client: VERINA CONSULTING GROUP, LLC

Project ID: Rotor Clip - PO# 5183.0001

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Client ID : WATER TREATMENT DISCHARGE								
P5141-01	WATER TREATMENT DISCHA	Water	Chromium	359		0.66	5.00	ug/L
P5141-01	WATER TREATMENT DISCHA	Water	Copper	10.3		7.07	10.0	ug/L
P5141-01	WATER TREATMENT DISCHA	Water	Nickel	55.8		0.85	20.0	ug/L
P5141-01	WATER TREATMENT DISCHA	Water	Zinc	573		1.75	20.0	ug/L



SAMPLE DATA

Report of Analysis

Client:	VERINA CONSULTING GROUP, LLC	Date Collected:	12/05/24
Project:	Rotor Clip - PO# 5183.0001	Date Received:	12/05/24
Client Sample ID:	WATER TREATMENT DISCHARGE	SDG No.:	P5141
Lab Sample ID:	P5141-01	Matrix:	Water
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7440-43-9	Cadmium	0.094	U	1	0.094	3.00	ug/L	12/09/24 09:10	12/10/24 12:57	SW6010	SW3010
7440-47-3	Chromium	359		1	0.66	5.00	ug/L	12/09/24 09:10	12/10/24 12:57	SW6010	SW3010
7440-50-8	Copper	10.3		1	7.07	10.0	ug/L	12/09/24 09:10	12/10/24 12:57	SW6010	SW3010
7439-92-1	Lead	3.51	U	1	3.51	6.00	ug/L	12/09/24 09:10	12/10/24 12:57	SW6010	SW3010
7440-02-0	Nickel	55.8		1	0.85	20.0	ug/L	12/09/24 09:10	12/10/24 12:57	SW6010	SW3010
7440-22-4	Silver	0.58	U	1	0.58	5.00	ug/L	12/09/24 09:10	12/10/24 12:57	SW6010	SW3010
7440-66-6	Zinc	573		1	1.75	20.0	ug/L	12/09/24 09:10	12/10/24 12:57	SW6010	SW3010

Color Before:	Colorless	Clarity Before:	Clear	Texture:
Color After:	Colorless	Clarity After:	Clear	Artifacts:
Comments:	Metals Group5			

U = Not Detected
 LOQ = Limit of Quantitation
 MDL = Method Detection Limit
 LOD = Limit of Detection
 D = Dilution
 Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 * = indicates the duplicate analysis is not within control limits.
 E = Indicates the reported value is estimated because of the presence of interference.
 OR = Over Range
 N =Spiked sample recovery not within control limits



METAL CALIBRATION DATA

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VERINA CONSULTING GROUP, LLC **SDG No.:** P5141
Contract: VERI01 **Lab Code:** CHEM **Case No.:** P5141 **SAS No.:** P5141
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Cadmium	520	510	102	90 - 110	P	12/10/2024	11:04	LB133866
	Chromium	551	520	106	90 - 110	P	12/10/2024	11:04	LB133866
	Copper	546	510	107	90 - 110	P	12/10/2024	11:04	LB133866
	Lead	1030	1000	103	90 - 110	P	12/10/2024	11:04	LB133866
	Nickel	531	530	100	90 - 110	P	12/10/2024	11:04	LB133866
	Silver	264	250	106	90 - 110	P	12/10/2024	11:04	LB133866
	Zinc	1090	1000	108	90 - 110	P	12/10/2024	11:04	LB133866

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VERINA CONSULTING GROUP, LLC SDG No.: P5141
Contract: VERI01 Lab Code: CHEM Case No.: P5141 SAS No.: P5141
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLICV01	Cadmium	5.98	6.0	100	80 - 120	P	12/10/2024	11:08	LB133866
	Chromium	9.98	10.0	100	80 - 120	P	12/10/2024	11:08	LB133866
	Copper	22.8	20.0	114	80 - 120	P	12/10/2024	11:08	LB133866
	Lead	12.4	12.0	103	80 - 120	P	12/10/2024	11:08	LB133866
	Nickel	39.8	40.0	99	80 - 120	P	12/10/2024	11:08	LB133866
	Silver	10.6	10.0	106	80 - 120	P	12/10/2024	11:08	LB133866
	Zinc	45.5	40.0	114	80 - 120	P	12/10/2024	11:08	LB133866

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: VERINA CONSULTING GROUP, LLC **SDG No.:** P5141

Contract: VERI01 **Lab Code:** CHEM **Case No.:** P5141 **SAS No.:** P5141

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Cadmium	2430	2500	97	90 - 110	P	12/10/2024	11:44	LB133866
	Chromium	1000	1000	100	90 - 110	P	12/10/2024	11:44	LB133866
	Copper	1240	1250	100	90 - 110	P	12/10/2024	11:44	LB133866
	Lead	4880	5000	98	90 - 110	P	12/10/2024	11:44	LB133866
	Nickel	2430	2500	97	90 - 110	P	12/10/2024	11:44	LB133866
	Silver	1240	1250	99	90 - 110	P	12/10/2024	11:44	LB133866
	Zinc	2520	2500	101	90 - 110	P	12/10/2024	11:44	LB133866
CCV02	Cadmium	2360	2500	95	90 - 110	P	12/10/2024	12:35	LB133866
	Chromium	969	1000	97	90 - 110	P	12/10/2024	12:35	LB133866
	Copper	1230	1250	98	90 - 110	P	12/10/2024	12:35	LB133866
	Lead	4760	5000	95	90 - 110	P	12/10/2024	12:35	LB133866
	Nickel	2370	2500	95	90 - 110	P	12/10/2024	12:35	LB133866
	Silver	1210	1250	97	90 - 110	P	12/10/2024	12:35	LB133866
	Zinc	2480	2500	99	90 - 110	P	12/10/2024	12:35	LB133866
CCV03	Cadmium	2410	2500	96	90 - 110	P	12/10/2024	13:26	LB133866
	Chromium	996	1000	100	90 - 110	P	12/10/2024	13:26	LB133866
	Copper	1250	1250	100	90 - 110	P	12/10/2024	13:26	LB133866
	Lead	4850	5000	97	90 - 110	P	12/10/2024	13:26	LB133866
	Nickel	2420	2500	97	90 - 110	P	12/10/2024	13:26	LB133866
	Silver	1240	1250	99	90 - 110	P	12/10/2024	13:26	LB133866
	Zinc	2520	2500	101	90 - 110	P	12/10/2024	13:26	LB133866
CCV04	Cadmium	2410	2500	96	90 - 110	P	12/10/2024	14:19	LB133866
	Chromium	991	1000	99	90 - 110	P	12/10/2024	14:19	LB133866
	Copper	1250	1250	100	90 - 110	P	12/10/2024	14:19	LB133866
	Lead	4850	5000	97	90 - 110	P	12/10/2024	14:19	LB133866
	Nickel	2420	2500	97	90 - 110	P	12/10/2024	14:19	LB133866
	Silver	1230	1250	99	90 - 110	P	12/10/2024	14:19	LB133866
	Zinc	2510	2500	100	90 - 110	P	12/10/2024	14:19	LB133866



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Metals

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CRDL STANDARD FOR AA & ICP

Client: VERINA CONSULTING GROUP, LLC

SDG No.: P5141

Contract: VERI01

Lab Code: CHEM

Case No.: P5141

SAS No.: P5141

Initial Calibration Source: _____

Continuing Calibration Source: _____

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRI01	Cadmium	5.80	6.0	97	40 - 160	P	12/10/2024	11:24	LB133866
	Chromium	9.86	10.0	99	40 - 160	P	12/10/2024	11:24	LB133866
	Copper	22.5	20.0	113	40 - 160	P	12/10/2024	11:24	LB133866
	Lead	11.2	12.0	94	40 - 160	P	12/10/2024	11:24	LB133866
	Nickel	39.3	40.0	98	40 - 160	P	12/10/2024	11:24	LB133866
	Silver	10.7	10.0	107	40 - 160	P	12/10/2024	11:24	LB133866
	Zinc	43.8	40.0	110	40 - 160	P	12/10/2024	11:24	LB133866



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Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: VERINA CONSULTING GROUP, LLC

SDG No.: P5141

Contract: VERI01

Lab Code: CHEM

Case No.: P5141

SAS No.: P5141

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Cadmium	6.00	+/-6.00	U	6.00	P	12/10/2024	11:20	LB133866
	Chromium	10.0	+/-10.0	U	10.0	P	12/10/2024	11:20	LB133866
	Copper	20.0	+/-20.0	U	20.0	P	12/10/2024	11:20	LB133866
	Lead	12.0	+/-12.0	U	12.0	P	12/10/2024	11:20	LB133866
	Nickel	40.0	+/-40.0	U	40.0	P	12/10/2024	11:20	LB133866
	Silver	10.0	+/-10.0	U	10.0	P	12/10/2024	11:20	LB133866
	Zinc	40.0	+/-40.0	U	40.0	P	12/10/2024	11:20	LB133866

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: VERINA CONSULTING GROUP, LLC

SDG No.: P5141

Contract: VERI01

Lab Code: CHEM

Case No.: P5141

SAS No.: P5141

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Cadmium	6.00	+/-6.00	U	6.00	P	12/10/2024	11:48	LB133866
	Chromium	10.0	+/-10.0	U	10.0	P	12/10/2024	11:48	LB133866
	Copper	20.0	+/-20.0	U	20.0	P	12/10/2024	11:48	LB133866
	Lead	12.0	+/-12.0	U	12.0	P	12/10/2024	11:48	LB133866
	Nickel	40.0	+/-40.0	U	40.0	P	12/10/2024	11:48	LB133866
	Silver	10.0	+/-10.0	U	10.0	P	12/10/2024	11:48	LB133866
	Zinc	40.0	+/-40.0	U	40.0	P	12/10/2024	11:48	LB133866
CCB02	Cadmium	6.00	+/-6.00	U	6.00	P	12/10/2024	12:39	LB133866
	Chromium	10.0	+/-10.0	U	10.0	P	12/10/2024	12:39	LB133866
	Copper	20.0	+/-20.0	U	20.0	P	12/10/2024	12:39	LB133866
	Lead	12.0	+/-12.0	U	12.0	P	12/10/2024	12:39	LB133866
	Nickel	40.0	+/-40.0	U	40.0	P	12/10/2024	12:39	LB133866
	Silver	10.0	+/-10.0	U	10.0	P	12/10/2024	12:39	LB133866
	Zinc	40.0	+/-40.0	U	40.0	P	12/10/2024	12:39	LB133866
CCB03	Cadmium	6.00	+/-6.00	U	6.00	P	12/10/2024	13:30	LB133866
	Chromium	10.0	+/-10.0	U	10.0	P	12/10/2024	13:30	LB133866
	Copper	20.0	+/-20.0	U	20.0	P	12/10/2024	13:30	LB133866
	Lead	12.0	+/-12.0	U	12.0	P	12/10/2024	13:30	LB133866
	Nickel	40.0	+/-40.0	U	40.0	P	12/10/2024	13:30	LB133866
	Silver	10.0	+/-10.0	U	10.0	P	12/10/2024	13:30	LB133866
	Zinc	40.0	+/-40.0	U	40.0	P	12/10/2024	13:30	LB133866
CCB04	Cadmium	6.00	+/-6.00	U	6.00	P	12/10/2024	14:24	LB133866
	Chromium	10.0	+/-10.0	U	10.0	P	12/10/2024	14:24	LB133866
	Copper	20.0	+/-20.0	U	20.0	P	12/10/2024	14:24	LB133866
	Lead	12.0	+/-12.0	U	12.0	P	12/10/2024	14:24	LB133866
	Nickel	40.0	+/-40.0	U	40.0	P	12/10/2024	14:24	LB133866
	Silver	10.0	+/-10.0	U	10.0	P	12/10/2024	14:24	LB133866
	Zinc	40.0	+/-40.0	U	40.0	P	12/10/2024	14:24	LB133866

Metals
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PREPARATION BLANK SUMMARY

Client: VERINA CONSULTING GROUP, LLC

SDG No.: P5141

Instrument: P4

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB165464BL	WATER			Batch Number:	PB165464		Prep Date:	12/09/2024	
	Cadmium	3.00	<3.00	U	3.00	P	12/10/2024	12:01	LB133866
	Chromium	5.00	<5.00	U	5.00	P	12/10/2024	12:01	LB133866
	Copper	10.0	<10.0	U	10.0	P	12/10/2024	12:01	LB133866
	Lead	6.00	<6.00	U	6.00	P	12/10/2024	12:01	LB133866
	Nickel	20.0	<20.0	U	20.0	P	12/10/2024	12:01	LB133866
	Silver	5.00	<5.00	U	5.00	P	12/10/2024	12:01	LB133866
	Zinc	20.0	<20.0	U	20.0	P	12/10/2024	12:01	LB133866

Metals

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INTERFERENCE CHECK SAMPLE

Client: VERINA CONSULTING GROUP, LLC **SDG No.:** P5141
Contract: VERI01 **Lab Code:** CHEM **Case No.:** P5141 **SAS No.:** P5141
ICS Source: EPA **Instrument ID:** P4

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Low Limit (ug/L)	High Limit (ug/L)	Analysis Date	Analysis Time	Run Number
ICSA01	Cadmium	3.45	1.0	345	-5	7	12/10/2024	11:36	LB133866
	Chromium	56.5	52.0	109	42	62	12/10/2024	11:36	LB133866
	Copper	5.99	2.0	300	-18	22	12/10/2024	11:36	LB133866
	Lead	10.4			-12	12	12/10/2024	11:36	LB133866
	Nickel	31.3	2.0	1565	-38	42	12/10/2024	11:36	LB133866
	Silver	-2.00			-10	10	12/10/2024	11:36	LB133866
	Zinc	-6.01			-40	40	12/10/2024	11:36	LB133866
ICSAB01	Cadmium	952	972	98	826	1120	12/10/2024	11:40	LB133866
	Chromium	539	542	99	460	624	12/10/2024	11:40	LB133866
	Copper	470	511	92	434	588	12/10/2024	11:40	LB133866
	Lead	59.2	49.0	121	37	61	12/10/2024	11:40	LB133866
	Nickel	974	954	102	810	1100	12/10/2024	11:40	LB133866
	Silver	190	201	94	170	232	12/10/2024	11:40	LB133866
	Zinc	911	952	96	809	1095	12/10/2024	11:40	LB133866



METAL QC DATA

metals
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MATRIX SPIKE SUMMARY

client: VERINA CONSULTING GROUP, LLC **level:** low **sdg no.:** P5141
contract: VERI01 **lab code:** CHEM **case no.:** P5141 **sas no.:** P5141
matrix: Water **sample id:** P5093-02 **client id:** LL-001-FB-12-4-24MS
Percent Solids for Sample: NA **Spiked ID:** P5093-02MS **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Cadmium	ug/L	75 - 125	78.8		3.00	U	100	79		P
Chromium	ug/L	75 - 125	180		5.00	U	200	90		P
Copper	ug/L	75 - 125	134		10.0	U	150	89		P
Lead	ug/L	75 - 125	392		6.00	U	500	78		P
Nickel	ug/L	75 - 125	207		20.0	U	250	83		P
Silver	ug/L	75 - 125	31.6		5.00	U	37.5	84		P
Zinc	ug/L	75 - 125	91.4		20.0	U	100	91		P

metals
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MATRIX SPIKE DUPLICATE SUMMARY

client: VERINA CONSULTING GROUP, LLC **level:** low **sdg no.:** P5141
contract: VERI01 **lab code:** CHEM **case no.:** P5141 **sas no.:** P5141
matrix: Water **sample id:** P5093-02 **client id:** LL-001-FB-12-4-24MSD
Percent Solids for Sample: NA **Spiked ID:** P5093-02MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Cadmium	ug/L	75 - 125	78.4		3.00	U	100	78		P
Chromium	ug/L	75 - 125	180		5.00	U	200	90		P
Copper	ug/L	75 - 125	133		10.0	U	150	89		P
Lead	ug/L	75 - 125	391		6.00	U	500	78		P
Nickel	ug/L	75 - 125	205		20.0	U	250	82		P
Silver	ug/L	75 - 125	31.5		5.00	U	37.5	84		P
Zinc	ug/L	75 - 125	90.3		20.0	U	100	90		P

Metals

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Client: VERINA CONSULTING GROUP, LLC

SDG No.: P5141

Contract: VERI01

Lab Code: CHEM

Case No.: P5141 **SAS No.:** P5141

Matrix:

Level: LOW

Client ID:

Sample ID:

Spiked ID:

Analyte	Units	Acceptance Limit %R	C	Sample Result	C	Spike Added	% Recovery	Qual	M
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Metals

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DUPLICATE SAMPLE SUMMARY

Client: VERINA CONSULTING GROUP, LLC **Level:** LOW **SDG No.:** P5141

Contract: VERI01 **Lab Code:** CHEM **Case No.:** P5141 **SAS No.:** P5141

Matrix: Water **Sample ID:** P5093-02 **Client ID:** LL-001-FB-12-4-24DUP

Percent Solids for Sample: NA **Duplicate ID** P5093-02DUP **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Cadmium	ug/L	20	3.00	U	3.00	U			P
Chromium	ug/L	20	5.00	U	5.00	U			P
Copper	ug/L	20	10.0	U	10.0	U			P
Lead	ug/L	20	6.00	U	6.00	U			P
Nickel	ug/L	20	20.0	U	20.0	U			P
Silver	ug/L	20	5.00	U	5.00	U			P
Zinc	ug/L	20	20.0	U	20.0	U			P

Metals

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DUPLICATE SAMPLE SUMMARY

Client: VERINA CONSULTING GROUP, LLC **Level:** LOW **SDG No.:** P5141
Contract: VERI01 **Lab Code:** CHEM **Case No.:** P5141 **SAS No.:** P5141
Matrix: Water **Sample ID:** P5093-02MS **Client ID:** LL-001-FB-12-4-24MSD
Percent Solids for Sample: NA **Duplicate ID** P5093-02MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Cadmium	ug/L	20	78.8		78.4		1		P
Chromium	ug/L	20	180		180		0		P
Copper	ug/L	20	134		133		1		P
Lead	ug/L	20	392		391		0		P
Nickel	ug/L	20	207		205		1		P
Silver	ug/L	20	31.6		31.5		0		P
Zinc	ug/L	20	91.4		90.3		1		P

Metals

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LABORATORY CONTROL SAMPLE SUMMARY

Client: VERINA CONSULTING GROUP, LLC

SDG No.: P5141

Contract: VERI01

Lab Code: CHEM

Case No.: P5141

SAS No.: P5141

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB165464BS							
Cadmium	ug/L	100	95.5		96	80 - 120	P
Chromium	ug/L	200	205		102	80 - 120	P
Copper	ug/L	150	156		104	80 - 120	P
Lead	ug/L	500	480		96	80 - 120	P
Nickel	ug/L	250	245		98	80 - 120	P
Silver	ug/L	37.5	37.7		100	80 - 120	P
Zinc	ug/L	100	106		106	80 - 120	P

Metals
-9 -
ICP SERIAL DILUTIONS

SAMPLE NO.

LL-001-FB-12-4-24L

Lab Name: Chemtech Consulting Group

Contract: VERI01

Lab Code: CHEM **Lb No.:** lb133866 **Lab Sample ID :** P5093-02L **SDG No.:** P5141

Matrix (soil/water): Water **Level (low/med):** LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I)		Serial Dilution Result (S)		% Differ- ence	Q	M
	C		C				
Cadmium	3.00	U	15.0	U			P
Chromium	5.00	U	4.66	J	100.0		P
Copper	10.0	U	50.0	U			P
Lead	6.00	U	30.0	U			P
Nickel	20.0	U	100	U			P
Silver	5.00	U	25.0	U			P
Zinc	20.0	U	100	U			P



METAL PREPARATION & INSTRUMENT DATA

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: VERINA CONSULTING GROUP, LLC

SDG No.: P5141

Contract: VERI01

Lab Code: CHEM

Case No.: P5141

SAS No.: P5141

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Al	Ca	Fe	Mg	Ag
Cadmium	226.502	0.0000000	0.0000000	0.0000930	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	224.700	0.0000000	0.0000000	0.0007850	0.0000000	0.0000000
Lead	220.353	-0.0000920	0.0000000	0.0000380	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.068	0.0000000	0.0000000	-0.0001490	0.0000000	0.0000000
Zinc	213.800	0.0000000	0.0000000	0.0001050	0.0000000	0.0000000

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: VERINA CONSULTING GROUP, LLC

SDG No.: P5141

Contract: VERI01

Lab Code: CHEM

Case No.: P5141

SAS No.: P5141

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		As	Ba	Be	Cd	Co
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0002870
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	224.700	0.0000000	0.0000000	0.0000000	0.0000000	0.0009530
Lead	220.353	0.0000000	0.0003170	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.068	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.800	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000



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

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: VERINA CONSULTING GROUP, LLC

SDG No.: P5141

Contract: VERI01

Lab Code: CHEM

Case No.: P5141

SAS No.: P5141

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Cr	Cu	K	Mn	Mo
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000070	0.0002200	0.0000000
Copper	224.700	0.0000000	0.0000000	0.0000000	0.0006510	0.0020500
Lead	220.353	0.0000000	0.0000000	0.0000000	0.0001400	-0.0008600
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.068	0.0000000	0.0000000	0.0000000	0.0000000	-0.0000120
Zinc	213.800	0.0000000	0.0009010	0.0000000	0.0000000	0.0000000

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: VERINA CONSULTING GROUP, LLC

SDG No.: P5141

Contract: VERI01

Lab Code: CHEM

Case No.: P5141

SAS No.: P5141

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Na	Ni	Pb	Sb	Se
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	224.700	0.0000000	-0.0047000	0.0036100	0.0000000	0.0000000
Lead	220.353	0.0000000	0.0006580	0.0000000	0.0000000	0.0001290
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.068	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Zinc	213.800	0.0000000	0.0067600	0.0000000	0.0000000	0.0000000

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: VERINA CONSULTING GROUP, LLC

SDG No.: P5141

Contract: VERI01

Lab Code: CHEM

Case No.: P5141

SAS No.: P5141

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Sn	Ti	Tl	V	Zn
Cadmium	226.502	0.0000000	0.0000630	0.0001280	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0001110	0.0000000
Copper	224.700	0.0000000	0.0003840	0.0000000	0.0000000	0.0000000
Lead	220.353	0.0000000	-0.0003610	0.0000000	0.0000000	0.0000000
Nickel	231.604	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.068	0.0000000	-0.0007420	0.0000000	0.0000000	0.0000000
Zinc	213.800	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000



METAL PREPARATION & ANALYICAL SUMMARY

Metals

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SAMPLE PREPARATION SUMMARY

Client: VERINA CONSULTING GROUP, LLC

SDG No.: P5141

Contract: VERI01

Lab Code: CHEM

Method: _____

Case No.: P5141 **SAS No.:** P5141

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB165464							
P5093-02DUP	LL-001-FB-12-4-24DUP	DUP	WATER	12/09/2024	50.0	25.0	
P5093-02MS	LL-001-FB-12-4-24MS	MS	WATER	12/09/2024	50.0	25.0	
P5093-02MSD	LL-001-FB-12-4-24MSD	MSD	WATER	12/09/2024	50.0	25.0	
P5141-01	WATER TREATMENT DISCHARGE	SAM	WATER	12/09/2024	50.0	25.0	
PB165464BL	PB165464BL	MB	WATER	12/09/2024	50.0	25.0	
PB165464BS	PB165464BS	LCS	WATER	12/09/2024	50.0	25.0	

metals
- 14 -
ANALYSIS RUN LOG

Client: VERINA CONSULTING GROUP, LLC

Contract: VERI01

Lab code: CHEM

Case no.: P5141

Sas no.: P5141

Sdg no.: P5141

Instrument id number:

Method:

Run number: LB133866

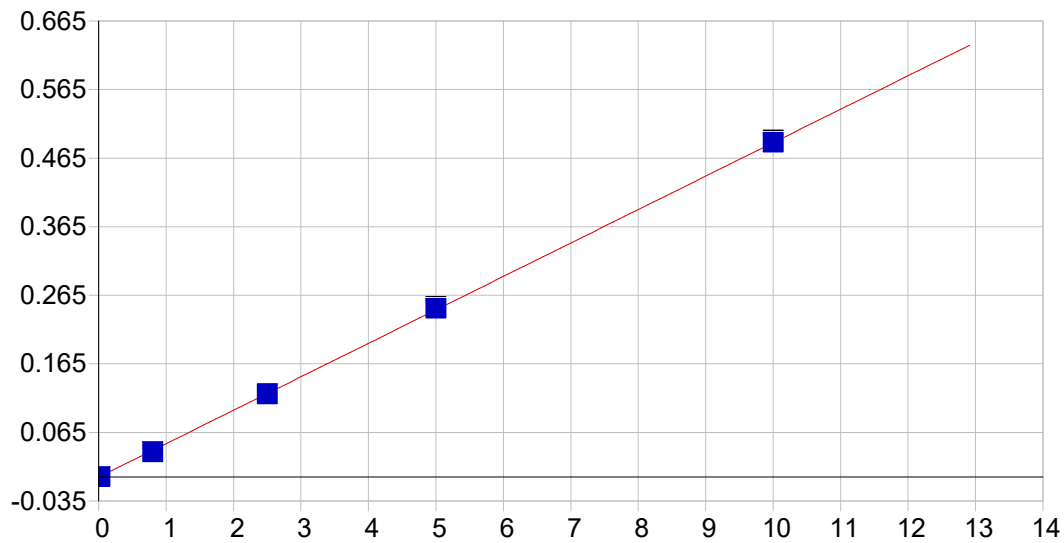
Start date: 12/10/2024

End date: 12/10/2024

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1038	Ag,Cd,Cr,Cu,Ni,Pb,Zn
S1	S1	1	1043	Ag,Cd,Cr,Cu,Ni,Pb,Zn
S2	S2	1	1047	Ag,Cd,Cr,Cu,Ni,Pb,Zn
S3	S3	1	1051	Ag,Cd,Cr,Cu,Ni,Pb,Zn
S4	S4	1	1056	Ag,Cd,Cr,Cu,Ni,Pb,Zn
S5	S5	1	1100	Ag,Cd,Cr,Cu,Ni,Pb,Zn
ICV01	ICV01	1	1104	Ag,Cd,Cr,Cu,Ni,Pb,Zn
LLICV01	LLICV01	1	1108	Ag,Cd,Cr,Cu,Ni,Pb,Zn
ICB01	ICB01	1	1120	Ag,Cd,Cr,Cu,Ni,Pb,Zn
CRI01	CRI01	1	1124	Ag,Cd,Cr,Cu,Ni,Pb,Zn
ICSA01	ICSA01	1	1136	Ag,Cd,Cr,Cu,Ni,Pb,Zn
ICSAB01	ICSAB01	1	1140	Ag,Cd,Cr,Cu,Ni,Pb,Zn
CCV01	CCV01	1	1144	Ag,Cd,Cr,Cu,Ni,Pb,Zn
CCB01	CCB01	1	1148	Ag,Cd,Cr,Cu,Ni,Pb,Zn
PB165464BL	PB165464BL	1	1201	Ag,Cd,Cr,Cu,Ni,Pb,Zn
PB165464BS	PB165464BS	1	1206	Ag,Cd,Cr,Cu,Ni,Pb,Zn
P5093-02DUP	LL-001-FB-12-4-24DUP	1	1227	Ag,Cd,Cr,Cu,Ni,Pb,Zn
P5093-02L	LL-001-FB-12-4-24L	5	1231	Ag,Cd,Cr,Cu,Ni,Pb,Zn
CCV02	CCV02	1	1235	Ag,Cd,Cr,Cu,Ni,Pb,Zn
CCB02	CCB02	1	1239	Ag,Cd,Cr,Cu,Ni,Pb,Zn
P5093-02MS	LL-001-FB-12-4-24MS	1	1244	Ag,Cd,Cr,Cu,Ni,Pb,Zn
P5093-02MSD	LL-001-FB-12-4-24MSD	1	1248	Ag,Cd,Cr,Cu,Ni,Pb,Zn
P5141-01	WATER TREATMENT DISCHA	1	1257	Ag,Cd,Cr,Cu,Ni,Pb,Zn
CCV03	CCV03	1	1326	Ag,Cd,Cr,Cu,Ni,Pb,Zn
CCB03	CCB03	1	1330	Ag,Cd,Cr,Cu,Ni,Pb,Zn
CCV04	CCV04	1	1419	Ag,Cd,Cr,Cu,Ni,Pb,Zn
CCB04	CCB04	1	1424	Ag,Cd,Cr,Cu,Ni,Pb,Zn



METAL RAW DATA

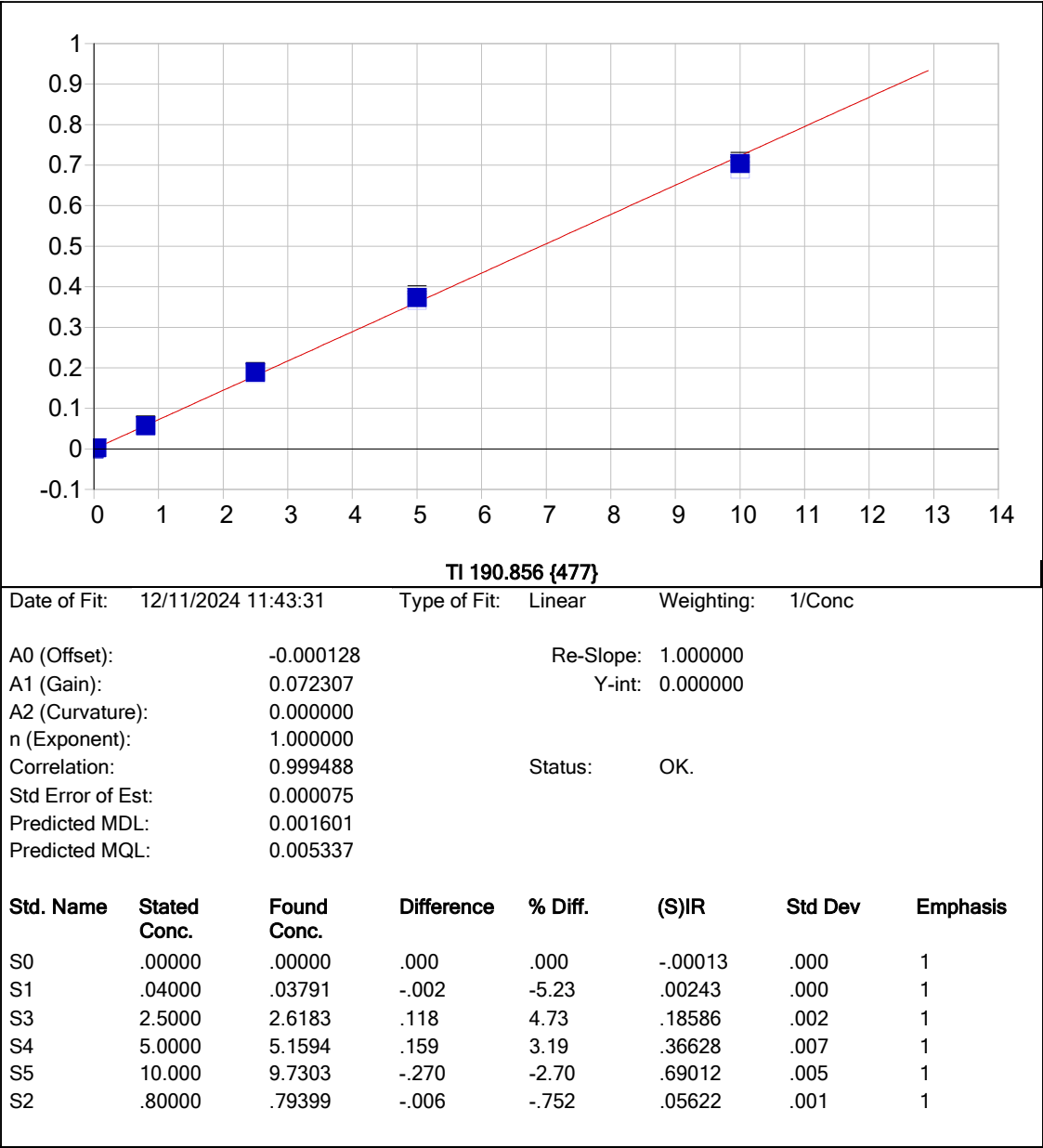


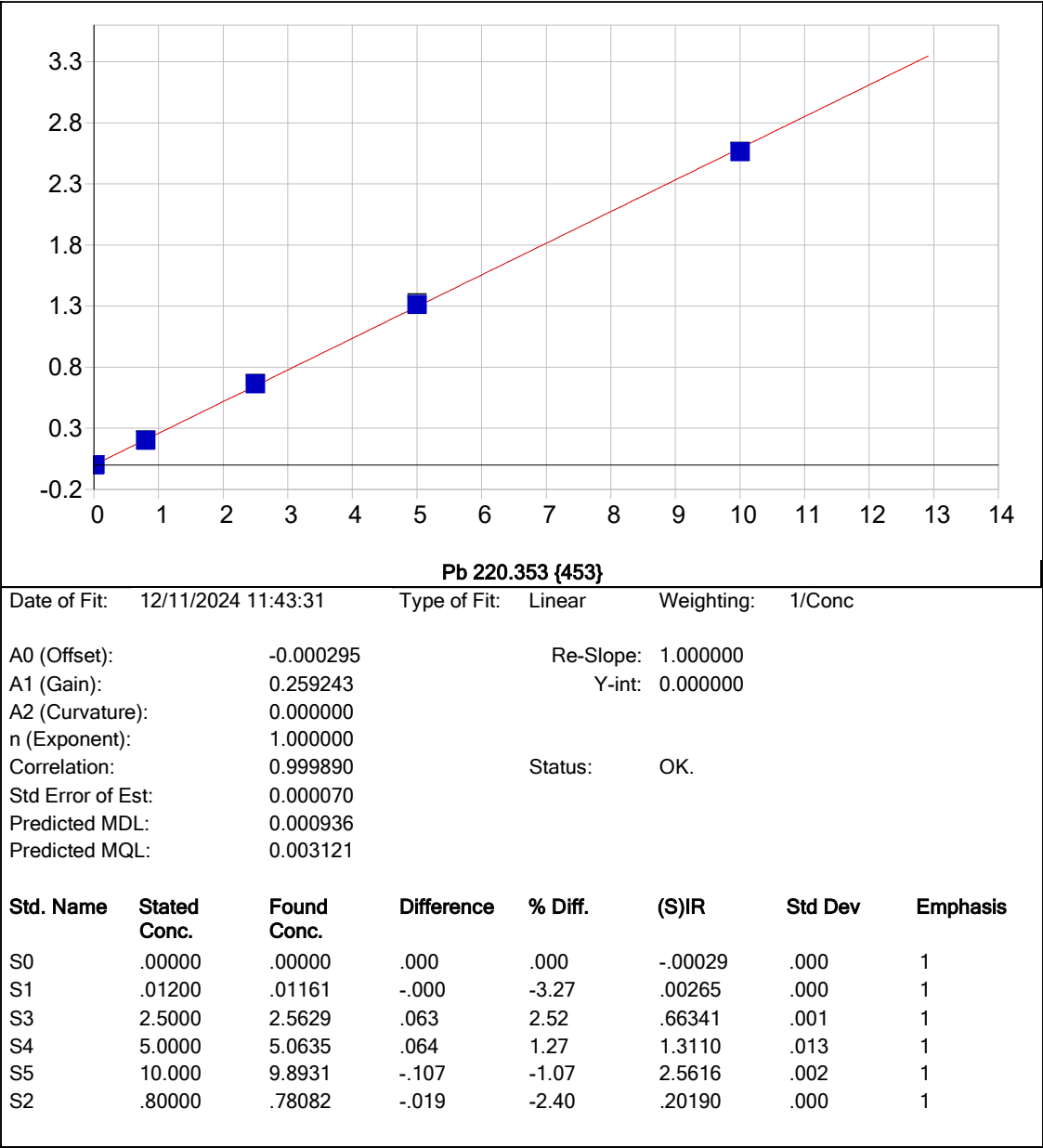
As 189.042 {479}

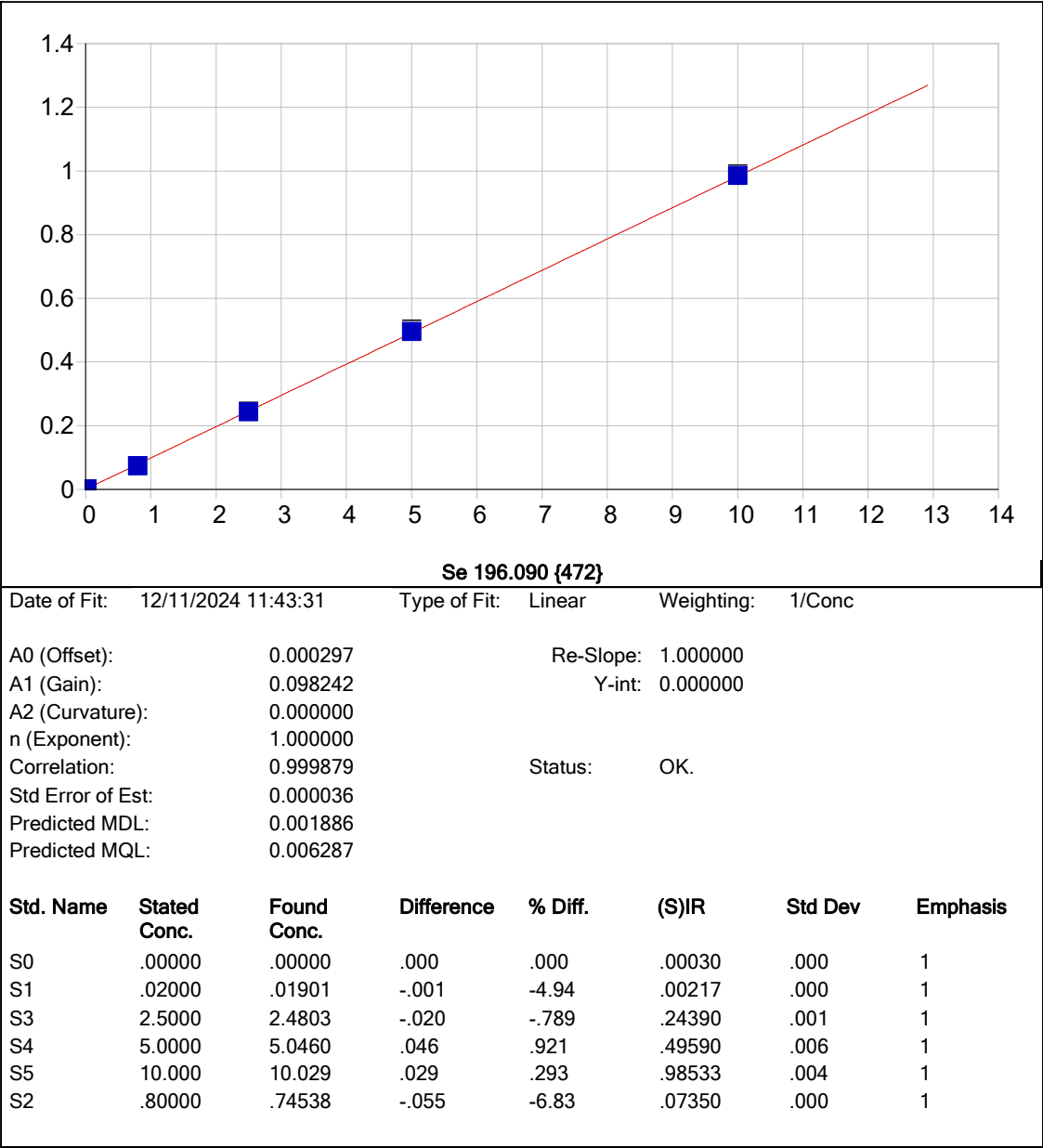
Date of Fit: 12/11/2024 11:43:31 Type of Fit: Linear Weighting: 1/Conc

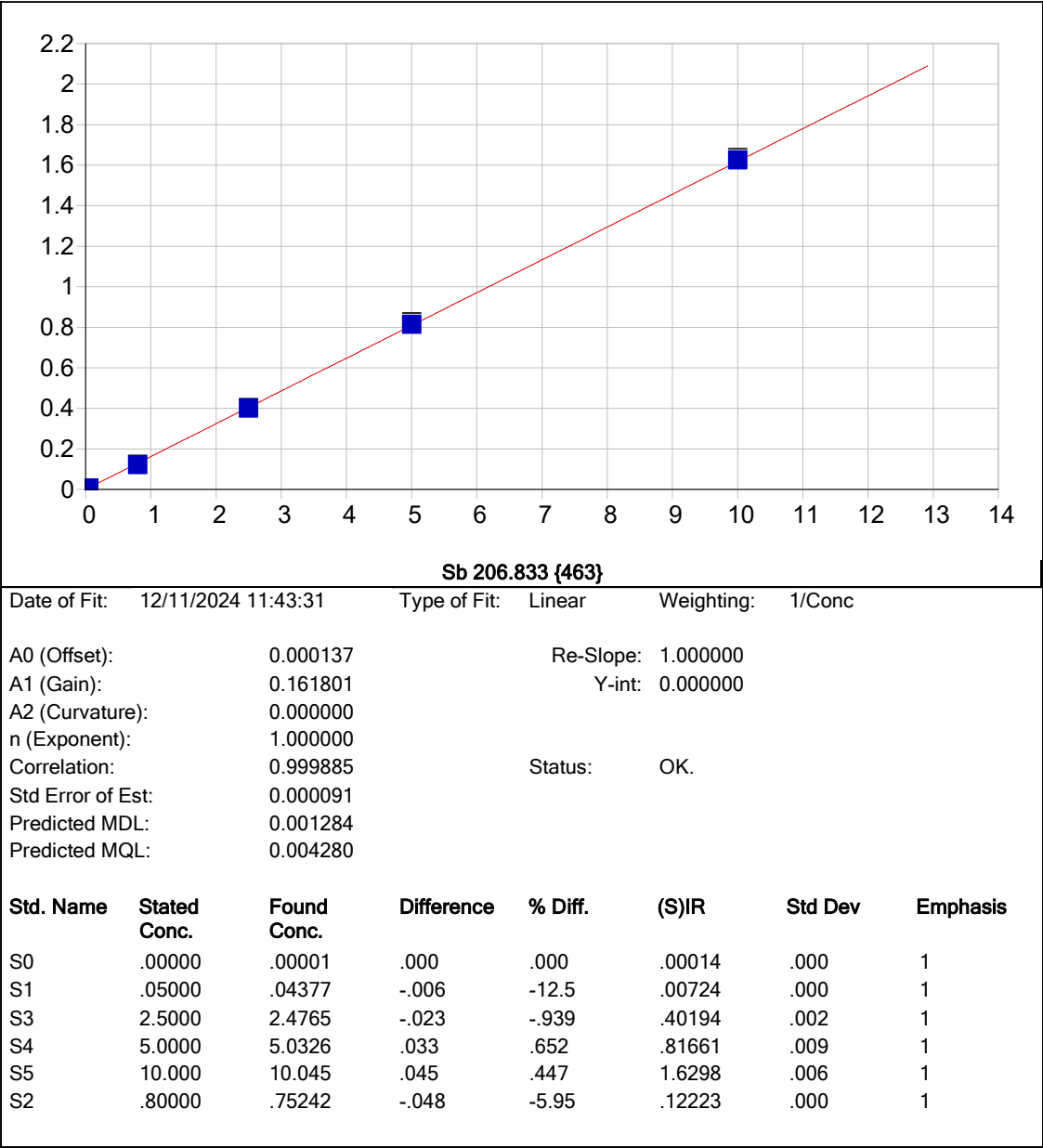
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A1 (Gain): 0.048777 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999911 Status: OK.
Std Error of Est: 0.000015
Predicted MDL: 0.002692
Predicted MQL: 0.008973

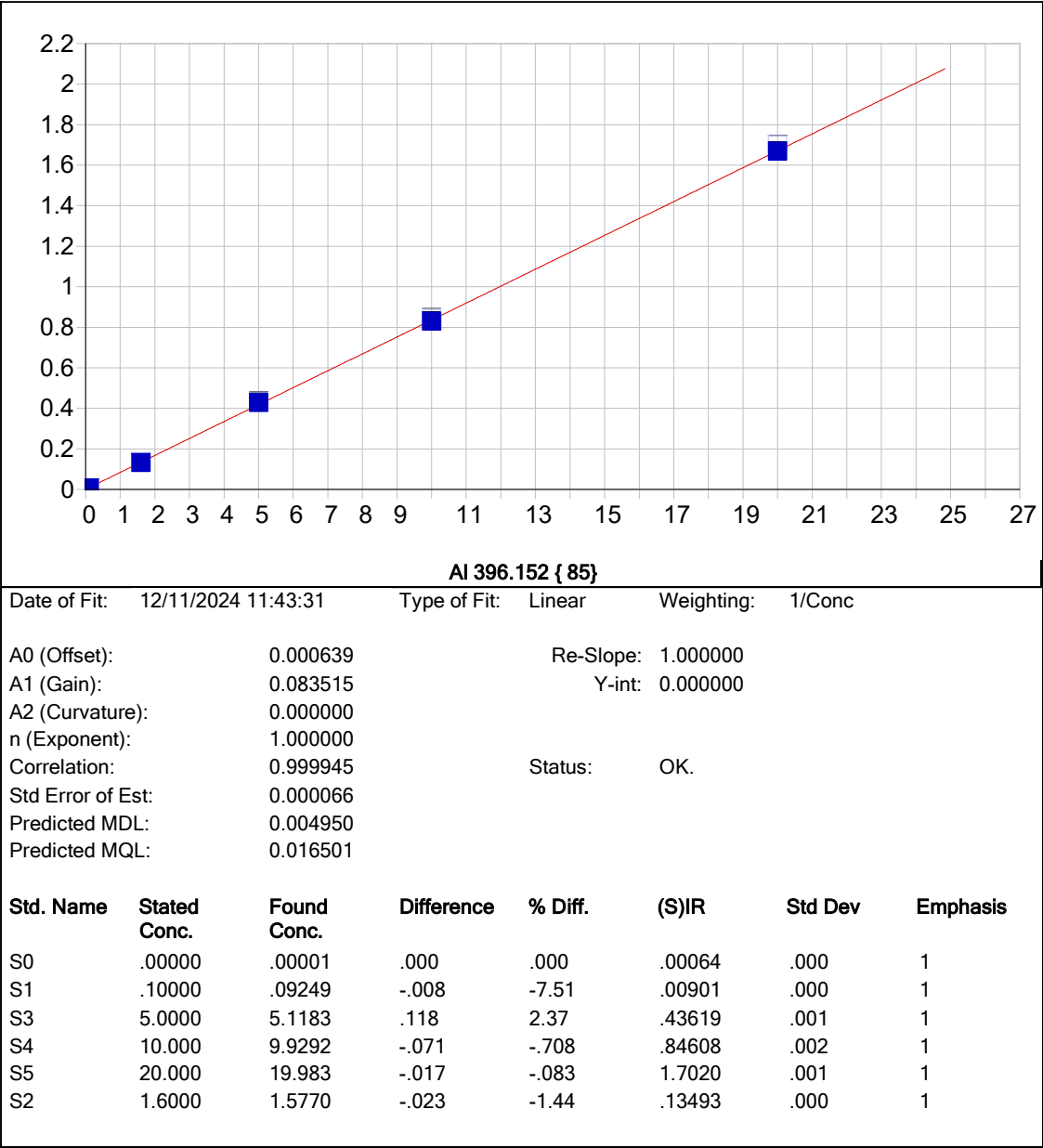
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	-.00022	.000	1
S1	.02000	.01873	-.001	-6.35	.00068	.000	1
S3	2.5000	2.4862	-.014	-.553	.12091	.000	1
S4	5.0000	5.0475	.048	.950	.24571	.003	1
S5	10.000	10.013	.013	.133	.48767	.003	1
S2	.80000	.75426	-.046	-5.72	.03652	.000	1

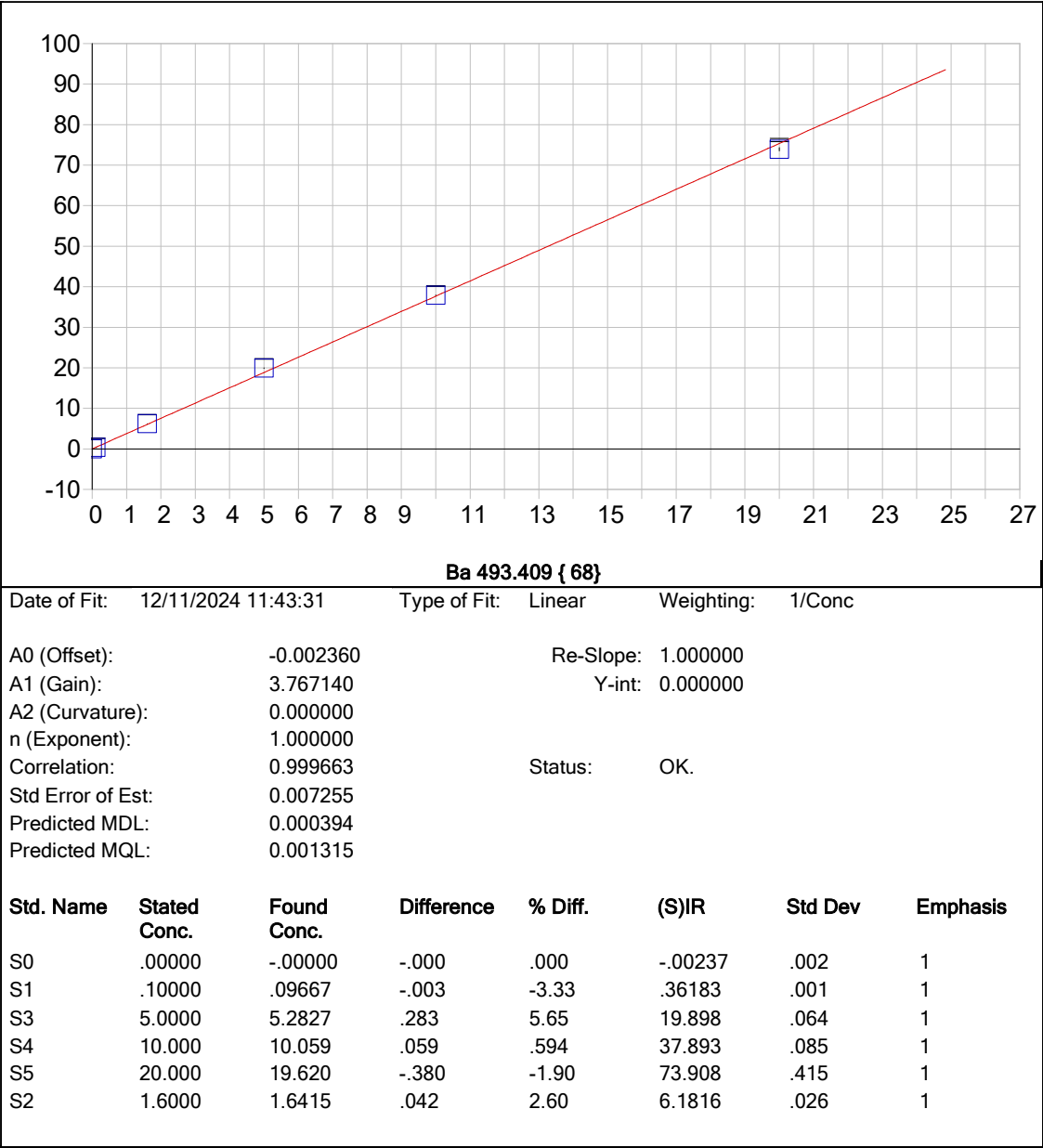


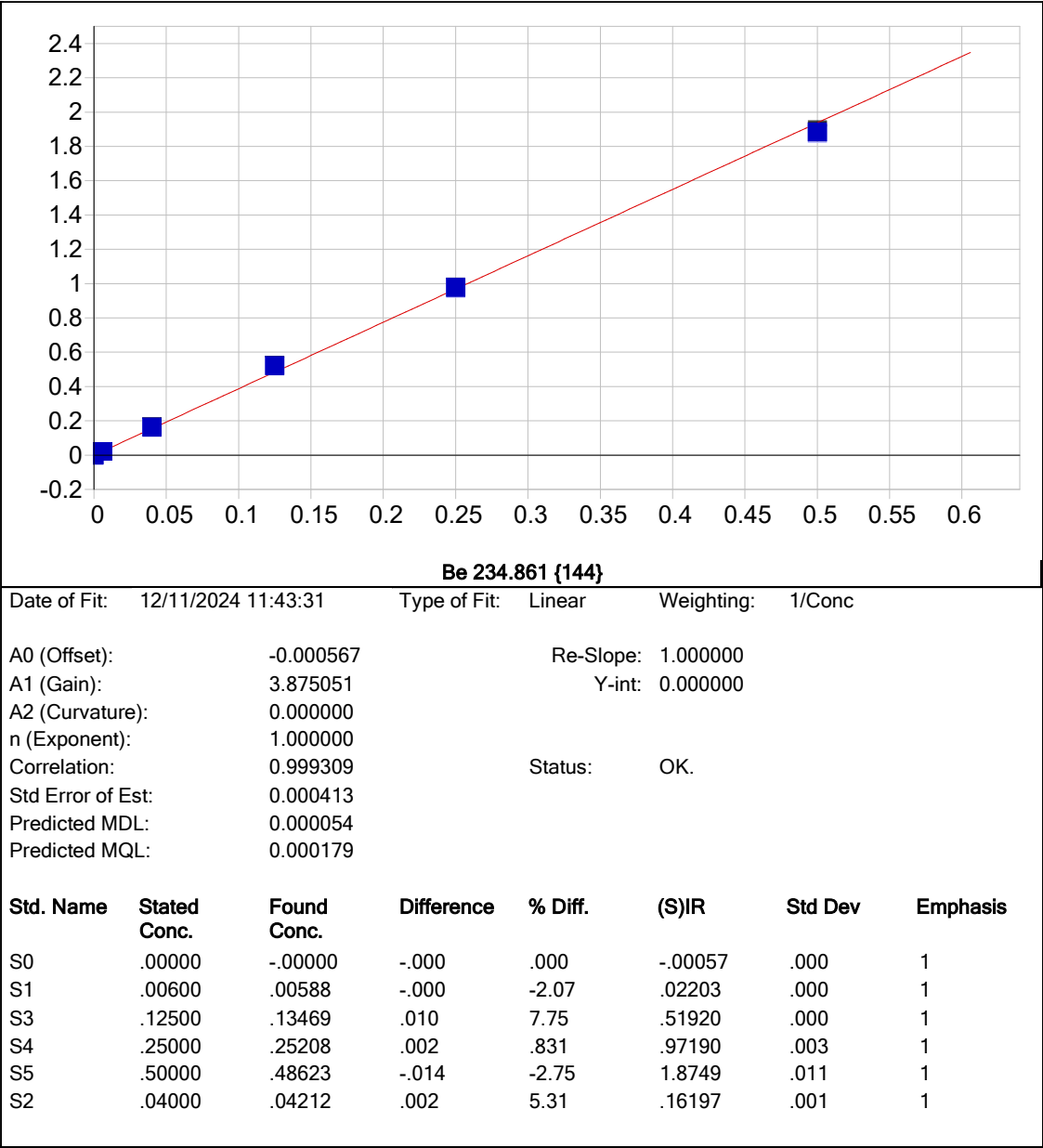


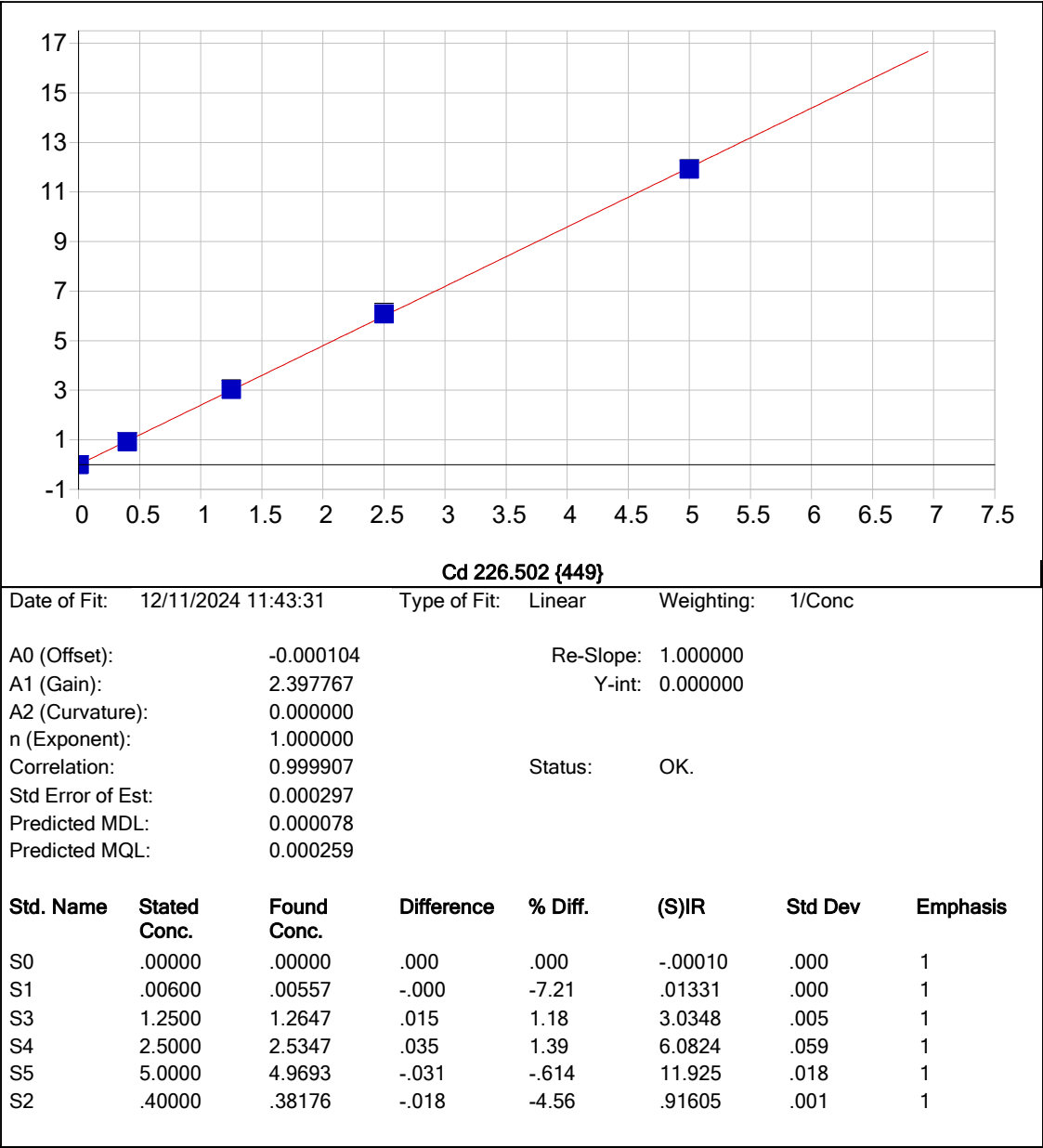


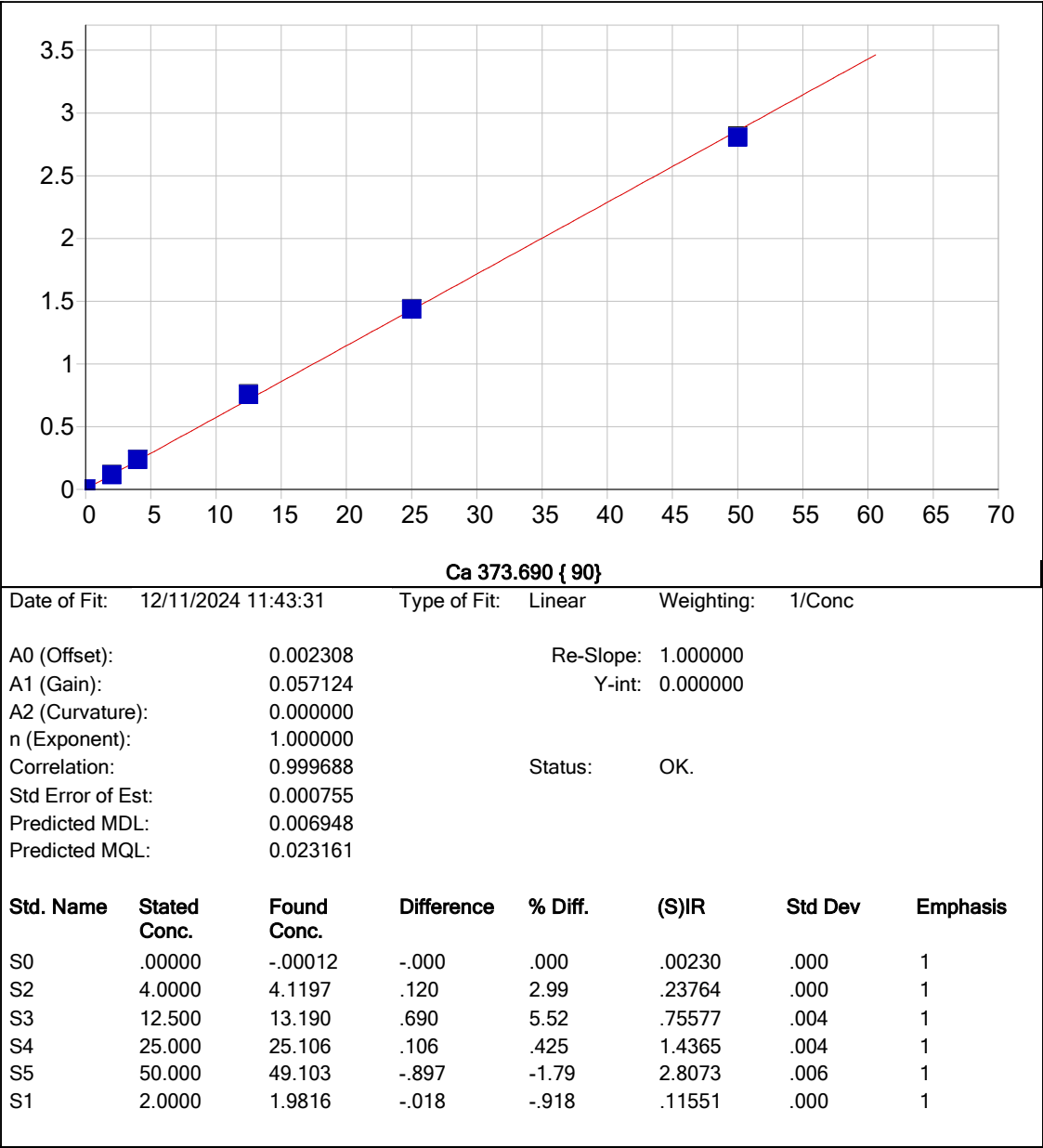


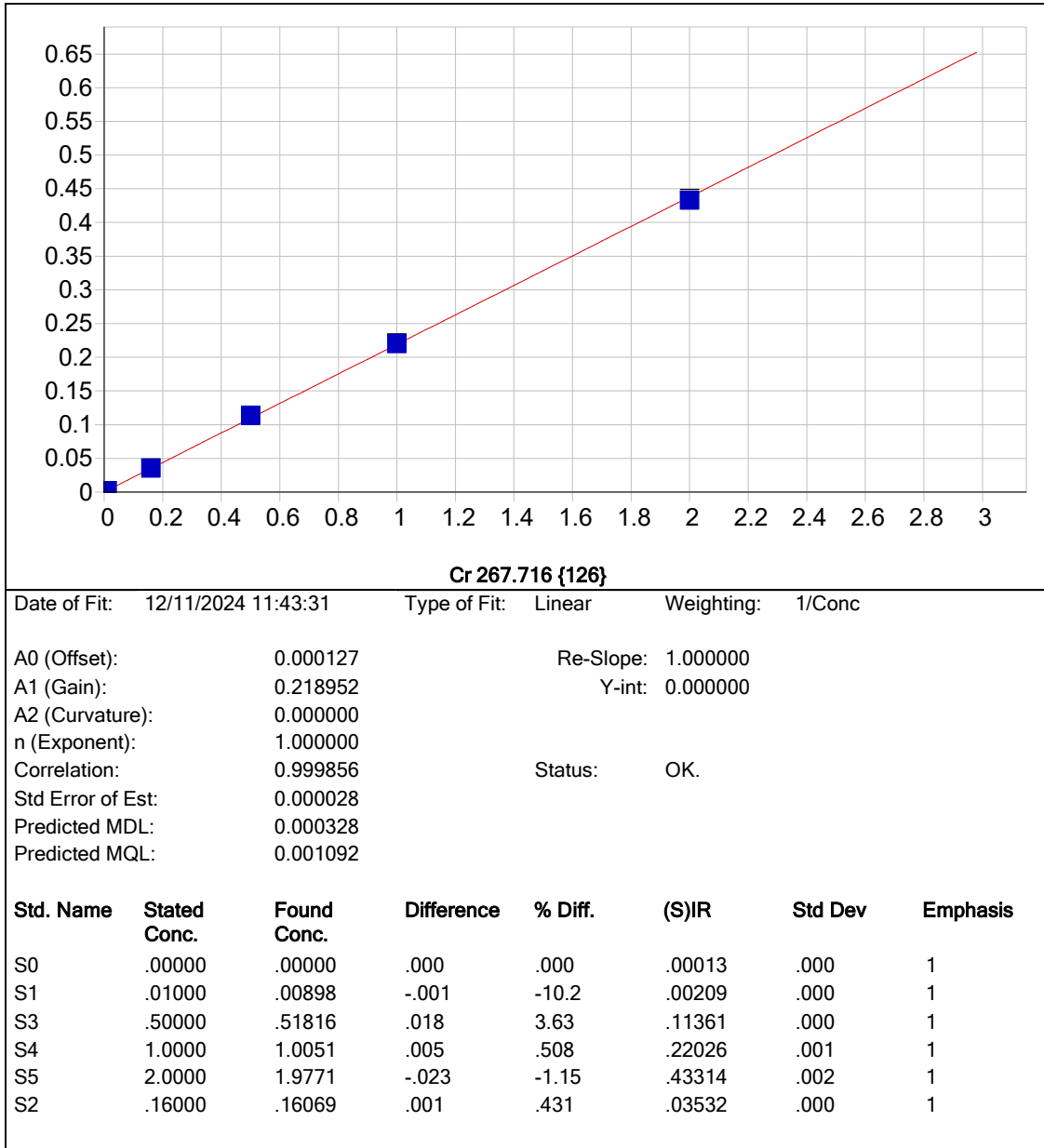


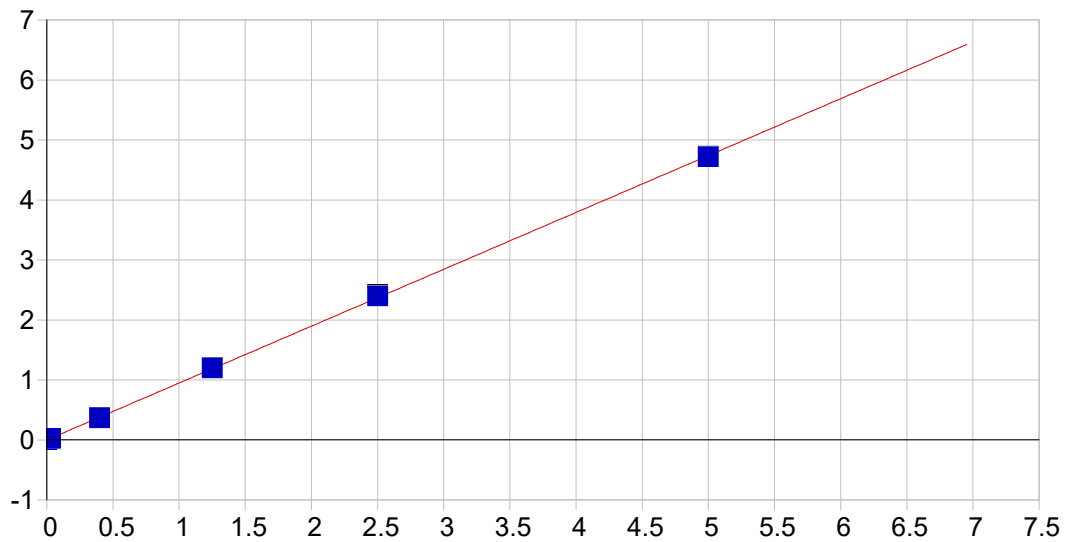










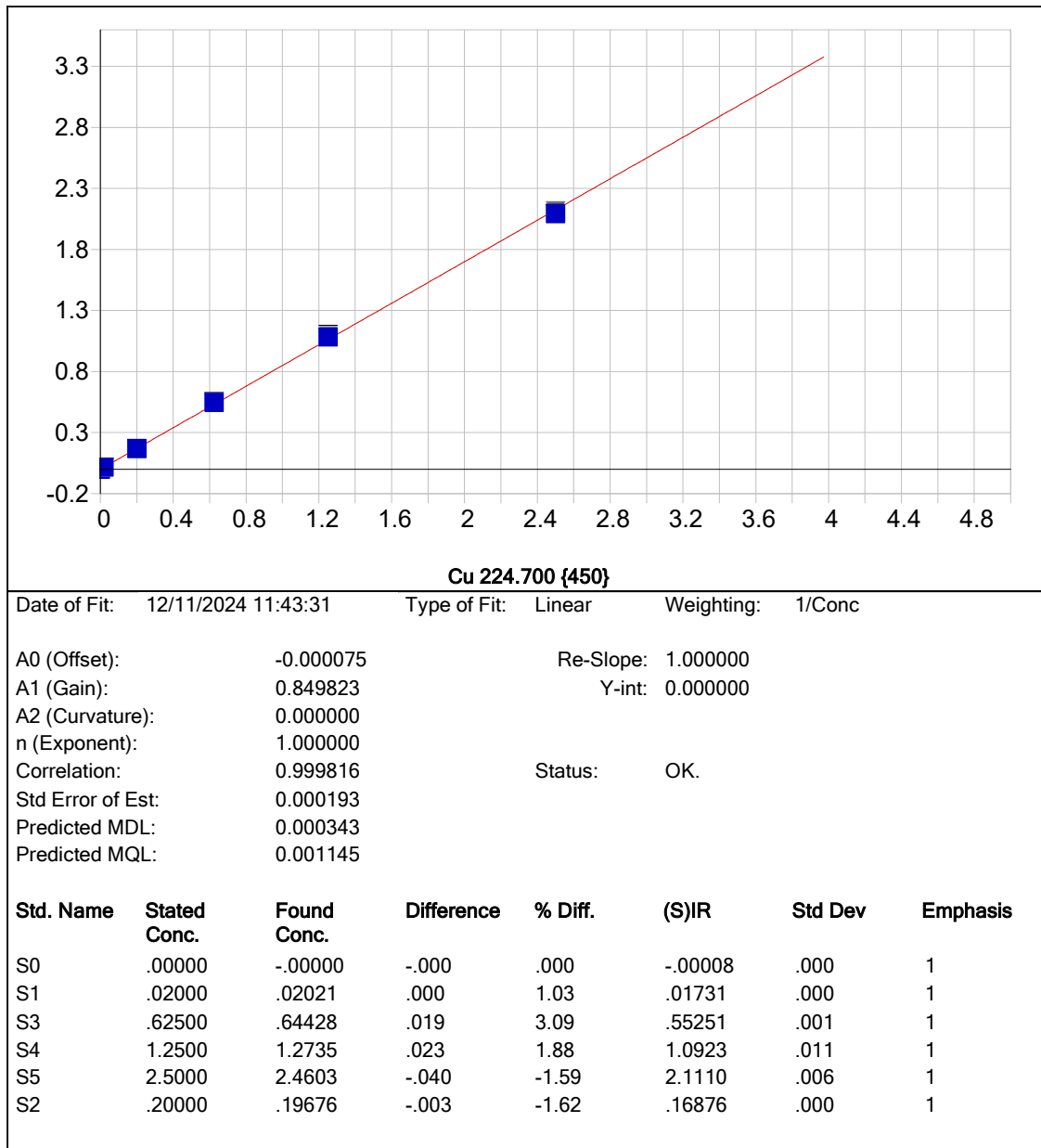


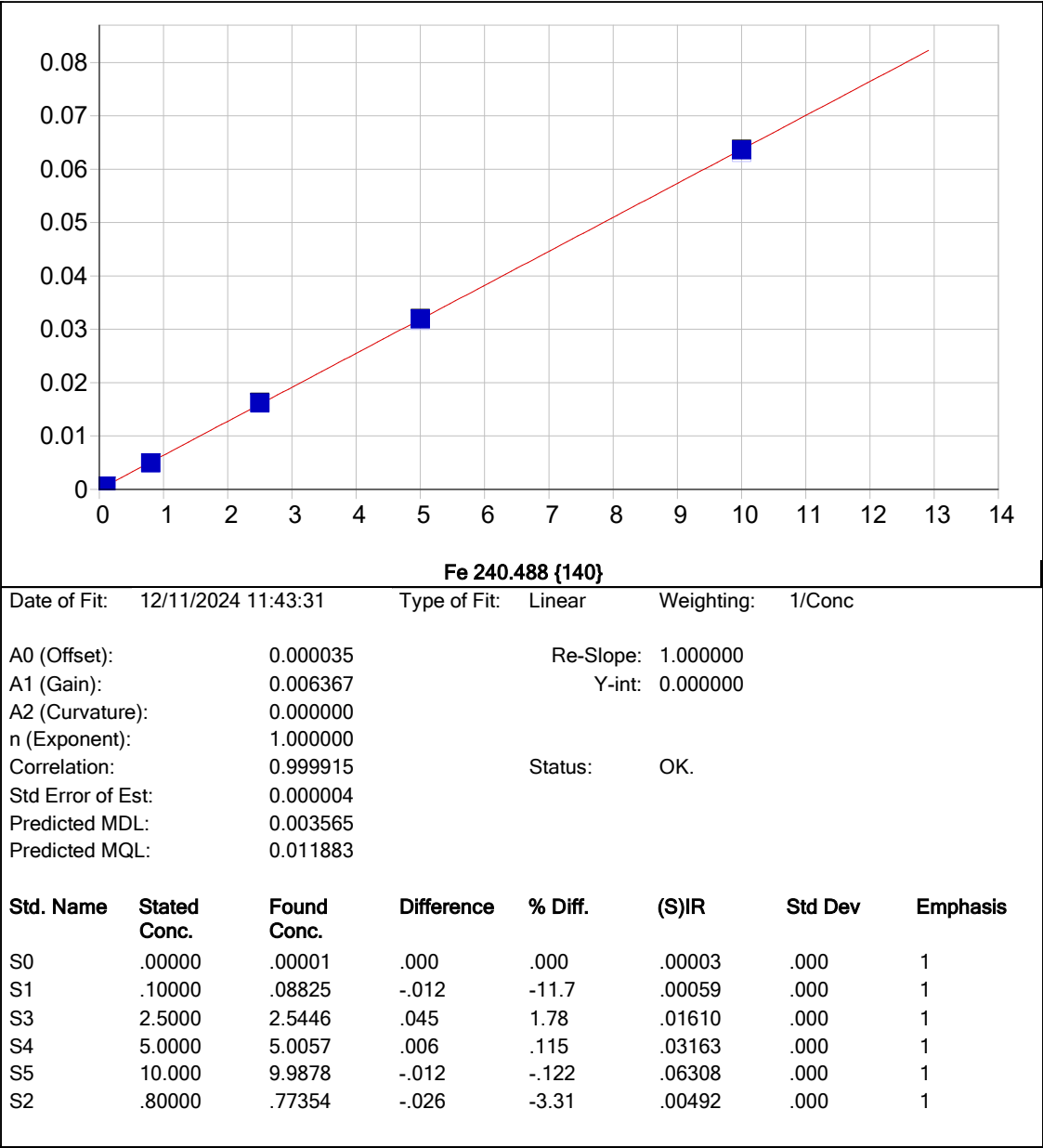
Co 228.616 {448}

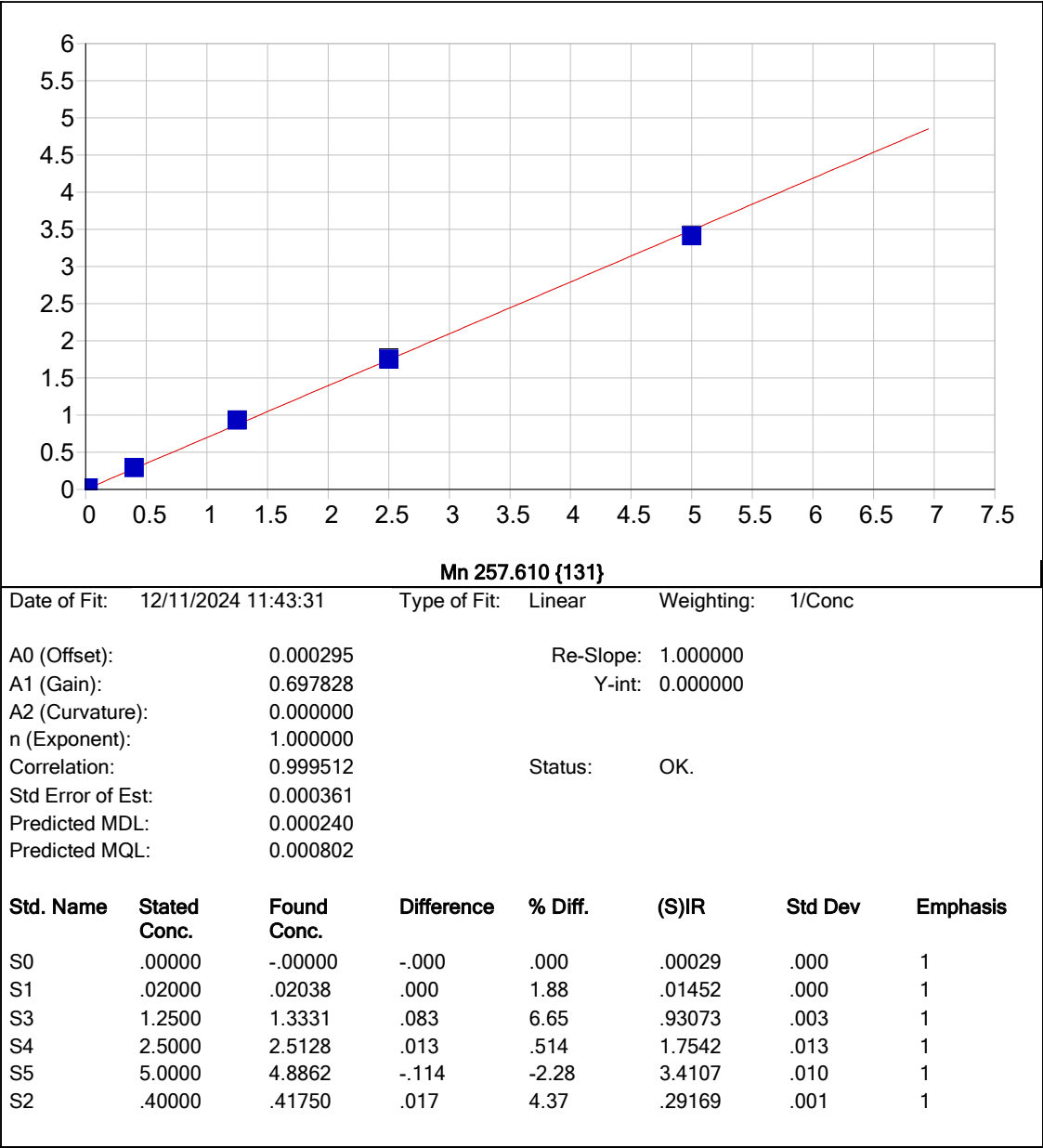
Date of Fit: 12/11/2024 11:43:31 Type of Fit: Linear Weighting: 1/Conc

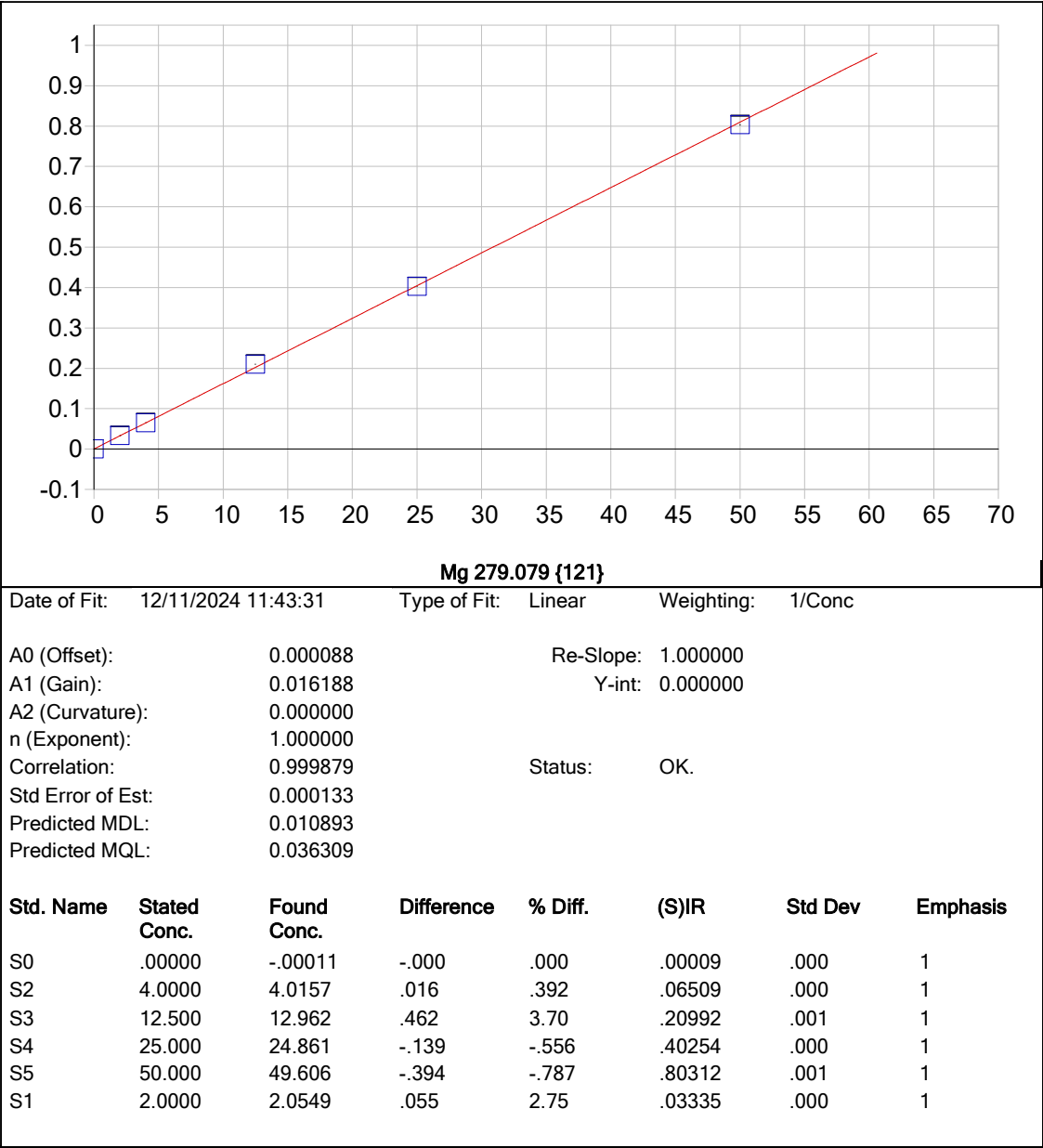
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A2 (Curvature):	0.000000		
n (Exponent):	1.000000		
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Std Error of Est:	0.000253		
Predicted MDL:	0.000175		
Predicted MQL:	0.000583		

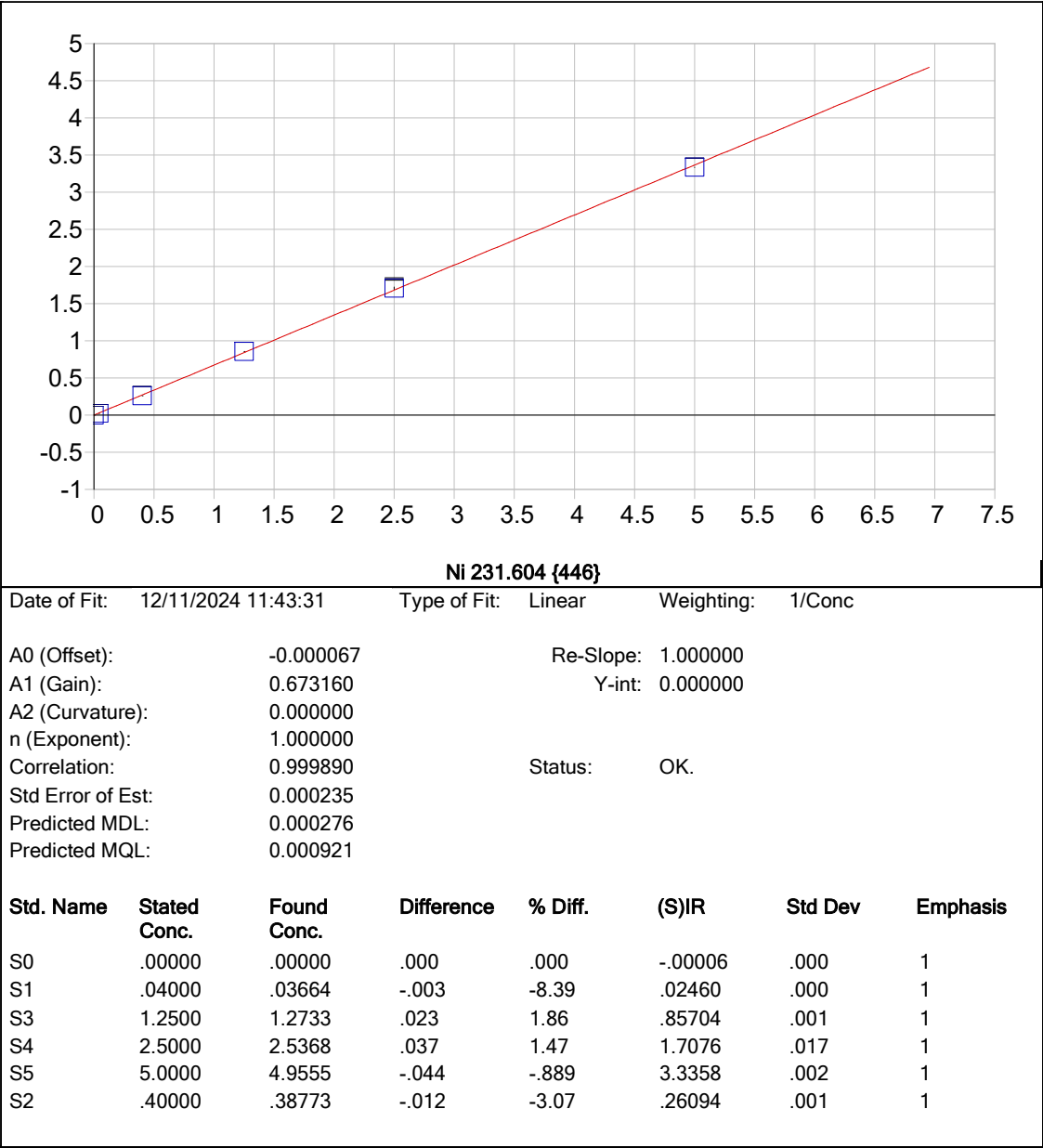
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00000	.000	.000	.00006	.000	1
S1	.03000	.02747	-.003	-8.42	.02598	.000	1
S3	1.2500	1.2647	.015	1.18	1.2008	.001	1
S4	2.5000	2.5298	.030	1.19	2.4018	.023	1
S5	5.0000	4.9750	-.025	-.499	4.7234	.003	1
S2	.40000	.38298	-.017	-4.26	.36369	.001	1

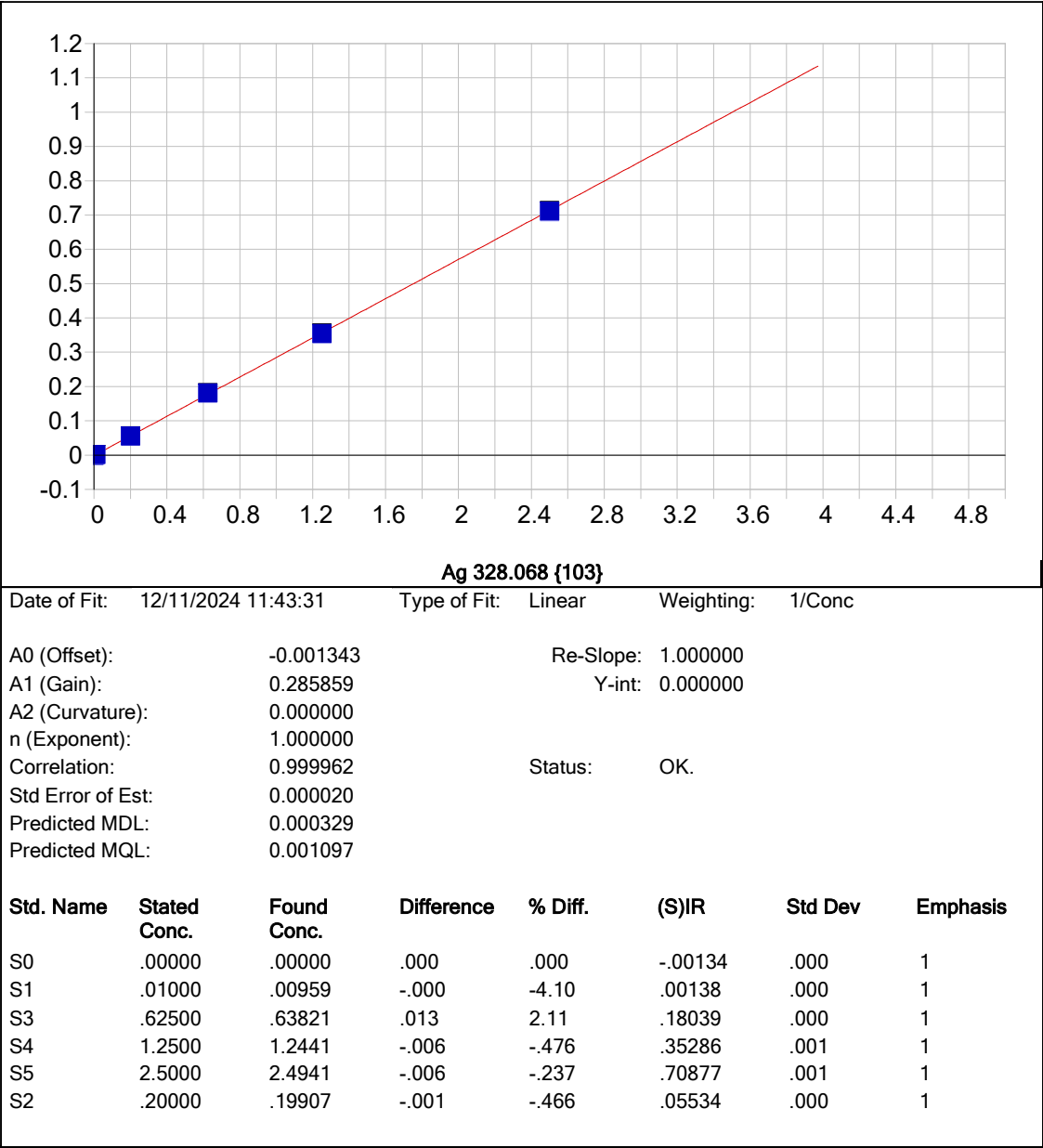


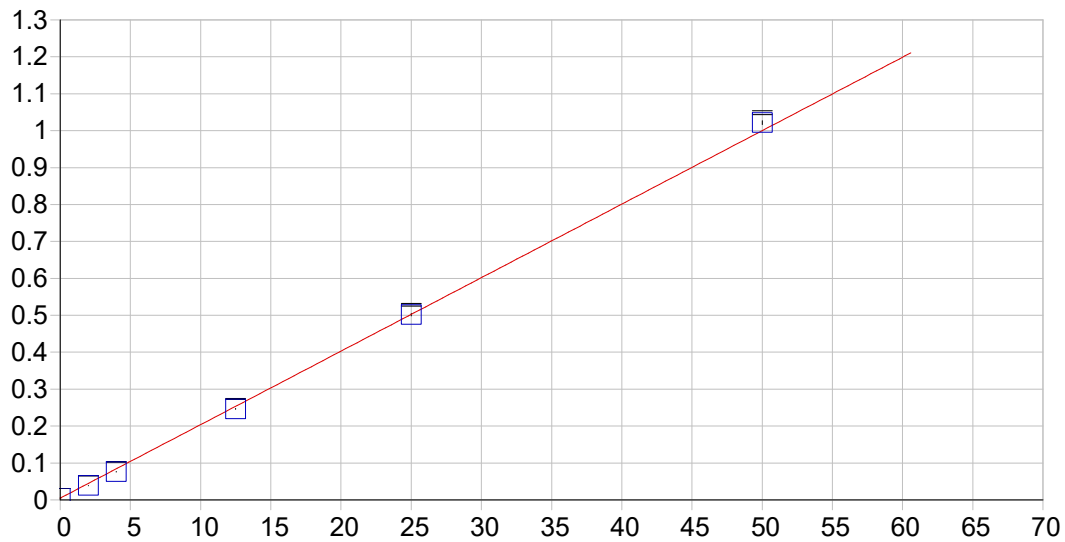










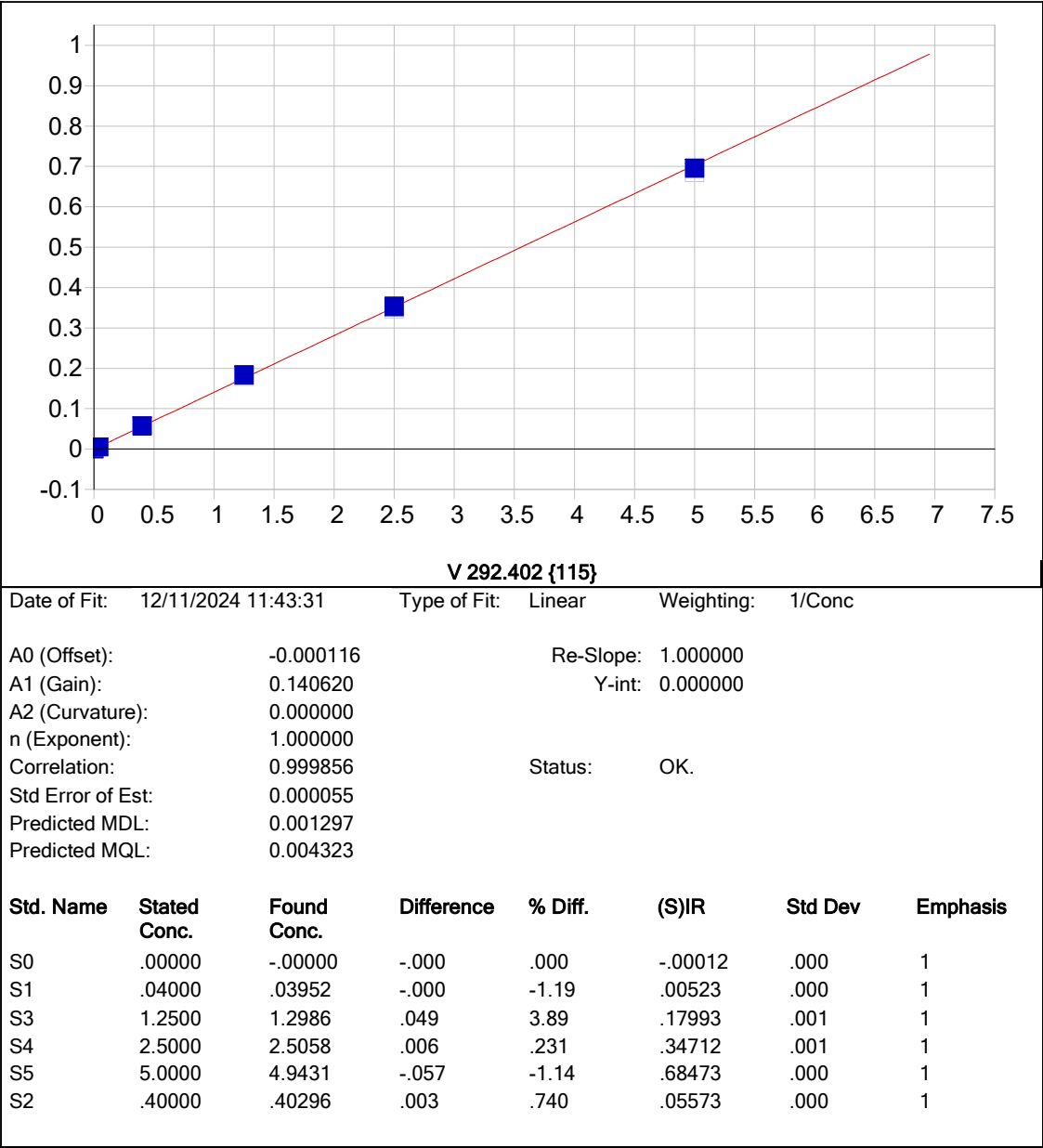


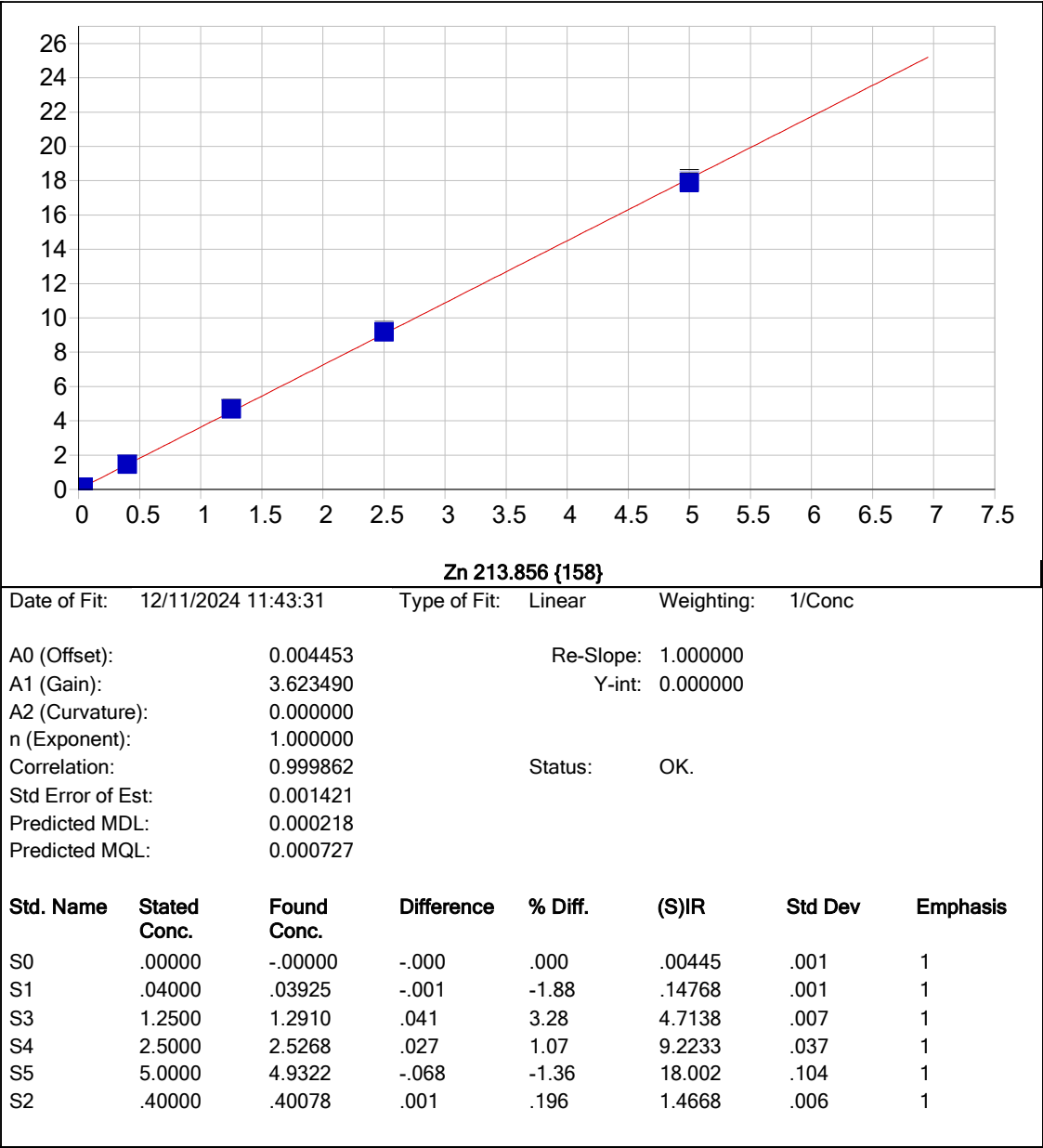
Na 589.592 { 57}

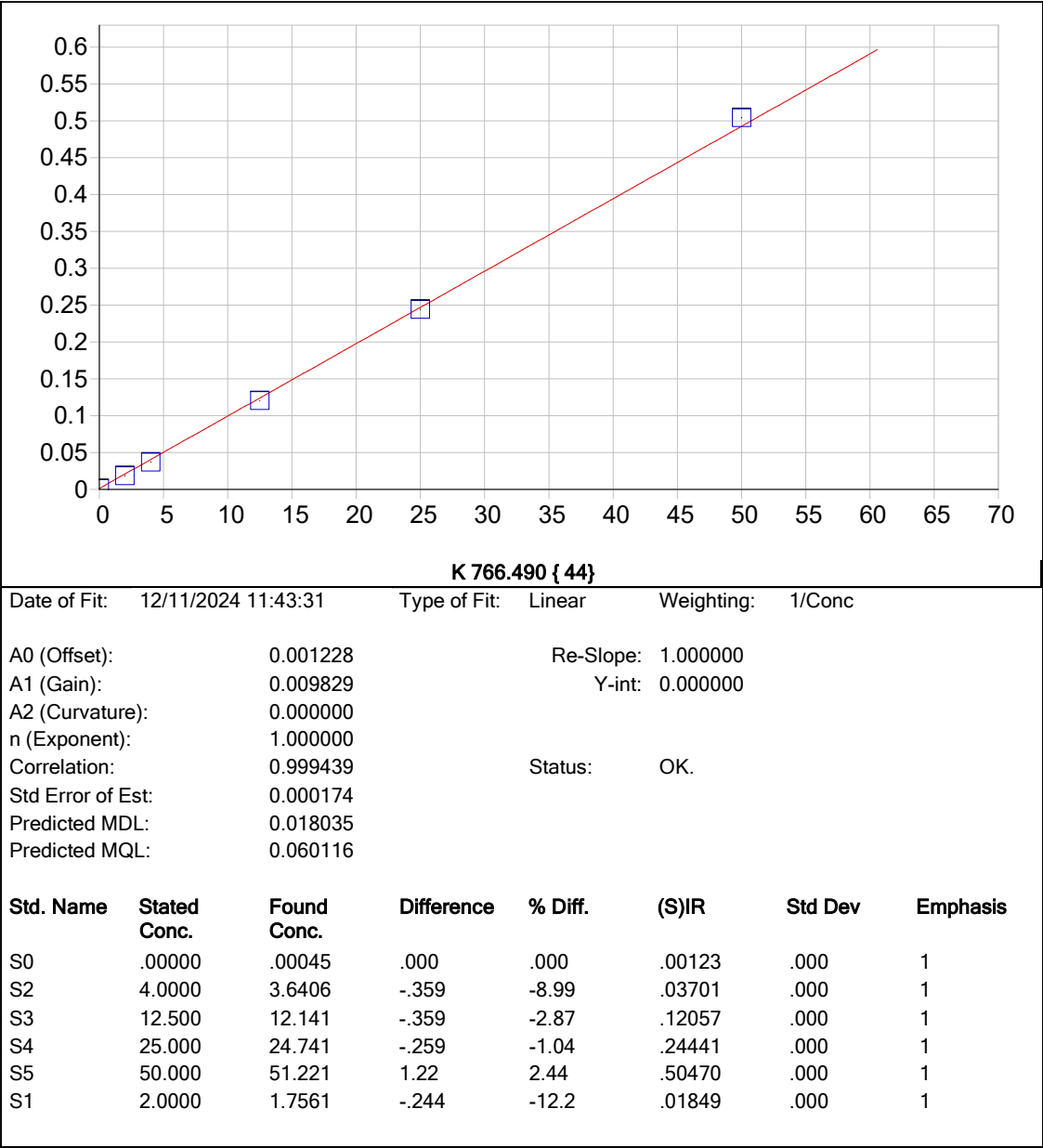
Date of Fit: 12/11/2024 11:43:31 Type of Fit: Linear Weighting: 1/Conc

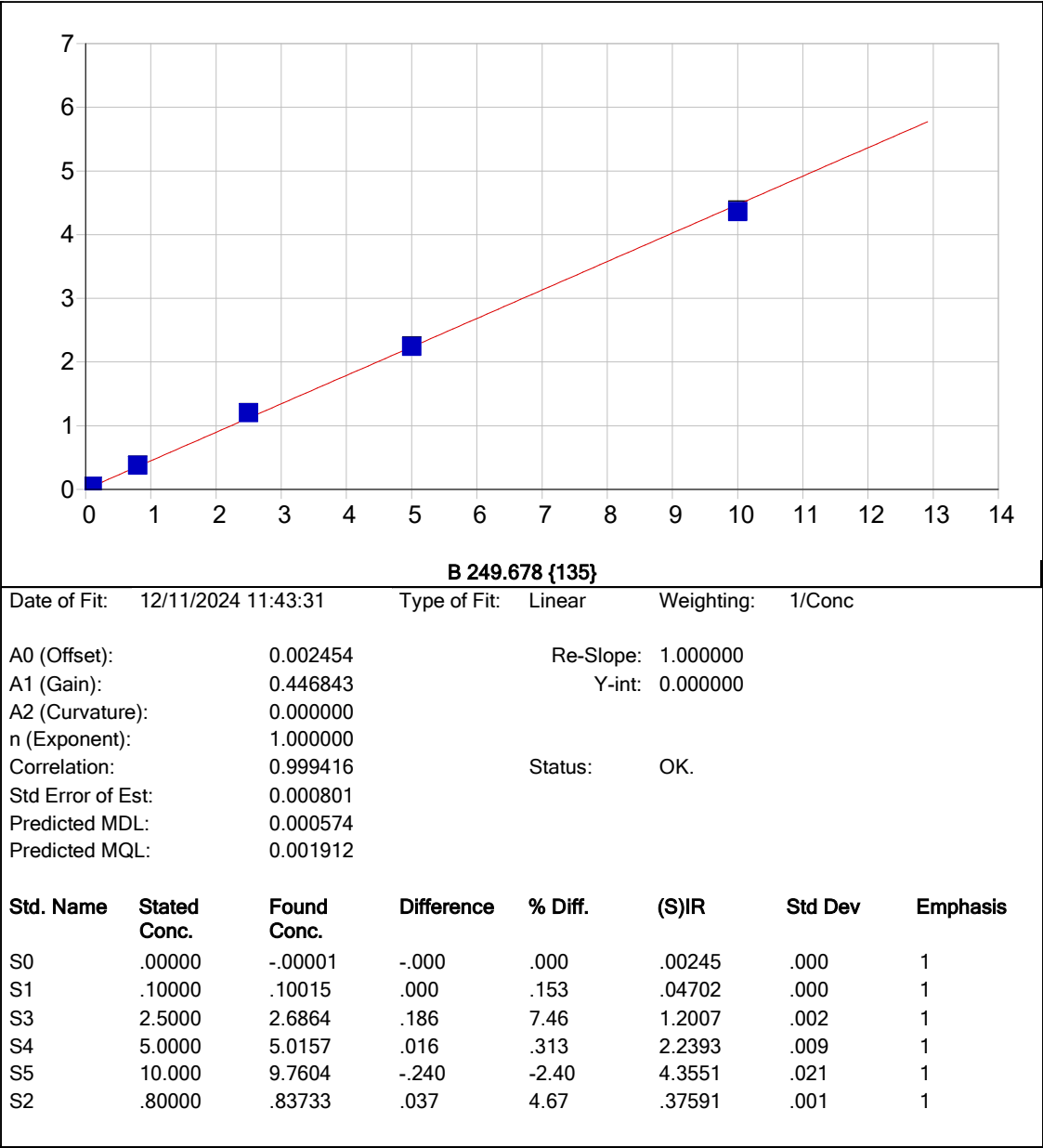
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A1 (Gain): 0.019905 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999354 Status: OK.
Std Error of Est: 0.000379
Predicted MDL: 0.007544
Predicted MQL: 0.025147

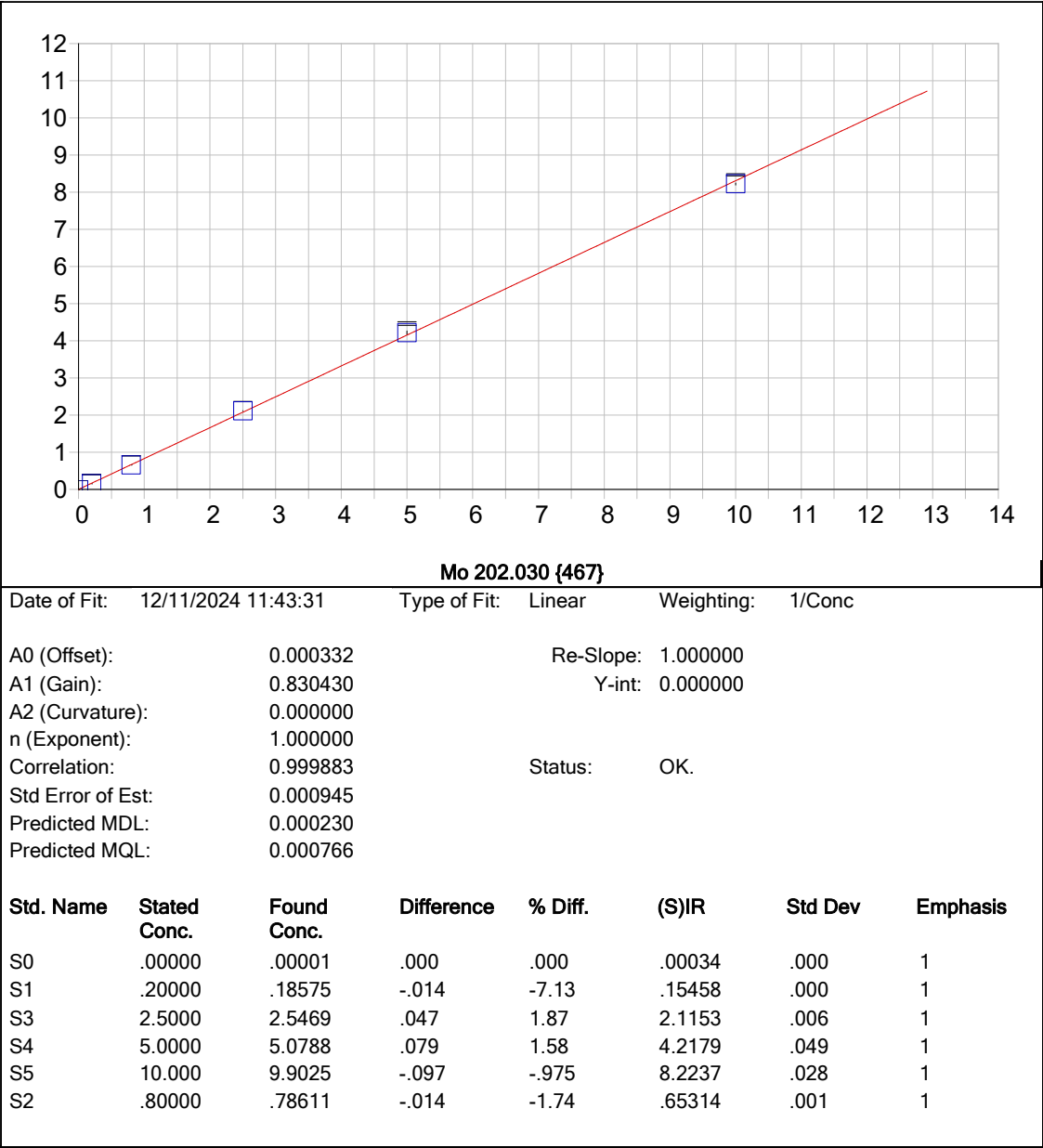
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	.00052	.001	.000	.00480	.000	1
S2	4.0000	3.5910	-.409	-10.2	.07627	.000	1
S3	12.500	12.144	-.356	-2.85	.24651	.001	1
S4	25.000	24.970	-.030	-.120	.50181	.003	1
S5	50.000	51.095	1.09	2.19	1.0218	.006	1
S1	2.0000	1.7006	-.299	-15.0	.03864	.000	1

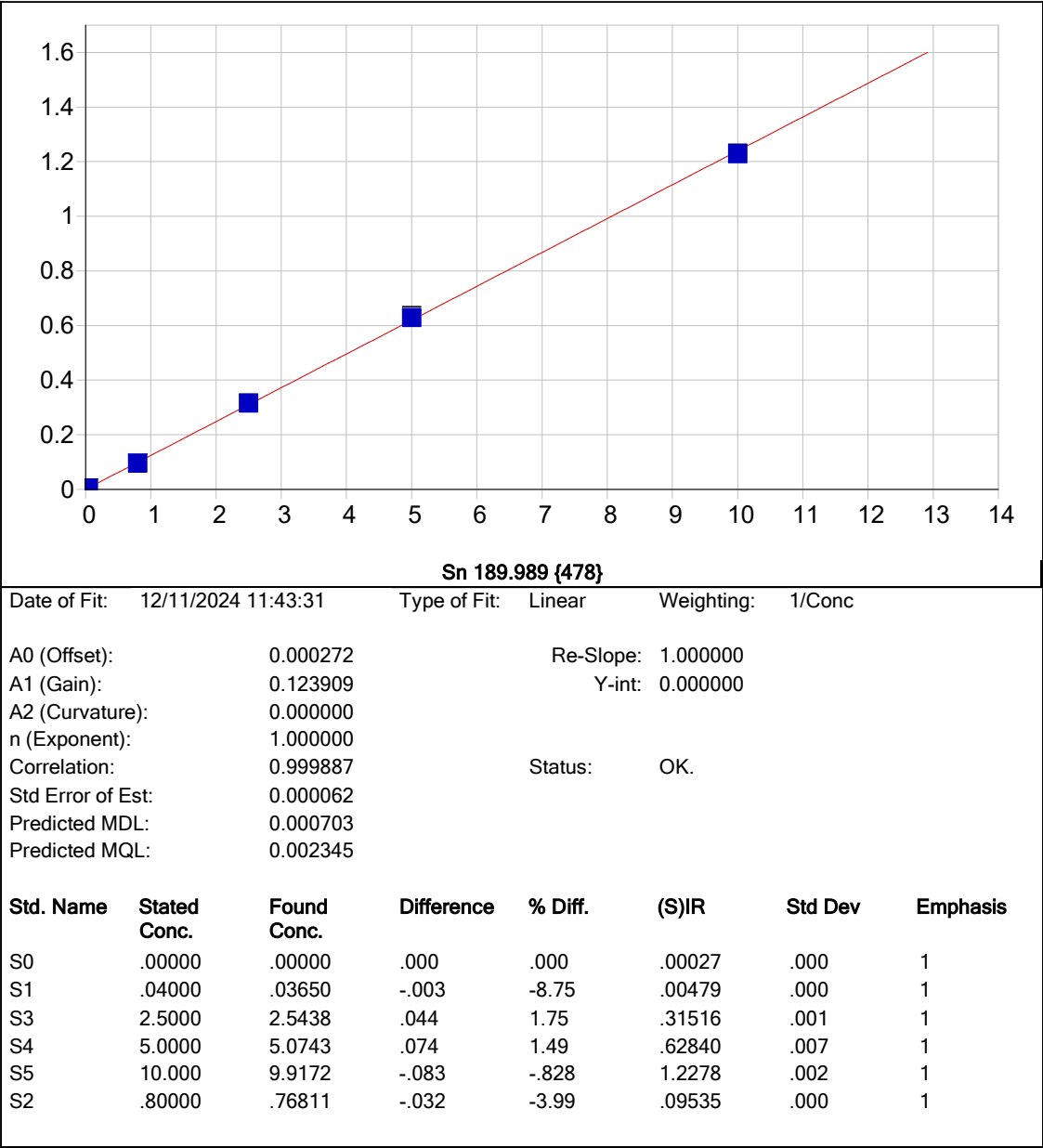


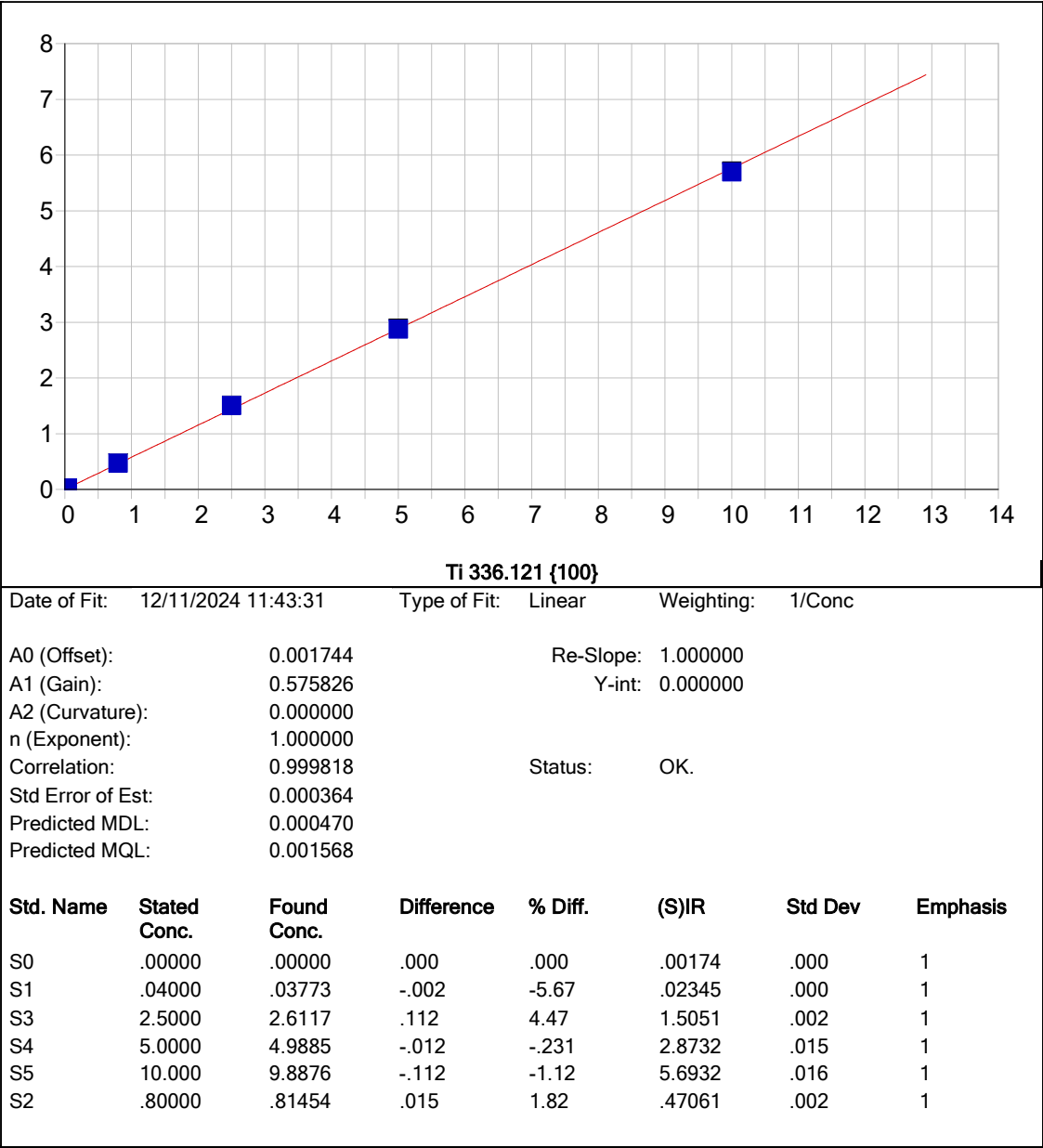


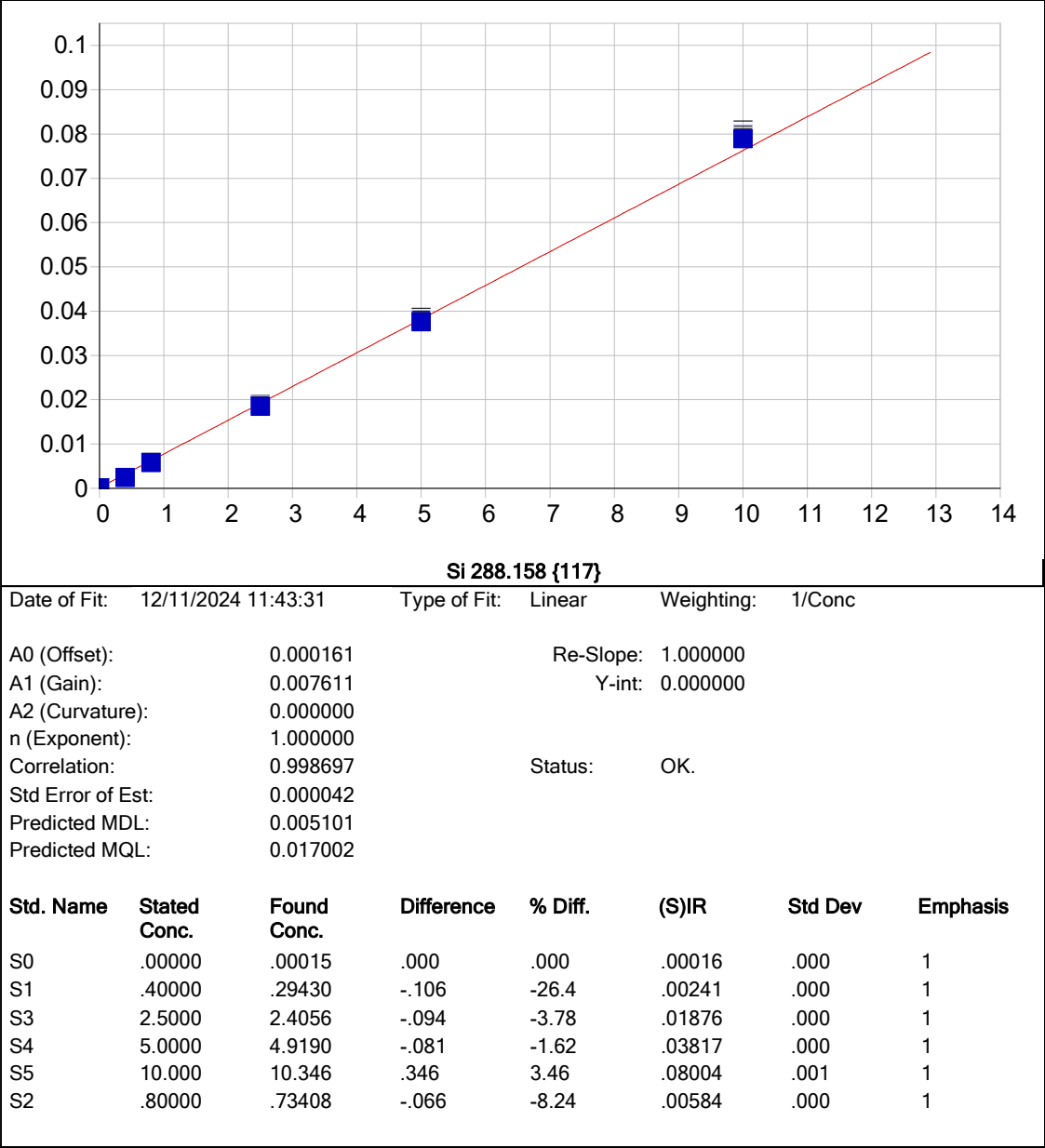


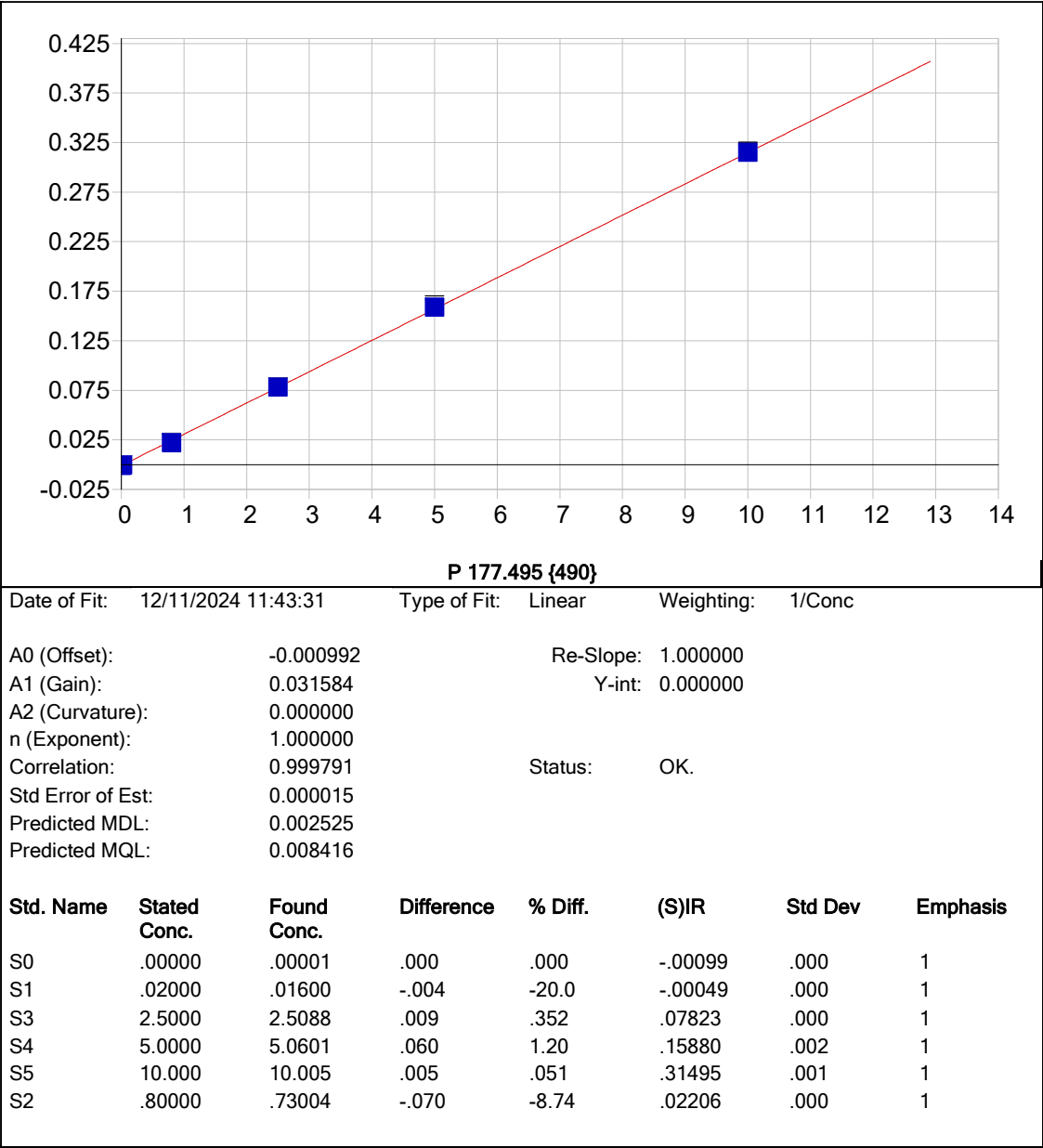


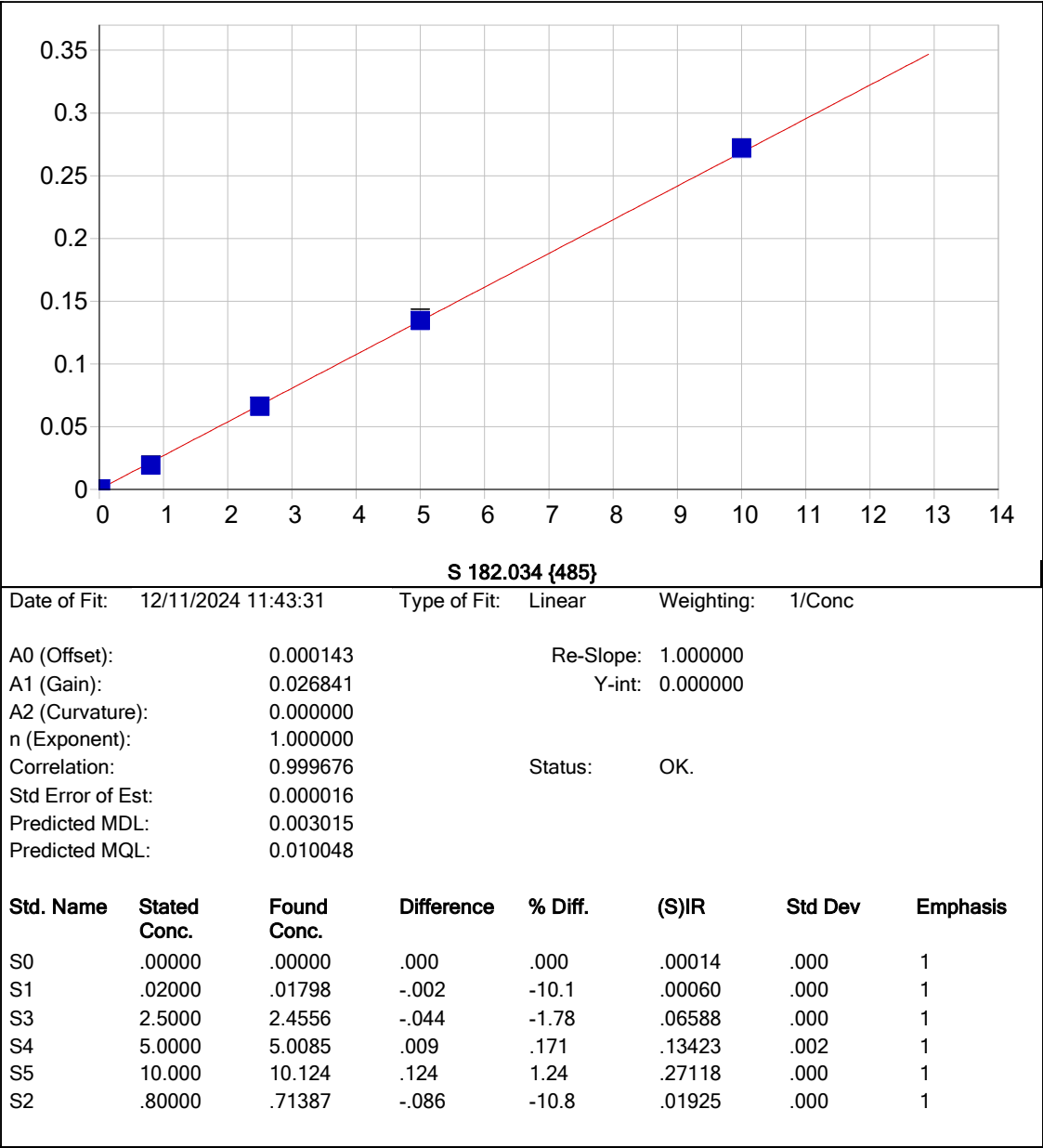


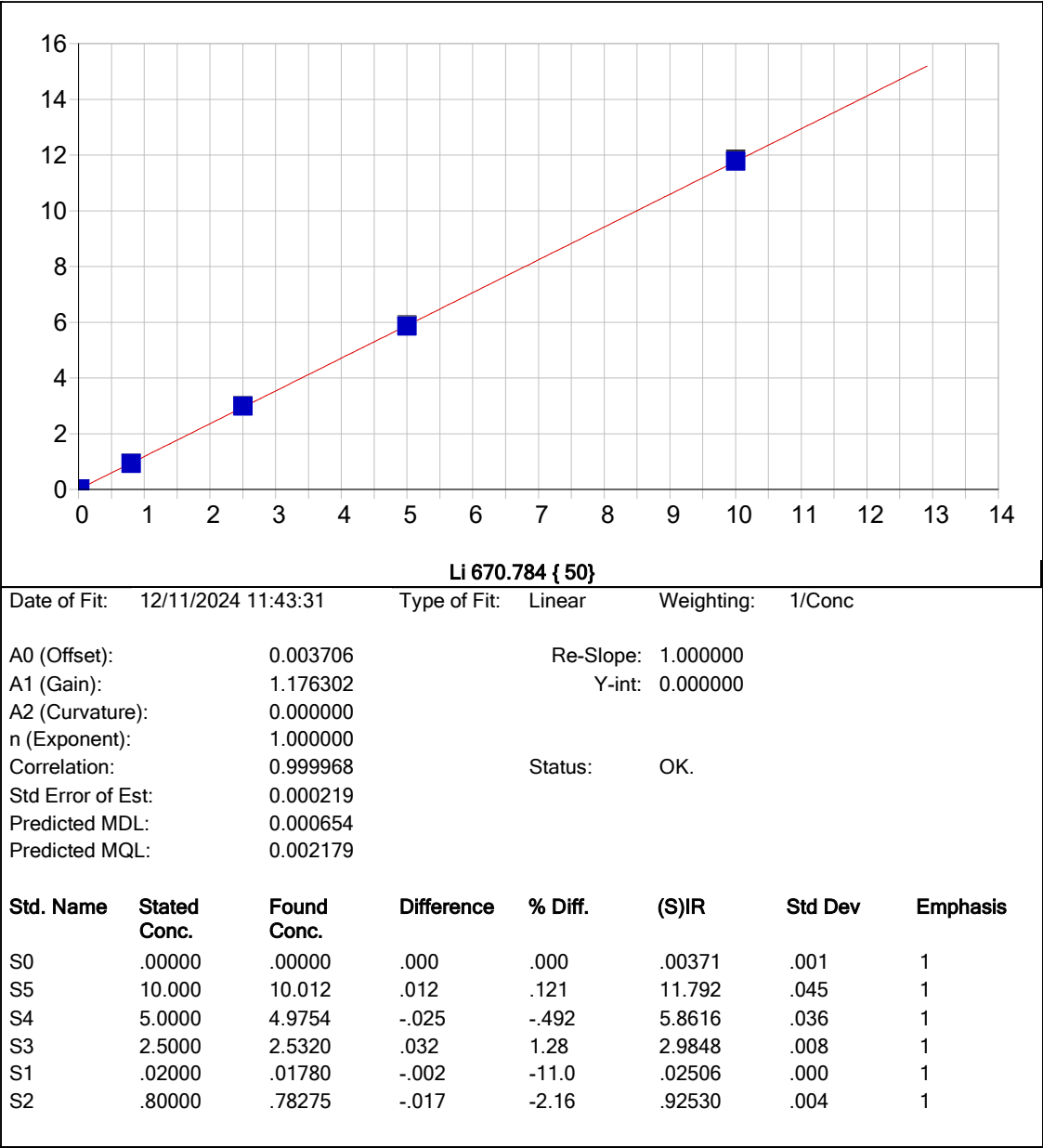


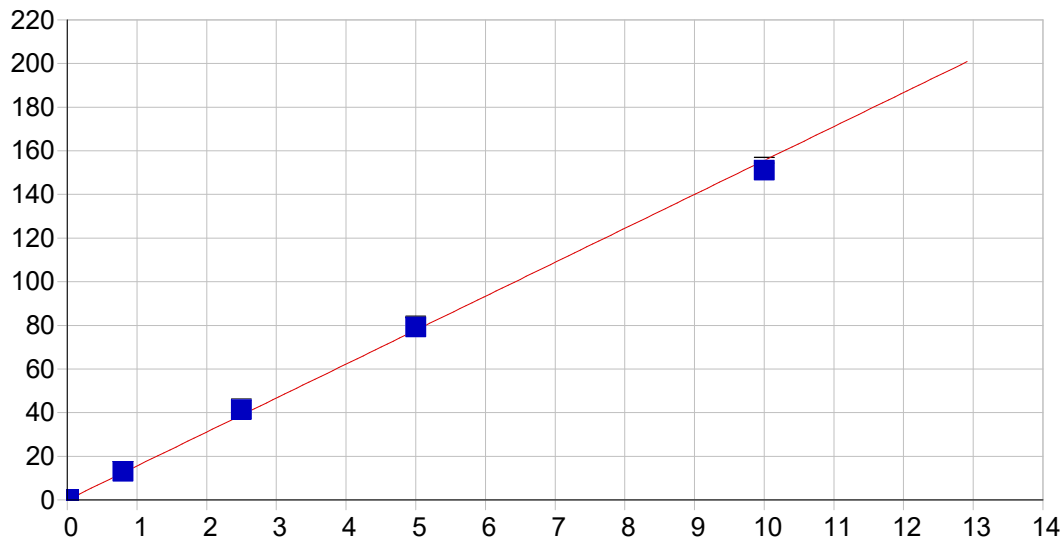










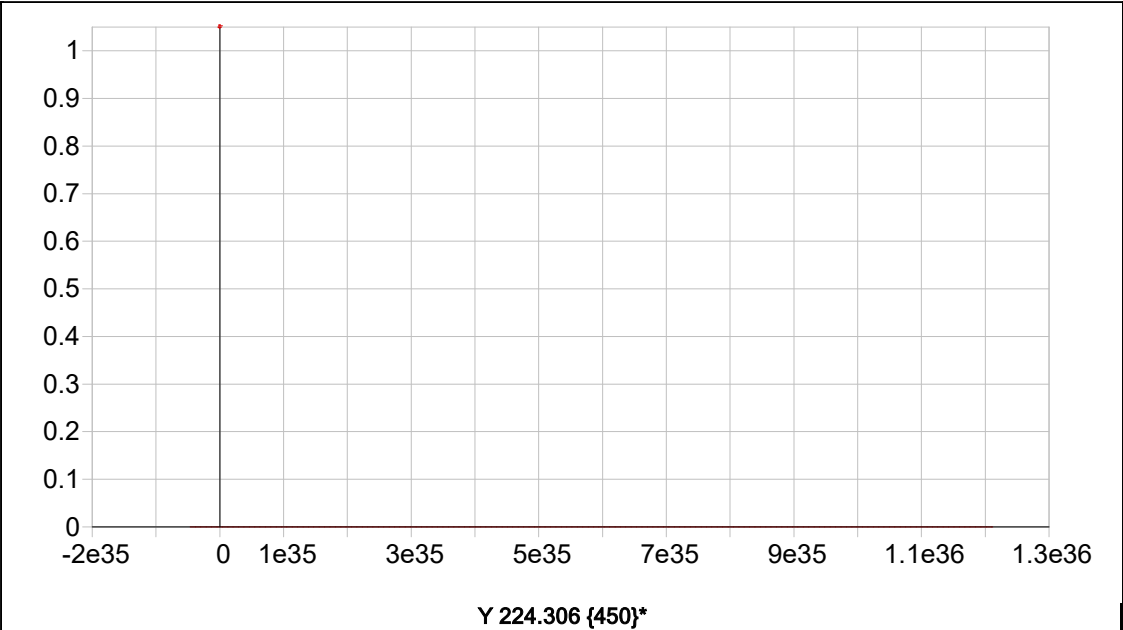


Sr 407.771 { 83}

Date of Fit: 12/11/2024 11:43:31 Type of Fit: Linear Weighting: 1/Conc

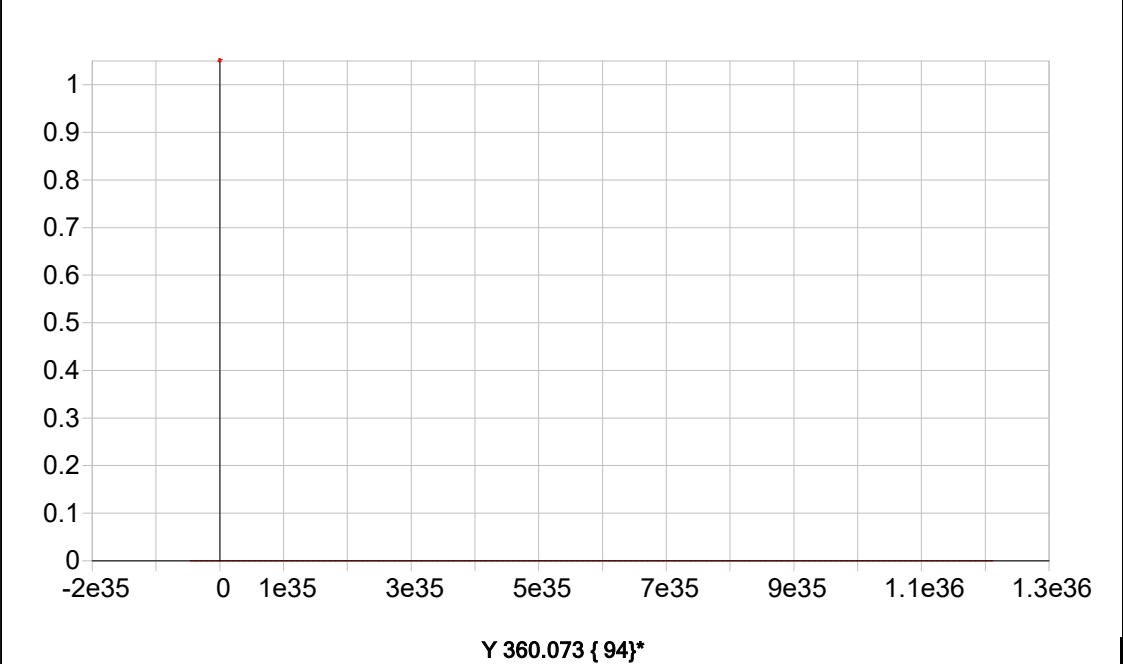
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A1 (Gain): 15.556410 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999391 Status: OK.
Std Error of Est: 0.012742
Predicted MDL: 0.000030
Predicted MQL: 0.000099

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
S0	.00000	-.00000	-.000	.000	.00179	.000	1
S1	.02000	.01997	-.000	-.168	.31398	.001	1
S3	2.5000	2.6629	.163	6.52	41.466	.181	1
S4	5.0000	5.0903	.090	1.81	79.267	.392	1
S5	10.000	9.7098	-.290	-2.90	151.21	1.34	1
S2	.80000	.83704	.037	4.63	13.036	.042	1

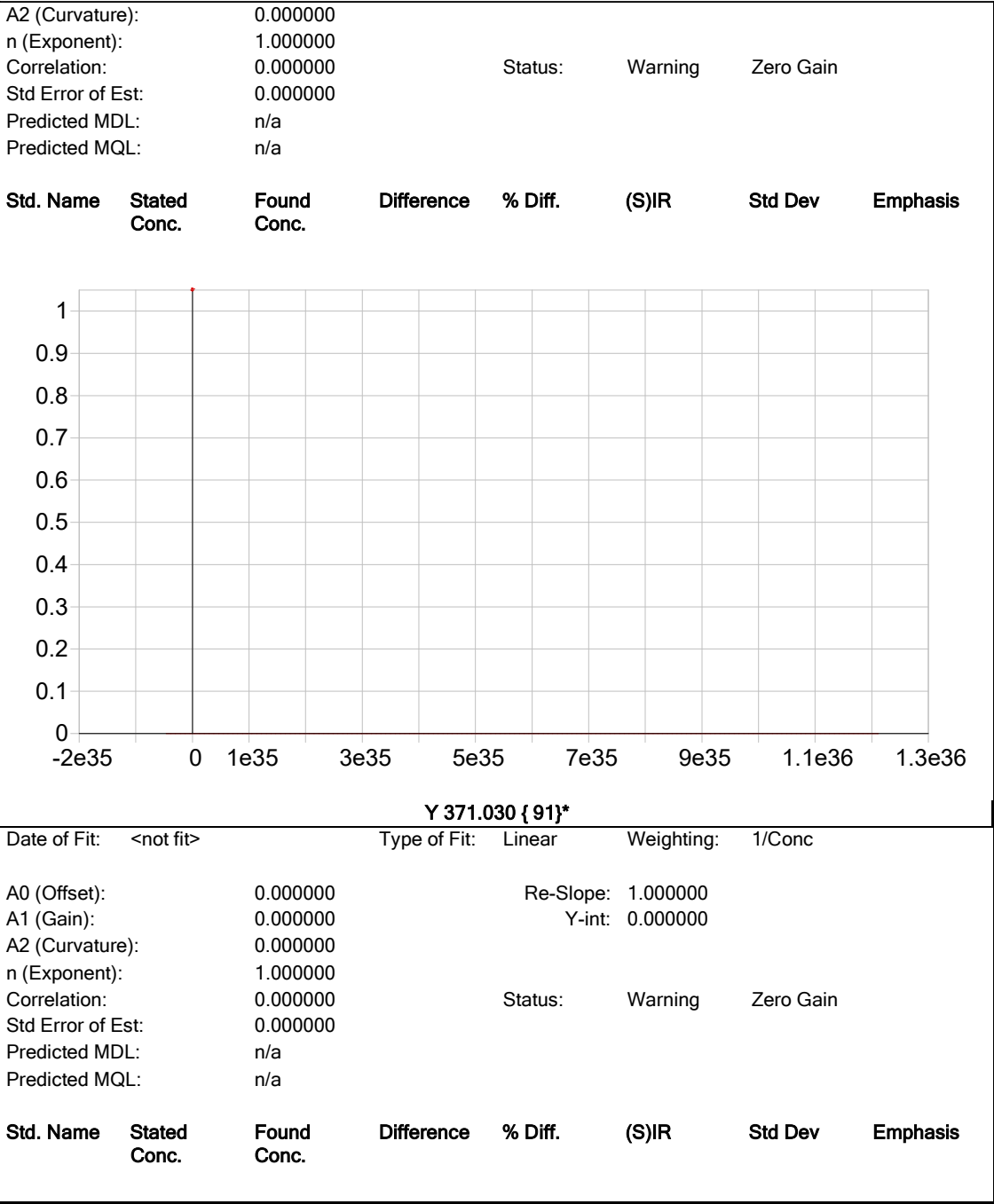


Date of Fit:	12/11/2024 11:43:31	Type of Fit:	Linear	Weighting:	1/Conc
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A1 (Gain):	0.000000	Y-int:	0.000000		
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000	Status:	Warning	Zero Gain	
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
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Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		



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

Sample Name: S0 Acquired: 12/10/2024 10:38:38 Type: Cal
Method: NON EPA-6010-200.7(v2514) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: 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	-.00022	-.00013	-.00029	.00030	.00014	.00064	-.00237	-.00057
Stddev	.00005	.00004	.00019	.00007	.00010	.00024	.00171	.00015
%RSD	21.390	31.645	63.050	24.292	70.994	37.388	72.238	27.122
#1	-.00026	-.00008	-.00013	.00036	.00009	.00052	-.00360	-.00040
#2	-.00025	-.00015	-.00050	.00031	.00025	.00091	-.00042	-.00062
#3	-.00017	-.00015	-.00026	.00022	.00008	.00049	-.00310	-.00069
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00010	.00230	.00013	.00006	-.00008	.00003	.00029	.00009
Stddev	.00009	.00015	.00006	.00007	.00009	.00001	.00005	.00015
%RSD	85.977	6.6727	48.853	106.47	112.21	29.233	18.302	169.65
#1	-.00019	.00248	.00009	.00010	-.00001	.00002	.00024	.00025
#2	-.00001	.00220	.00009	.00010	-.00005	.00004	.00035	.00005
#3	-.00011	.00223	.00020	-.00001	-.00017	.00004	.00029	-.00004
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	-.00006	-.00134	.00480	-.00012	.00445	.00123	.00245	.00034
Stddev	.00013	.00006	.00025	.00013	.00067	.00018	.00021	.00001
%RSD	199.90	4.8138	5.1213	111.04	15.116	14.548	8.3867	4.1509
#1	-.00014	-.00137	.00461	-.00025	.00513	.00107	.00247	.00035
#2	-.00014	-.00139	.00471	-.00009	.00379	.00120	.00224	.00033
#3	.00008	-.00127	.00508	.00000	.00443	.00142	.00265	.00035
Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00027	.00174	.00016	-.00099	.00014	.00371	.00179	
Stddev	.00002	.00018	.00002	.00005	.00005	.00079	.00036	
%RSD	7.3766	10.548	13.020	4.6963	31.469	21.353	19.859	
#1	.00028	.00161	.00014	-.00096	.00018	.00424	.00169	
#2	.00025	.00195	.00018	-.00105	.00016	.00280	.00149	
#3	.00029	.00167	.00016	-.00096	.00009	.00409	.00218	

Sample Name: S0 Acquired: 12/10/2024 10:38:38 Type: Cal
Method: NON EPA-6010-200.7(v2514) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: 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	2781.3	64114.	13118.	2037.2	4613.1
Stddev	7.4	129.	5.	2.0	6.7
%RSD	.26699	.20163	.03889	.09815	.14586
#1	2783.3	63982.	13124.	2034.9	4616.6
#2	2787.4	64121.	13117.	2038.1	4617.3
#3	2773.0	64240.	13114.	2038.5	4605.3

Sample Name: S1 Acquired: 12/10/2024 10:43:05 Type: Cal
Method: NON EPA-6010-200.7(v2514) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: 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	.00068	.00243	.00265	.00217	.00724	.00901	.36183	.02203
Stddev	.00007	.00005	.00014	.00006	.00004	.00022	.00148	.00021
%RSD	10.059	2.0701	5.3524	2.9108	.56608	2.4853	.40781	.96232
#1	.00076	.00244	.00249	.00209	.00728	.00875	.36287	.02221
#2	.00062	.00247	.00272	.00219	.00720	.00916	.36014	.02180
#3	.00068	.00237	.00275	.00221	.00722	.00912	.36246	.02208
Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.01331	.11551	.00209	.02598	.01731	.00059	.01452	.03335
Stddev	.00013	.00049	.00006	.00018	.00010	.00001	.00006	.00008
%RSD	1.0116	.42369	2.6700	.70001	.58911	2.1925	.40899	.22587
#1	.01324	.11523	.00205	.02607	.01740	.00059	.01452	.03327
#2	.01347	.11522	.00208	.02610	.01720	.00060	.01446	.03337
#3	.01322	.11607	.00216	.02577	.01734	.00057	.01458	.03342
Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.02460	.00138	.03864	.00523	.14768	.01849	.04702	.15458
Stddev	.00014	.00003	.00015	.00013	.00142	.00030	.00012	.00026
%RSD	.56059	2.0620	.40050	2.4707	.96368	1.5997	.25044	.16776
#1	.02464	.00141	.03851	.00523	.14901	.01815	.04711	.15480
#2	.02472	.00135	.03860	.00510	.14618	.01867	.04705	.15466
#3	.02445	.00138	.03881	.00536	.14784	.01866	.04689	.15429
Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.00479	.02345	.00241	-.00049	.00060	.02506	.31398	
Stddev	.00001	.00030	.00003	.00006	.00005	.00036	.00088	
%RSD	.29929	1.2934	1.1876	12.575	7.9050	1.4246	.28090	
#1	.00478	.02379	.00237	-.00056	.00056	.02506	.31375	
#2	.00478	.02336	.00242	-.00046	.00065	.02470	.31324	
#3	.00481	.02321	.00243	-.00044	.00059	.02542	.31496	

Sample Name: S1 Acquired: 12/10/2024 10:43:05 Type: Cal
Method: NON EPA-6010-200.7(v2514) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: 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	2761.7	63421.	13167.	1985.7	4481.5
Stddev	7.1	29.	55.	9.7	7.2
%RSD	.25728	.04526	.42119	.48943	.15971
#1	2753.5	63410.	13112.	1974.5	4473.5
#2	2766.2	63399.	13223.	1991.7	4483.8
#3	2765.3	63453.	13166.	1990.9	4487.3

Sample Name: S2 Acquired: 12/10/2024 10:47:30 Type: Cal
Method: NON EPA-6010-200.7(v2514) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: 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	.03652	.05622	.20190	.07350	.12223	.13493	6.1816	.16197
Stddev	.00012	.00087	.00049	.00021	.00028	.00041	.0256	.00115
%RSD	.33152	1.5469	.24307	.28937	.23249	.30328	.41433	.70826

#1	.03644	.05720	.20216	.07356	.12250	.13470	6.1949	.16137
#2	.03647	.05589	.20220	.07327	.12194	.13541	6.1977	.16329
#3	.03666	.05556	.20133	.07368	.12225	.13470	6.1520	.16124

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.91605	.23764	.03532	.36369	.16876	.00492	.29169	.06509
Stddev	.00120	.00034	.00018	.00073	.00040	.00002	.00074	.00032
%RSD	.13067	.14267	.52168	.20119	.23769	.31961	.25359	.49531

#1	.91730	.23758	.03539	.36433	.16847	.00490	.29144	.06474
#2	.91591	.23801	.03546	.36289	.16858	.00493	.29253	.06517
#3	.91492	.23734	.03511	.36383	.16921	.00491	.29111	.06537

Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.26094	.05534	.07627	.05573	1.4668	.03701	.37591	.65314
Stddev	.00072	.00014	.00045	.00014	.0063	.00034	.00054	.00078
%RSD	.27750	.25770	.58769	.25867	.43020	.90871	.14249	.11878

#1	.26149	.05531	.07649	.05558	1.4712	.03684	.37535	.65328
#2	.26012	.05549	.07656	.05587	1.4696	.03740	.37641	.65231
#3	.26120	.05521	.07575	.05573	1.4595	.03680	.37597	.65384

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.09535	.47061	.00584	.02206	.01925	.92530	13.036	
Stddev	.00006	.00218	.00003	.00026	.00013	.00427	.042	
%RSD	.06751	.46254	.45324	1.1966	.67991	.46110	.31962	

#1	.09538	.47076	.00587	.02236	.01938	.92710	13.059	
#2	.09539	.47271	.00582	.02186	.01925	.92838	13.060	
#3	.09527	.46836	.00582	.02197	.01912	.92043	12.987	

Sample Name: S2 Acquired: 12/10/2024 10:47:30 Type: Cal
Method: NON EPA-6010-200.7(v2514) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: 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	2582.1	58867.	12306.	1860.6	4138.3
Stddev	5.4	150.	13.	8.5	2.0
%RSD	.21098	.25517	.10399	.45657	.04923
#1	2584.6	58736.	12295.	1850.8	4136.1
#2	2585.9	58835.	12304.	1864.4	4140.2
#3	2575.9	59031.	12320.	1866.4	4138.5

Sample Name: S3 Acquired: 12/10/2024 10:51:39 Type: Cal
Method: NON EPA-6010-200.7(v2514) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: 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	.12091	.18586	.66341	.24390	.40194	.43619	19.898	.51920
Stddev	.00032	.00151	.00118	.00065	.00175	.00124	.064	.00033
%RSD	.26648	.81225	.17746	.26582	.43557	.28412	.32312	.06414

#1	.12060	.18453	.66410	.24315	.39998	.43507	19.889	.51931
#2	.12124	.18556	.66205	.24428	.40249	.43599	19.839	.51946
#3	.12089	.18750	.66408	.24427	.40335	.43752	19.967	.51882

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.0348	.75577	.11361	1.2008	.55251	.01610	.93073	.20992
Stddev	.0051	.00373	.00019	.0011	.00088	.00006	.00273	.00080
%RSD	.16849	.49309	.17106	.08872	.15972	.38185	.29318	.38131

#1	3.0405	.75478	.11380	1.2015	.55187	.01603	.93039	.20909
#2	3.0305	.75263	.11362	1.1996	.55216	.01615	.92819	.20998
#3	3.0333	.75989	.11341	1.2013	.55352	.01612	.93362	.21069

Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.85704	.18039	.24651	.17993	4.7138	.12057	1.2007	2.1153
Stddev	.00074	.00042	.00144	.00107	.0066	.00019	.0021	.0058
%RSD	.08603	.23280	.58354	.59272	.14096	.16056	.17140	.27599

#1	.85725	.18047	.24771	.17938	4.7091	.12044	1.2009	2.1095
#2	.85765	.18075	.24691	.17925	4.7109	.12079	1.1985	2.1154
#3	.85622	.17993	.24491	.18116	4.7214	.12048	1.2026	2.1211

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.31516	1.5051	.01876	.07823	.06588	2.9848	41.466	
Stddev	.00061	.0019	.00010	.00034	.00016	.0081	.181	
%RSD	.19251	.12565	.54328	.43031	.23936	.27295	.43557	

#1	.31533	1.5055	.01867	.07784	.06580	2.9907	41.411	
#2	.31448	1.5030	.01887	.07844	.06578	2.9881	41.320	
#3	.31566	1.5067	.01873	.07842	.06606	2.9755	41.668	

Sample Name: S3 Acquired: 12/10/2024 10:51:39 Type: Cal
Method: NON EPA-6010-200.7(v2514) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: 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	2462.5	56854.	12180.	1790.3	3840.4
Stddev	6.8	51.	19.	9.5	5.5
%RSD	.27805	.09034	.15824	.53187	.14268
#1	2469.7	56912.	12175.	1798.3	3844.6
#2	2461.7	56833.	12202.	1792.7	3842.3
#3	2456.1	56816.	12164.	1779.8	3834.2

Sample Name: S4 Acquired: 12/10/2024 10:56:00 Type: Cal
Method: NON EPA-6010-200.7(v2514) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: 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	.24571	.36628	1.3110	.49590	.81661	.84608	37.893	.97190
Stddev	.00295	.00657	.0133	.00645	.00931	.00157	.085	.00288
%RSD	1.1998	1.7927	1.0104	1.3013	1.1400	.18595	.22540	.29669

#1	.24296	.35962	1.3017	.48996	.80926	.84656	37.820	.97271
#2	.24883	.37275	1.3261	.50277	.82708	.84432	37.987	.97430
#3	.24535	.36646	1.3050	.49498	.81349	.84736	37.872	.96871

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	6.0824	1.4365	.22026	2.4018	1.0923	.03163	1.7542	.40254
Stddev	.0593	.0036	.00088	.0234	.0106	.00013	.0129	.00025
%RSD	.97525	.24682	.39896	.97471	.96552	.41622	.73371	.06134

#1	6.0398	1.4363	.21924	2.3856	1.0838	.03148	1.7603	.40229
#2	6.1501	1.4401	.22069	2.4286	1.1041	.03174	1.7628	.40278
#3	6.0572	1.4330	.22083	2.3912	1.0890	.03168	1.7394	.40254

Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1.7076	.35286	.50181	.34712	9.2233	.24441	2.2393	4.2179
Stddev	.0169	.00147	.00332	.00146	.0368	.00041	.0086	.0493
%RSD	.99055	.41667	.66222	.42130	.39899	.16842	.38453	1.1699

#1	1.6971	.35123	.50317	.34788	9.1892	.24394	2.2467	4.1764
#2	1.7271	.35328	.50424	.34805	9.2184	.24471	2.2414	4.2725
#3	1.6986	.35408	.49802	.34544	9.2623	.24458	2.2298	4.2048

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	.62840	2.8732	.03817	.15880	.13423	5.8616	79.267	
Stddev	.00694	.0153	.00039	.00208	.00186	.0364	.392	
%RSD	1.1049	.53264	1.0153	1.3127	1.3890	.62151	.49437	

#1	.62269	2.8826	.03774	.15703	.13277	5.8820	79.097	
#2	.63613	2.8815	.03829	.16110	.13633	5.8831	79.715	
#3	.62638	2.8555	.03849	.15827	.13357	5.8195	78.988	

Sample Name: S4 Acquired: 12/10/2024 10:56:00 Type: Cal
Method: NON EPA-6010-200.7(v2514) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: 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	2363.7	56080.	12583.	1709.8	3653.5
Stddev	22.1	218.	50.	11.0	32.5
%RSD	.93449	.38910	.40041	.64127	.89084
#1	2381.1	56325.	12554.	1720.3	3677.5
#2	2338.8	56006.	12554.	1710.7	3616.4
#3	2371.0	55908.	12641.	1698.4	3666.4

Sample Name: S5 Acquired: 12/10/2024 11:00:13 Type: Cal
Method: NON EPA-6010-200.7(v2514) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: 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	.48767	.69012	2.5616	.98533	1.6298	1.7020	73.908	1.8749
Stddev	.00308	.00531	.0021	.00446	.0064	.0007	.415	.0113
%RSD	.63103	.77011	.08335	.45255	.39400	.04217	.56137	.60452

#1	.48551	.69293	2.5636	.98185	1.6235	1.7028	74.373	1.8859
#2	.48630	.68399	2.5593	.98379	1.6295	1.7014	73.575	1.8632
#3	.49119	.69345	2.5618	.99036	1.6363	1.7017	73.775	1.8757

Elem	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404	Mn2576	Mg2790
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	11.925	2.8073	.43314	4.7234	2.1110	.06308	3.4107	.80312
Stddev	.018	.0065	.00225	.0029	.0059	.00012	.0100	.00109
%RSD	.15457	.23137	.51958	.06061	.27705	.18647	.29270	.13576

#1	11.946	2.8121	.43323	4.7266	2.1059	.06298	3.4222	.80290
#2	11.914	2.7999	.43085	4.7212	2.1096	.06306	3.4041	.80216
#3	11.915	2.8098	.43535	4.7225	2.1174	.06321	3.4059	.80431

Elem	Ni2316	Ag3280	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	3.3358	.70877	1.0218	.68473	18.002	.50470	4.3551	8.2237
Stddev	.0022	.00108	.0055	.00016	.104	.00044	.0209	.0283
%RSD	.06458	.15275	.54187	.02408	.57877	.08713	.47952	.34386

#1	3.3383	.70900	1.0279	.68464	17.985	.50429	4.3781	8.2005
#2	3.3345	.70760	1.0204	.68492	17.908	.50516	4.3373	8.2153
#3	3.3346	.70972	1.0171	.68463	18.114	.50464	4.3498	8.2552

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707	Sr4077	
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	
Avg	1.2278	5.6932	.08004	.31495	.27118	11.792	151.21	
Stddev	.0015	.0161	.00083	.00107	.00040	.045	1.34	
%RSD	.12394	.28234	1.0320	.33966	.14608	.38222	.88749	

#1	1.2296	5.7116	.07922	.31617	.27093	11.840	151.88	
#2	1.2270	5.6858	.08003	.31418	.27097	11.784	149.66	
#3	1.2270	5.6821	.08087	.31451	.27163	11.750	152.08	

Sample Name: S5 Acquired: 12/10/2024 11:00:13 Type: Cal
Method: NON EPA-6010-200.7(v2514) Mode: IR Corr. Factor: 1.000000
User: Kareem Custom ID1: 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	2271.4	53990.	12463.	1601.4	3466.4
Stddev	11.2	177.	46.	16.2	6.0
%RSD	.49101	.32838	.36508	1.0145	.17438
#1	2283.1	54096.	12416.	1614.9	3473.0
#2	2270.1	54089.	12507.	1605.8	3465.3
#3	2260.9	53786.	12466.	1583.4	3461.0

Sample Name: ICV01 Acquired: 12/10/2024 11:04:30 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.035871	1.098974	1.031509	1.072607	1.033457	2.677568
Stddev	.001218	.012177	.001922	.003392	.005095	.017313
%RSD	.1175798	1.108074	.1863000	.3162775	.4930411	.6466063

#1	1.034736	1.090483	1.029474	1.070726	1.030097	2.657646
#2	1.037157	1.093514	1.031762	1.070573	1.030955	2.686086
#3	1.035720	1.112926	1.033292	1.076524	1.039320	2.688972

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5349682	.5303365	.5201560	10.55906	.5511451	.5293066
Stddev	.0053844	.0021187	.0006341	.04455	.0024267	.0008396
%RSD	1.006487	.3994971	.1219152	.4219079	.4403089	.1586196

#1	.5289277	.5281684	.5203579	10.51447	.5505561	.5300530
#2	.5392634	.5304391	.5194455	10.55914	.5490670	.5283976
#3	.5367136	.5324020	.5206646	10.60357	.5538121	.5294691

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5455219	10.31369	.5385556	6.185061	.5313787	.2644329
Stddev	.0011995	.03199	.0029916	.020245	.0005919	.0014130
%RSD	.2198731	.3101576	.5554919	.3273237	.1113941	.5343690

#1	.5443010	10.30525	.5351040	6.163496	.5313809	.2647927
#2	.5455661	10.28676	.5404028	6.188027	.5307856	.2628747
#3	.5466987	10.34905	.5401600	6.203659	.5319695	.2656312

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.808717	.5239339	1.085423	10.21083	2.508814	2.621645
Stddev	.033256	.0033172	.000812	.04521	.005848	.010553
%RSD	.3390416	.6331393	.0748085	.4428001	.2331068	.4025510

#1	9.780237	.5205754	1.085973	10.15954	2.502897	2.611628
#2	9.845264	.5272083	1.084490	10.24489	2.508954	2.620643
#3	9.800652	.5240182	1.085805	10.22807	2.514590	2.632664

Sample Name: ICV01 Acquired: 12/10/2024 11:04:30 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICV01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.509814	2.560284	F 1.974956	F .0045414	F -.004977	F -.002921
Stddev	.003669	.017460	.015743	.0010347	.002799	.000045
%RSD	.1461713	.6819454	.7971067	22.78274	56.23026	1.545151
#1	2.506398	2.540201	1.966099	.0036281	-.008098	-.002912
#2	2.509352	2.571858	1.965637	.0056651	-.002690	-.002881
#3	2.513692	2.568794	1.993132	.0043310	-.004144	-.002970

Elem	Sr4077
Units	ppm
Avg	F -.008994
Stddev	.000029
%RSD	.3251681
#1	-.008991
#2	-.008966
#3	-.009025

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2402.032	56554.95	12658.32	1677.189	3885.119
Stddev	6.998	93.69	36.51	4.907	8.027
%RSD	.2913257	.1656689	.2884328	.2925909	.2065982
#1	2406.311	56550.11	12700.33	1672.043	3884.263
#2	2405.828	56650.97	12640.36	1681.817	3893.539
#3	2393.956	56463.77	12634.27	1677.707	3877.555

Sample Name: LLICV01 Acquired: 12/10/2024 11:08:48 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0217542	.0426181	.0123670	.0203626	.0500455	.1058972	.1011951
Stddev	.0001073	.0006004	.0008649	.0005064	.0002389	.0060263	.0007842
%RSD	.4934392	1.408886	6.993623	2.486962	.4772977	5.690668	.7749127

#1	.0216372	.0431714	.0119337	.0198289	.0497705	.0994656	.1004650
#2	.0217772	.0427032	.0133629	.0204225	.0502008	.1114134	.1010962
#3	.0218481	.0419796	.0118043	.0208364	.0501653	.1068126	.1020240

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0062654	.0059815	2.138774	.0099804	.0299290	.0228196	.0988957
Stddev	.0000498	.0000981	.008395	.0000406	.0000423	.0002780	.0009782
%RSD	.7939833	1.640026	.3925373	.4069232	.1414155	1.218434	.9890885

#1	.0062603	.0058833	2.129563	.0099472	.0299071	.0226125	.0977663
#2	.0062184	.0059817	2.140760	.0099682	.0299021	.0231356	.0994512
#3	.0063174	.0060795	2.145998	.0100256	.0299778	.0227106	.0994697

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0214300	2.225099	.0397781	.0106342	1.846591	.0424798	.0454574
Stddev	.0004305	.020087	.0001897	.0003003	.011613	.0006733	.0001571
%RSD	2.008676	.9027361	.4769128	2.823402	.6288825	1.584972	.3454981

#1	.0211943	2.201909	.0396029	.0103555	1.833337	.0419464	.0452947
#2	.0211688	2.237073	.0397519	.0105948	1.854979	.0422565	.0456081
#3	.0219268	2.236314	.0399796	.0109521	1.851459	.0432363	.0454693

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.990635	.1198218	.2105571	.0405508	.0415418	.3408953	.0195026
Stddev	.003811	.0006355	.0004727	.0009502	.0003655	.0032508	.0002577
%RSD	.1914238	.5304008	.2244932	2.343268	.8798033	.9536060	1.321568

#1	1.989263	.1195188	.2105036	.0394678	.0413969	.3428863	.0192135
#2	1.987701	.1193944	.2110543	.0409396	.0419575	.3371440	.0195860
#3	1.994942	.1205521	.2101135	.0412450	.0412710	.3426557	.0197083

Sample Name: LLICV01 Acquired: 12/10/2024 11:08:48 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: LLICV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0210479	.0190923	.0215753
Stddev	.0012616	.0003280	.0000605
%RSD	5.993889	1.718201	.2803529

#1	.0219179	.0187943	.0216100
#2	.0196010	.0194438	.0215054
#3	.0216248	.0190387	.0216103

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2464.263	57253.67	12435.26	1719.777	4089.466
Stddev	6.332	114.26	27.81	4.284	1.732
%RSD	.2569485	.1995695	.2236065	.2490888	.0423621

#1	2457.540	57339.09	12462.82	1723.738	4087.472
#2	2465.137	57123.88	12435.74	1715.231	4090.330
#3	2470.113	57298.02	12407.21	1720.362	4090.597

Sample Name: ICB01 Acquired: 12/10/2024 11:20:18 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001520	.0000975	.0006256	.0003650	-.000117	-.012075	-.004007
Stddev	.001911	.0007156	.0004089	.0004138	.000811	.001095	.000630
%RSD	125.7615	733.7720	65.36468	113.3712	692.4129	9.069286	15.71926

#1	-.000430	.0008881	.0009172	-.000078	.000551	-.010810	-.003331
#2	-.003726	-.000090	.0008013	.000741	-.001020	-.012681	-.004578
#3	-.000403	-.000506	.0001582	.000432	.000118	-.012732	-.004112

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000075	-.000014	-.009548	-.000698	-.000136	-.000481	-.007362
Stddev	.0000415	.000051	.004933	.000084	.000064	.000062	.002934
%RSD	555.1675	374.9072	51.67106	11.99876	46.93160	12.86694	39.85990

#1	.0000280	-.000014	-.007870	-.000606	-.000093	-.000414	-.010605
#2	.0000347	-.000065	-.005672	-.000770	-.000105	-.000492	-.006590
#3	-.000040	.000038	-.015101	-.000717	-.000209	-.000537	-.004891

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000234	-.012526	.0000799	.0007141	-.084332	.0011895	-.000071
Stddev	.000277	.008423	.0001420	.0003614	.009816	.0008166	.000090
%RSD	118.3374	67.24237	177.6986	50.60713	11.63965	68.64797	127.5909

#1	-.000364	-.022244	.0001613	.0004219	-.095227	.0003966	-.000135
#2	.000084	-.007316	.0001624	.0006022	-.076177	.0020278	-.000109
#3	-.000423	-.008019	-.000084	.0011183	-.081592	.0011442	.000032

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.059430	.0008049	.0000583	.0037186	.0000108	.0040757	-.004438
Stddev	.024383	.0005307	.0000045	.0006393	.0003678	.0038667	.001085
%RSD	41.02758	65.93340	7.731711	17.19151	3401.052	94.87026	24.45746

#1	-.082507	.0008671	.0000567	.0029813	.0001621	.0062678	-.005673
#2	-.061858	.0002459	.0000634	.0041180	.0002789	-.000389	-.004005
#3	-.033924	.0013018	.0000548	.0040565	-.000409	.006348	-.003636

Sample Name: ICB01 Acquired: 12/10/2024 11:20:18 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0013227	-.001956	-.000125
Stddev	.0006754	.000186	.000016
%RSD	51.05830	9.503531	12.84014

#1	.0007882	-.001871	-.000107
#2	.0020817	-.002170	-.000137
#3	.0010983	-.001829	-.000130

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2435.197	57448.95	12606.83	1674.662	4170.491
Stddev	5.501	68.00	67.60	4.071	5.738
%RSD	.2259141	.1183674	.5362123	.2431079	.1375845

#1	2428.939	57524.49	12529.00	1671.297	4163.952
#2	2437.379	57392.61	12650.85	1673.501	4172.840
#3	2439.272	57429.74	12640.64	1679.188	4174.682

Sample Name: CRI01 Acquired: 12/10/2024 11:24:41 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0206858	.0407210	.0112430	.0210765	.0502788	.1022429	.0961335
Stddev	.0005213	.0006237	.0003046	.0006318	.0007938	.0032332	.0001753
%RSD	2.520216	1.531749	2.709054	2.997901	1.578742	3.162313	.1823329
#1	.0212778	.0400068	.0108932	.0204029	.0508877	.0985288	.0963112
#2	.0204842	.0409970	.0113860	.0216561	.0493810	.1037719	.0961285
#3	.0202953	.0411591	.0114497	.0211704	.0505676	.1044281	.0959607
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0060764	.0057981	2.054046	.0098640	.0291745	.0225285	.0952215
Stddev	.0000314	.0000189	.010895	.0002285	.0002719	.0002795	.0021394
%RSD	.5166520	.3258231	.5304290	2.316258	.9319372	1.240656	2.246756
#1	.0060672	.0058188	2.050052	.0097435	.0290966	.0224865	.0935083
#2	.0061113	.0057818	2.066374	.0097210	.0289500	.0222723	.0976194
#3	.0060506	.0057938	2.045711	.0101275	.0294768	.0228266	.0945367
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0206082	2.167497	.0392997	.0106854	1.785633	.0418399	.0438292
Stddev	.0003189	.008096	.0001048	.0003251	.002701	.0011217	.0002901
%RSD	1.547422	.3734980	.2667749	3.042465	.1512560	2.681024	.6619854
#1	.0202655	2.158327	.0393842	.0103380	1.787623	.0424810	.0441641
#2	.0208962	2.170511	.0391824	.0107358	1.782558	.0424941	.0436548
#3	.0206629	2.173653	.0393325	.0109823	1.786716	.0405447	.0436687
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.940051	.1032546	.2094022	.0391696	.0402696	.3336700	.0161763
Stddev	.017199	.0004114	.0001631	.0001940	.0003652	.0083454	.0022564
%RSD	.8865194	.3984561	.0779048	.4953431	.9068589	2.501098	13.94877
#1	1.925808	.1029949	.2092316	.0392214	.0398590	.3253573	.0172172
#2	1.959158	.1037290	.2094183	.0389550	.0405580	.3420477	.0135874
#3	1.935188	.1030399	.2095566	.0393325	.0403919	.3336050	.0177244

Sample Name: CRI01 Acquired: 12/10/2024 11:24:41 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CRI01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0185376	.0184147	.0208178
Stddev	.0023115	.0001602	.0000496
%RSD	12.46925	.8698150	.2381431

#1	.0165333	.0182309	.0208719
#2	.0210662	.0185242	.0208070
#3	.0180132	.0184890	.0207745

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2439.310	57227.83	12680.08	1669.836	4091.388
Stddev	2.453	66.04	18.12	3.796	4.873
%RSD	.1005439	.1153966	.1429189	.2273288	.1191064

#1	2440.541	57182.30	12659.24	1665.689	4095.416
#2	2440.903	57197.61	12688.91	1673.140	4092.776
#3	2436.486	57303.57	12692.10	1670.678	4085.971

Sample Name: ICSA01 Acquired: 12/10/2024 11:36:21 Type: Unk
Method: NON EPA-6010-200.7(v2515) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0066987	.0124560	.0104330	-.014952	-.001713	263.6660
Stddev	.0042479	.0041373	.0022614	.002586	.002340	.8876
%RSD	63.41421	33.21544	21.67556	17.29337	136.5944	.3366387

#1	.0025311	.0138124	.0085658	-.012722	.000066	262.7079
#2	.0065423	.0078108	.0097857	-.017787	-.004364	264.4602
#3	.0110226	.0157450	.0129474	-.014348	-.000841	263.8299

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0014911	.0013018	.0034487	243.7788	.0565204	.0023792
Stddev	.0001805	.0001025	.0001354	.7015	.0004860	.0004074
%RSD	12.10732	7.872930	3.925306	.2877590	.8599294	17.12313

#1	.0015050	.0013284	.0036039	243.0761	.0562215	.0021645
#2	.0013040	.0011886	.0033546	244.4791	.0562585	.0028491
#3	.0016642	.0013884	.0033877	243.7813	.0570812	.0021241

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0059901	98.60958	.0042813	269.6132	.0312910	-.002004
Stddev	.0007255	.38088	.0001273	.7122	.0004248	.000179
%RSD	12.11209	.3862502	2.972349	.2641573	1.357553	8.932086

#1	.0067983	98.17796	.0044244	268.9709	.0311462	-.002178
#2	.0053950	98.75228	.0041808	270.3791	.0309576	-.001820
#3	.0057770	98.89851	.0042386	269.4894	.0317693	-.002015

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0514720	.0076322	-.006010	.0204806	.0342990	-.001086
Stddev	.0172146	.0006016	.000395	.0100673	.0008788	.000546
%RSD	33.44454	7.882297	6.573883	49.15542	2.562067	50.27847

#1	.0316182	.0074143	-.005565	.0104114	.0332845	-.000469
#2	.0605543	.0083124	-.006143	.0305460	.0348246	-.001507
#3	.0622434	.0071699	-.006321	.0204844	.0347877	-.001281

Sample Name: ICSA01 Acquired: 12/10/2024 11:36:21 Type: Unk
Method: NON EPA-6010-200.7(v2515) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSA01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0017652	-.000975	.0204073	.0067864	-.008471	F -.042312
Stddev	.0005734	.000407	.0039085	.0042184	.001926	.000138
%RSD	32.48225	41.75648	19.15240	62.15987	22.73917	.3272951
#1	.0023190	-.000505	.0231603	.0097776	-.006625	-.042360
#2	.0011741	-.001203	.0221279	.0086202	-.010469	-.042419
#3	.0018025	-.001218	.0159337	.0019615	-.008321	-.042155

Elem	Sr4077
Units	ppm
Avg	.0065198
Stddev	.0002086
%RSD	3.199126
#1	.0067349
#2	.0065060
#3	.0063184

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2129.735	50122.02	11959.97	1478.906	3195.392
Stddev	3.308	78.72	18.14	11.471	.906
%RSD	.1553147	.1570483	.1516370	.7756080	.0283589
#1	2131.168	50161.03	11965.25	1482.611	3196.338
#2	2125.953	50173.61	11939.78	1488.067	3194.531
#3	2132.085	50031.42	11974.89	1466.041	3195.306

Sample Name: ICSAB01 Acquired: 12/10/2024 11:40:32 Type: Unk
Method: NON EPA-6010-200.7(v2516) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1047410	.0971409	.0591917	.0353758	.5939354	249.7779
Stddev	.0031357	.0009171	.0023072	.0014692	.0023945	.8730
%RSD	2.993808	.9440617	3.897869	4.153189	.4031549	.3495171

#1	.1064595	.0967050	.0618086	.0368371	.5948790	249.4173
#2	.1066418	.0981946	.0574506	.0353914	.5957144	250.7734
#3	.1011216	.0965230	.0583160	.0338988	.5912129	249.1429

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4825321	.4769859	.9519180	227.8305	.5391928	.4818409
Stddev	.0045712	.0016938	.0010777	.4697	.0035789	.0006359
%RSD	.9473367	.3551002	.1132179	.2061537	.6637474	.1319806

#1	.4875052	.4778873	.9531449	227.3434	.5379787	.4823274
#2	.4785135	.4750321	.9514854	228.2806	.5363788	.4820739
#3	.4815776	.4780384	.9511239	227.8675	.5432207	.4811213

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4703581	93.55734	.4648301	252.2045	.9742014	.1901408
Stddev	.0005513	.29397	.0015892	.9669	.0015492	.0002771
%RSD	.1172081	.3142165	.3418959	.3833785	.1590226	.1457397

#1	.4706554	93.26087	.4666363	251.1952	.9753359	.1898223
#2	.4697220	93.56241	.4636460	253.1226	.9724363	.1903264
#3	.4706970	93.84875	.4642080	252.2956	.9748319	.1902738

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0062584	.4778623	.9113705	-.026921	.9137329	.9867419
Stddev	.0100690	.0008682	.0010821	.016066	.0028075	.0009515
%RSD	160.8865	.1816917	.1187380	59.67809	.3072601	.0964308

#1	-.002802	.4768768	.9117816	-.040649	.9168829	.9878398
#2	.004478	.4785142	.9101431	-.030864	.9114944	.9861576
#3	.017099	.4781960	.9121869	-.009251	.9128214	.9862282

Sample Name: ICSAB01 Acquired: 12/10/2024 11:40:32 Type: Unk
Method: NON EPA-6010-200.7(v2516) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: ICSAB01 Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9528606	.9425903	F .8165012	F .0188426	F -.009233	F -.039753
Stddev	.0035381	.0043164	.0116772	.0020623	.000470	.000565
%RSD	.3713188	.4579327	1.430150	10.94474	5.085148	1.420123
#1	.9568474	.9463651	.8081684	.0209375	-.009322	-.039144
#2	.9516404	.9378842	.8114872	.0187757	-.008726	-.039856
#3	.9500941	.9435215	.8298480	.0168146	-.009652	-.040259

Elem	Sr4077
Units	ppm
Avg	F .0045873
Stddev	.0009242
%RSD	20.14722
#1	.0056505
#2	.0039757
#3	.0041358

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2142.513	50877.80	12444.47	1468.354	3251.979
Stddev	2.142	123.24	18.02	7.036	1.678
%RSD	.0999812	.2422291	.1448382	.4791502	.0516146
#1	2144.737	50981.40	12427.69	1476.396	3250.642
#2	2142.338	50910.49	12442.20	1463.337	3253.862
#3	2140.463	50741.51	12463.52	1465.330	3251.431

Sample Name: CCV01 Acquired: 12/10/2024 11:44:43 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.920127	5.024007	4.880850	4.985800	4.960048	9.943680	9.613154
Stddev	.005639	.037102	.004345	.017266	.009816	.001161	.069607
%RSD	.1146174	.7384905	.0890176	.3463107	.1979062	.0116735	.7240854
#1	4.923229	4.982166	4.879666	4.982352	4.962485	9.942857	9.611126
#2	4.923534	5.052898	4.877220	5.004531	4.968416	9.943176	9.544583
#3	4.913617	5.036957	4.885664	4.970518	4.949243	9.945008	9.683754
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.2427203	2.428251	24.02011	1.001991	2.425968	1.244015	4.813305
Stddev	.0004625	.003920	.03077	.001622	.003199	.002015	.019878
%RSD	.1905572	.1614327	.1281009	.1619077	.1318734	.1620115	.4129805
#1	2.2429758	2.427282	23.98460	1.001311	2.426091	1.246306	4.795244
#2	2.2429987	2.424906	24.03682	1.000820	2.422709	1.243220	4.810068
#3	2.2421864	2.432565	24.03891	1.003843	2.429104	1.242518	4.834602
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.349073	24.22926	2.429942	1.239404	24.02830	2.445502	2.519627
Stddev	.002909	.00788	.003133	.001325	.11731	.002074	.007117
%RSD	.1238200	.0325252	.1289283	.1068799	.4882348	.0848114	.2824466
#1	2.345861	24.23586	2.430336	1.239015	24.08354	2.443224	2.512208
#2	2.349827	24.23140	2.426631	1.238318	23.89356	2.447282	2.526397
#3	2.351530	24.22054	2.432859	1.240880	24.10779	2.445999	2.520274
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.61230	4.843106	5.023157	4.907503	4.823764	5.002193	4.930742
Stddev	.07543	.010522	.002591	.010573	.003456	.036984	.028325
%RSD	.3064635	.2172588	.0515832	.2154379	.0716449	.7393600	.5744487
#1	24.57896	4.851362	5.021759	4.904782	4.826812	4.973335	4.898504
#2	24.55929	4.846697	5.026147	4.898557	4.820009	4.989359	4.951636
#3	24.69865	4.831258	5.021565	4.919170	4.824471	5.043884	4.942087

Sample Name: CCV01 Acquired: 12/10/2024 11:44:43 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.810641	4.866434	4.902860
Stddev	.010362	.016728	.015189
%RSD	.2154033	.3437485	.3097961

#1	4.803594	4.882911	4.905502
#2	4.805789	4.849465	4.916554
#3	4.822539	4.866928	4.886523

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2337.757	54963.73	12693.02	1606.868	3682.699
Stddev	6.385	80.79	37.63	2.672	3.058
%RSD	.2731361	.1469952	.2964861	.1662950	.0830379

#1	2334.608	54995.78	12660.42	1609.284	3679.889
#2	2333.558	55023.58	12684.44	1607.322	3682.250
#3	2345.105	54871.83	12734.20	1603.998	3685.956

Sample Name: CCB01 Acquired: 12/10/2024 11:48:56 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000843	-.000104	-.000748	.0033456	.0000762	-.004604	-.003198
Stddev	.000519	.001676	.000358	.0004413	.0005139	.005541	.000759
%RSD	61.50265	1612.487	47.85344	13.19061	674.1840	120.3628	23.73530
#1	-.000296	-.001172	-.001109	.0036221	-.000448	-.008527	-.003824
#2	-.001327	-.000967	-.000393	.0035782	.000098	.001735	-.002354
#3	-.000907	.001828	-.000742	.0028367	.000579	-.007020	-.003418
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000143	.0000240	-.011400	-.000707	.0000461	-.000340	-.005677
Stddev	.0000101	.0000168	.000639	.000318	.0000177	.000152	.001359
%RSD	71.13980	69.74897	5.605348	44.97175	38.30072	44.65245	23.94584
#1	.0000079	.0000429	-.011530	-.001041	.0000484	-.000373	-.005154
#2	.0000090	.0000107	-.011964	-.000672	.0000274	-.000474	-.007221
#3	.0000259	.0000186	-.010706	-.000408	.0000626	-.000175	-.004657
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000279	-.011495	.0000025	.0004200	-.071860	.0000373	-.000122
Stddev	.000149	.005687	.0001506	.0002788	.010635	.0005165	.000241
%RSD	53.54954	49.47079	6045.330	66.36711	14.80025	1384.233	197.6572
#1	-.000397	-.014065	-.000056	.0006179	-.077508	-.000557	-.000180
#2	-.000328	-.004977	.000174	.0001012	-.078479	.000294	-.000329
#3	-.000111	-.015444	-.000110	.0005409	-.059592	.000375	.000143
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.075283	.0053461	.0003982	.0044694	.0002910	.0089670	-.001446
Stddev	.013715	.0004288	.0003067	.0009121	.0000749	.0019511	.001518
%RSD	18.21783	8.020629	77.01899	20.40713	25.72805	21.75846	105.0023
#1	-.087936	.0058379	.0005955	.0055005	.0002871	.0099742	.000241
#2	-.077206	.0051494	.0005542	.0041392	.0002181	.0102086	-.002703
#3	-.060709	.0050510	.0000449	.0037683	.0003677	.0067181	-.001875

Sample Name: CCB01 Acquired: 12/10/2024 11:48:56 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB01 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0004580	-.002287	-.000117
Stddev	.0014207	.000338	.000025
%RSD	310.2042	14.77785	21.14197

#1	.0020639	-.002676	-.000111
#2	-.000635	-.002125	-.000145
#3	-.000055	-.002061	-.000097

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2464.424	57789.20	12690.80	1688.694	4186.131
Stddev	8.948	44.28	30.01	3.047	2.721
%RSD	.3630694	.0766166	.2364733	.1804443	.0650021

#1	2456.708	57757.30	12697.28	1685.269	4184.815
#2	2462.331	57839.75	12658.07	1689.711	4184.317
#3	2474.232	57770.55	12717.03	1691.103	4189.259

Sample Name: PB165463BL Acquired: 12/10/2024 11:53:19 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002021	-.001556	.0006997	.0028070	-.001186	-.005389	-.002951
Stddev	.0036965	.000292	.0006081	.0013423	.000314	.002710	.000153
%RSD	1829.361	18.80099	86.90980	47.81975	26.48489	50.28261	5.195620
#1	.0034156	-.001613	.0012620	.0035444	-.000826	-.003442	-.003119
#2	.0010281	-.001815	.0000543	.0012576	-.001332	-.008483	-.002915
#3	-.003838	-.001239	.0007829	.0036190	-.001401	-.004241	-.002819
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000424	.0000697	-.007182	-.000438	-.000038	-.000236	-.005368
Stddev	.0000155	.0000367	.002481	.000067	.000075	.000273	.003334
%RSD	36.64206	52.66019	34.54360	15.20461	198.7284	115.8474	62.11844
#1	.0000277	.0000747	-.010021	-.000387	-.000077	-.000455	-.008330
#2	.0000407	.0001038	-.006090	-.000513	-.000085	.000070	-.001757
#3	.0000587	.0000308	-.005434	-.000413	.000049	-.000324	-.006016
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000119	-.006742	-.000006	.0003811	-.071807	.0007721	.0000627
Stddev	.000091	.003833	.000047	.0002526	.010765	.0007565	.0002069
%RSD	77.00153	56.84787	849.3870	66.27844	14.99183	97.98810	329.8901
#1	-.000019	-.010577	-.000038	.0002292	-.083695	.0013108	.0000235
#2	-.000199	-.002911	-.000026	.0002413	-.062717	-.000093	.0002864
#3	-.000137	-.006738	.000048	.0006726	-.069009	.001098	-.000122
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.079825	.0010274	-.000021	.0040906	.0003578	.0088082	-.001727
Stddev	.011272	.0004357	.000110	.0002395	.0003271	.0018602	.000785
%RSD	14.12021	42.41154	514.9345	5.855207	91.41071	21.11870	45.45387
#1	-.088836	.0009535	.000078	.0039178	.0001140	.0108705	-.000861
#2	-.083454	.0006333	-.000003	.0043640	.0002300	.0072571	-.001930
#3	-.067187	.0014954	-.000139	.0039901	.0007295	.0082971	-.002391

Sample Name: PB165463BL Acquired: 12/10/2024 11:53:19 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0010533	-.001763	-.000079
Stddev	.0021495	.000118	.000023
%RSD	204.0650	6.702744	29.22131

#1	-.000870	-.001804	-.000097
#2	.003374	-.001630	-.000088
#3	.000656	-.001856	-.000053

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2476.579	58228.20	12760.76	1714.897	4234.176
Stddev	4.841	23.89	38.11	7.545	.774
%RSD	.1954683	.0410198	.2986380	.4399799	.0182718

#1	2478.289	58201.58	12718.14	1706.736	4234.304
#2	2480.334	58235.26	12791.54	1716.338	4234.878
#3	2471.116	58247.76	12772.61	1721.619	4233.346

Sample Name: PB165463BS Acquired: 12/10/2024 11:57:39 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7601417	2.026929	.9475501	1.952240	.7752230	2.032901
Stddev	.0012157	.022084	.0012587	.005415	.0037665	.009882
%RSD	.1599255	1.089547	.1328339	.2773618	.4858578	.4860957

#1	.7589368	2.050111	.9466398	1.953821	.7791659	2.041313
#2	.7601204	2.006136	.9470241	1.946211	.7716621	2.022018
#3	.7613678	2.024541	.9489865	1.956689	.7748409	2.035373

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1972859	.2051202	.1881864	1.036084	.4048127	.1919124
Stddev	.0010603	.0009218	.0003242	.003815	.0031659	.0005615
%RSD	.5374203	.4493878	.1722828	.3682289	.7820775	.2925969

#1	.1984770	.2061761	.1878835	1.039117	.4072450	.1913145
#2	.1964452	.2047080	.1881473	1.031800	.4059601	.1919943
#3	.1969356	.2044764	.1885284	1.037334	.4012330	.1924286

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3083219	2.925251	.2033393	1.982502	.4821545	.0745909
Stddev	.0011665	.021257	.0014772	.011748	.0009440	.0005568
%RSD	.3783356	.7266854	.7264478	.5925666	.1957807	.7465247

#1	.3076590	2.945955	.2049832	1.992609	.4813126	.0748734
#2	.3076380	2.926315	.2021235	1.969613	.4831750	.0749498
#3	.3096688	2.903481	.2029110	1.985284	.4819758	.0739494

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.702202	.3065564	.2106089	9.555051	.2970547	.4034748
Stddev	.030689	.0020836	.0012128	.072839	.0025790	.0002429
%RSD	1.135692	.6796671	.5758769	.7623136	.8681829	.0601975

#1	2.721487	.3062095	.2116421	9.596636	.3000247	.4032166
#2	2.718307	.3046680	.2109110	9.597572	.2957584	.4035089
#3	2.666814	.3087916	.2092735	9.470945	.2953810	.4036988

Sample Name: PB165463BS Acquired: 12/10/2024 11:57:39 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6674750	.2003732	F .6979256	5.536004	F -.010759	.2100663
Stddev	.0026685	.0018324	.0079204	.016695	.001406	.0006117
%RSD	.3997833	.9144971	1.134850	.3015652	13.06887	.2911842
#1	.6659777	.2024097	.7027023	5.555263	-.011521	.2107489
#2	.6658914	.1998521	.7022916	5.527099	-.009136	.2098822
#3	.6705558	.1988578	.6887830	5.525650	-.011619	.2095679

Elem	Sr4077
Units	ppm
Avg	.2092412
Stddev	.0010279
%RSD	.4912379
#1	.2104281
#2	.2086525
#3	.2086431

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2452.113	57613.10	12515.93	1675.658	4080.261
Stddev	1.311	471.99	77.31	14.958	4.225
%RSD	.0534637	.8192463	.6176771	.8926787	.1035442
#1	2453.057	57213.36	12426.76	1659.087	4082.851
#2	2450.616	57492.15	12564.12	1679.723	4075.385
#3	2452.665	58133.80	12556.91	1688.163	4082.546

Sample Name: PB165464BL Acquired: 12/10/2024 12:01:39 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001163	-.002270	.0003941	.0014346	-.001290	-.006856	-.005114
Stddev	.001221	.001284	.0003126	.0011824	.001046	.003695	.000253
%RSD	104.9679	56.57948	79.32201	82.42181	81.03428	53.88995	4.953309
#1	.000184	-.001826	.0007115	.0003348	-.001975	-.006125	-.004833
#2	-.002197	-.001266	.0000865	.0012838	-.000087	-.010862	-.005326
#3	-.001475	-.003717	.0003844	.0026851	-.001809	-.003582	-.005181
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000202	.0000001	-.011316	-.000407	-.000028	-.000116	-.005346
Stddev	.0000436	.0000445	.004871	.000057	.000170	.000355	.002391
%RSD	215.6528	31379.11	43.04705	13.88799	607.5455	307.1813	44.72851
#1	.0000180	-.000031	-.009050	-.000397	-.000148	-.000307	-.005108
#2	.0000650	-.000020	-.007991	-.000356	.000166	-.000334	-.003082
#3	-.000022	.000051	-.016908	-.000468	-.000102	.000294	-.007846
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000421	-.006153	-.000073	.0008522	-.087718	.0011241	-.000023
Stddev	.000072	.002423	.000181	.0001022	.004017	.0005993	.000114
%RSD	17.00790	39.37993	249.2897	11.99516	4.579264	53.31633	505.4524
#1	-.000463	-.008712	.000086	.0009307	-.088456	.0011180	-.000052
#2	-.000338	-.005852	-.000270	.0007366	-.091315	.0005278	.000103
#3	-.000462	-.003894	-.000033	.0008891	-.083384	.0017264	-.000119
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.109717	.0000059	.0000424	.0035905	.0005734	-.001582	-.001561
Stddev	.009775	.0001463	.0001557	.0005034	.0002678	.000715	.000954
%RSD	8.909083	2489.646	367.1461	14.02104	46.70888	45.17547	61.11768
#1	-.108039	-.000154	.0002191	.0041702	.0006810	-.001534	-.000884
#2	-.120222	.000039	-.000017	.0032630	.0002685	-.002319	-.001148
#3	-.100889	.000132	-.000075	.0033384	.0007707	-.000892	-.002653

Sample Name: PB165464BL Acquired: 12/10/2024 12:01:39 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.001060	-.002094	-.000133
Stddev	.002043	.000554	.000018
%RSD	192.7814	26.47842	13.24988

#1	-.001086	-.001536	-.000112
#2	-.003090	-.002100	-.000144
#3	.000996	-.002645	-.000142

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2390.740	56779.62	12688.77	1625.560	4108.894
Stddev	10.070	24.23	44.08	5.672	11.999
%RSD	.4211912	.0426804	.3473871	.3488996	.2920370

#1	2380.172	56764.47	12650.67	1621.077	4097.894
#2	2391.825	56807.57	12678.58	1631.936	4107.096
#3	2400.223	56766.82	12737.05	1623.666	4121.690

Sample Name: PB165464BS Acquired: 12/10/2024 12:06:00 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7680630	2.068966	.9600379	1.972153	.7797316	2.021917
Stddev	.0008223	.019122	.0005472	.004072	.0035818	.002518
%RSD	.1070610	.9242237	.0569987	.2064884	.4593673	.1245248

#1	.7671188	2.076118	.9596889	1.974018	.7783779	2.021155
#2	.7686220	2.083482	.9606686	1.974959	.7837929	2.019867
#3	.7684482	2.047300	.9597562	1.967482	.7770238	2.024727

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1934643	.2046067	.1909186	1.033275	.4101218	.1946369
Stddev	.0006591	.0006280	.0003613	.004557	.0005882	.0003019
%RSD	.3406661	.3069438	.1892717	.4410183	.1434130	.1551258

#1	.1942249	.2039334	.1906788	1.034492	.4095980	.1947607
#2	.1931057	.2047101	.1907429	1.028233	.4100092	.1942927
#3	.1930622	.2051766	.1913342	1.037100	.4107580	.1948572

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3113884	2.895290	.1994704	1.978975	.4890093	.0753638
Stddev	.0006935	.015509	.0001695	.003691	.0007144	.0001745
%RSD	.2226997	.5356679	.0849509	.1865103	.1460831	.2315114

#1	.3113268	2.905226	.1994530	1.979519	.4881996	.0754728
#2	.3121106	2.877419	.1996479	1.975043	.4892778	.0754561
#3	.3107277	2.903226	.1993103	1.982364	.4895505	.0751626

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.651015	.3070835	.2110883	9.532842	.2962436	.4080639
Stddev	.012220	.0008638	.0020335	.013929	.0008188	.0013385
%RSD	.4609585	.2812973	.9633490	.1461189	.2763804	.3280036

#1	2.663848	.3074146	.2095963	9.547653	.2958638	.4076638
#2	2.639517	.3077329	.2134046	9.530868	.2956837	.4095568
#3	2.649682	.3061031	.2102641	9.520005	.2971833	.4069711

Sample Name: PB165464BS Acquired: 12/10/2024 12:06:00 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6745179	.1978120	F .7040572	5.640499	F -.007814	.2065893
Stddev	.0006302	.0003809	.0043523	.009542	.000802	.0006080
%RSD	.0934341	.1925316	.6181722	.1691684	10.26858	.2942994
#1	.6751041	.1982204	.6999827	5.630509	-.008590	.2072617
#2	.6745982	.1977489	.7086422	5.649518	-.006987	.2060783
#3	.6738514	.1974666	.7035468	5.641471	-.007866	.2064279

Elem	Sr4077
Units	ppm
Avg	.2058877
Stddev	.0006292
%RSD	.3055918
#1	.2065181
#2	.2052598
#3	.2058851

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2408.568	56579.34	12419.03	1650.150	4003.672
Stddev	6.495	72.51	22.97	13.183	7.255
%RSD	.2696567	.1281602	.1849667	.7988720	.1812102
#1	2408.744	56497.08	12392.58	1646.216	4000.132
#2	2401.987	56633.99	12430.58	1639.382	3998.868
#3	2414.973	56606.96	12433.94	1664.852	4012.018

Sample Name: P5145-01 Acquired: 12/10/2024 12:10:00 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0142464	-.010445	.3359517	-.010284	.0000640	80.42423
Stddev	.0033069	.001768	.0004593	.002632	.0014716	.24855
%RSD	23.21256	16.93121	.1367168	25.59815	2298.274	.3090475

#1	.0116319	-.009479	.3357229	-.008288	.0017047	80.13769
#2	.0131434	-.009369	.3356517	-.013267	-.000373	80.58163
#3	.0179639	-.012486	.3364804	-.009296	-.001139	80.55336

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4851910	.0035686	.0021702	56.64920	.1046538	.0313925
Stddev	.0003994	.0000070	.0000657	.11704	.0006161	.0002910
%RSD	.0823181	.1955604	3.029730	.2066102	.5887069	.9269527

#1	.4851746	.0035625	.0021140	56.71260	.1047700	.0314409
#2	.4855984	.0035672	.0022425	56.72087	.1052035	.0310804
#3	.4848001	.0035762	.0021542	56.51414	.1039879	.0316563

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2643541	60.35857	.6218483	12.38217	.0740600	-.000087
Stddev	.0007169	.16462	.0018176	.01920	.0000969	.000094
%RSD	.2712009	.2727297	.2922865	.1550380	.1307958	108.9614

#1	.2635597	60.54087	.6223568	12.40039	.0739483	.000019
#2	.2645493	60.31402	.6233574	12.38399	.0741205	-.000118
#3	.2649531	60.22081	.6198306	12.36212	.0741113	-.000161

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	29.88653	.1043924	.4886256	7.599943	.2937159	.0045329
Stddev	.15174	.0004933	.0014939	.053416	.0001636	.0003751
%RSD	.5077221	.4725839	.3057431	.7028433	.0556959	8.274478

#1	29.72840	.1048816	.4875302	7.544995	.2936983	.0045483
#2	29.90024	.1044005	.4903274	7.603151	.2938876	.0041504
#3	30.03095	.1038950	.4880192	7.651682	.2935619	.0049001

Sample Name: P5145-01 Acquired: 12/10/2024 12:10:00 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0022850	1.219837	F 62.66695	2.173393	9.384453	.0190557
Stddev	.0009697	.003342	.12948	.009323	.015447	.0001606
%RSD	42.43488	.2739712	.2066126	.4289453	.1646009	.8425988
#1	.0011655	1.222687	62.53218	2.178355	9.384859	.0188773
#2	.0028286	1.220665	62.67830	2.162639	9.368807	.0191888
#3	.0028610	1.216159	62.79038	2.179186	9.399693	.0191009

Elem	Sr4077
Units	ppm
Avg	.2222918
Stddev	.0005812
%RSD	.2614599
#1	.2217876
#2	.2229275
#3	.2221602

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2280.323	56003.34	13607.37	1566.311	3566.250
Stddev	5.035	37.96	20.17	7.832	5.559
%RSD	.2208016	.0677838	.1482499	.5000410	.1558747
#1	2274.855	55993.68	13603.28	1575.295	3561.155
#2	2281.345	56045.19	13589.55	1562.719	3572.179
#3	2284.768	55971.13	13629.27	1560.918	3565.418

Sample Name: P5074-02 Acquired: 12/10/2024 12:14:10 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.013333	-.005747	.0887682	.0012903	.0371613	3.506746
Stddev	.002798	.001858	.0005051	.0015455	.0013580	.018383
%RSD	20.98526	32.32207	.5689959	119.7820	3.654288	.5242241

#1	-.010306	-.004635	.0884437	-.000492	.0374606	3.492961
#2	-.013868	-.004714	.0885108	.002104	.0356786	3.527618
#3	-.015824	-.007891	.0893501	.002259	.0383446	3.499661

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2890356	.0004664	.0028072	31.75684	.0695186	.0080507
Stddev	.0016451	.0000391	.0001299	.21406	.0003334	.0001611
%RSD	.5691808	8.382115	4.627001	.6740646	.4796376	2.001046

#1	.2883056	.0004561	.0027576	31.56832	.0691686	.0079418
#2	.2909195	.0005097	.0027095	31.98955	.0695546	.0079744
#3	.2878819	.0004336	.0029547	31.71266	.0698325	.0082357

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3388054	33.54742	.3507022	6.546554	.0578940	.0023419
Stddev	.0027868	.23953	.0015988	.042133	.0002775	.0001687
%RSD	.8225469	.7140111	.4558775	.6435846	.4793212	7.201458

#1	.3358718	33.34548	.3499680	6.527532	.0575742	.0025059
#2	.3391268	33.48472	.3525362	6.594844	.0580711	.0021689
#3	.3414176	33.81207	.3496023	6.517286	.0580367	.0023509

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	401.3788	.0110239	1.270437	22.32340	.1483323	.0212269
Stddev	.7856	.0004437	.001825	.11879	.0007817	.0000957
%RSD	.1957142	4.024470	.1436808	.5321331	.5270023	.4510342

#1	401.7375	.0110320	1.269704	22.25727	.1491455	.0211488
#2	400.4780	.0105763	1.269092	22.25240	.1482651	.0211983
#3	401.9210	.0114635	1.272514	22.46054	.1475864	.0213337

Sample Name: P5074-02 Acquired: 12/10/2024 12:14:10 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0199753	.1064912	F 22.20214	7.843454	F 21.83723	.0093662
Stddev	.0006018	.0007964	.13683	.042254	.12105	.0004280
%RSD	3.012715	.7478545	.6163090	.5387127	.5543504	4.570088
#1	.0205930	.1059882	22.08985	7.796162	21.70299	.0089227
#2	.0193907	.1074094	22.16201	7.877491	21.87057	.0097769
#3	.0199423	.1060761	22.35455	7.856708	21.93811	.0093990

Elem	Sr4077
Units	ppm
Avg	.1765428
Stddev	.0012057
%RSD	.6829538
#1	.1758860
#2	.1779343
#3	.1758081

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2083.884	51125.78	12384.67	1459.107	3295.116
Stddev	15.768	162.64	77.62	5.929	21.448
%RSD	.7566575	.3181251	.6267263	.4063187	.6509128
#1	2097.521	51248.43	12410.86	1463.847	3317.402
#2	2087.513	51187.64	12297.34	1461.016	3293.330
#3	2066.618	50941.29	12445.80	1452.460	3274.617

Sample Name: P5093-01 Acquired: 12/10/2024 12:18:28 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.005045	-.010660	.0185671	.0021926	.0011012	9.529582
Stddev	.001546	.001135	.0014000	.0009184	.0004989	.015363
%RSD	30.64479	10.64313	7.540239	41.88738	45.31118	.1612123

#1	-.006809	-.011468	.0170946	.0011570	.0007690	9.527854
#2	-.003920	-.011150	.0198812	.0025126	.0016749	9.515157
#3	-.004407	-.009363	.0187254	.0029081	.0008596	9.545736

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.3950686	.0004303	.0005269	48.15071	.0112549	.0036835
Stddev	.0006984	.0000696	.0000314	.25485	.0001959	.0000147
%RSD	.1767912	16.17295	5.968882	.5292708	1.740231	.3996289

#1	.3955994	.0003995	.0005168	47.97266	.0111240	.0036895
#2	.3942773	.0003813	.0005018	48.03681	.0111606	.0036667
#3	.3953289	.0005099	.0005622	48.44264	.0114801	.0036943

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0162140	6.598169	.4081501	17.18778	.0112642	.0005670
Stddev	.0004397	.036454	.0012429	.13066	.0001962	.0001417
%RSD	2.711670	.5524875	.3045197	.7601895	1.741471	24.99828

#1	.0157063	6.577286	.4074051	17.08925	.0110377	.0005478
#2	.0164716	6.576959	.4074602	17.13810	.0113776	.0007173
#3	.0164641	6.640262	.4095849	17.33600	.0113773	.0004358

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	38.97375	.0167950	.0454207	8.116699	.0662908	.0026404
Stddev	.04533	.0013822	.0002929	.026365	.0003486	.0001093
%RSD	.1163103	8.229859	.6447994	.3248221	.5258931	4.137528

#1	38.95099	.0183741	.0457078	8.088900	.0664214	.0026282
#2	38.94430	.0162066	.0451224	8.119851	.0658958	.0027552
#3	39.02595	.0158044	.0454317	8.141347	.0665553	.0025378

Sample Name: P5093-01 Acquired: 12/10/2024 12:18:28 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001866	.1469495	F 17.99855	.6770917	8.075668	.0152214
Stddev	.000377	.0027182	.04013	.0022101	.021370	.0002567
%RSD	20.23189	1.849750	.2229352	.3264093	.2646163	1.686456
#1	-.002297	.1459475	17.98906	.6796437	8.051055	.0151182
#2	-.001705	.1448744	17.96402	.6758219	8.086457	.0150324
#3	-.001595	.1500264	18.04257	.6758096	8.089492	.0155137

Elem	Sr4077
Units	ppm
Avg	.1992058
Stddev	.0002571
%RSD	.1290609
#1	.1991010
#2	.1990178
#3	.1994988

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2319.525	56328.58	13425.26	1584.284	3812.518
Stddev	9.032	87.08	25.57	3.177	7.527
%RSD	.3893931	.1545901	.1904591	.2005460	.1974406
#1	2309.116	56248.78	13403.12	1581.661	3804.300
#2	2324.170	56421.45	13453.25	1583.373	3814.176
#3	2325.290	56315.50	13419.43	1587.817	3819.079

Sample Name: P5093-02 Acquired: 12/10/2024 12:22:41 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.008184	-.006699	.0006291	.0030657	.0000750	.0184540	-.005224
Stddev	.000416	.000876	.0008421	.0019746	.0012545	.0020944	.000278
%RSD	5.079211	13.06994	133.8685	64.40812	1673.616	11.34918	5.317038
#1	-.008635	-.006530	.0002427	.0028761	.0013812	.0185710	-.004922
#2	-.007817	-.007647	.0015950	.0011928	-.001120	.0204875	-.005281
#3	-.008100	-.005921	.0000494	.0051283	-.000036	.0163036	-.005468
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000216	-.000194	.0364682	.0008026	-.000326	.0002013	.0303974
Stddev	.000072	.000036	.0027400	.0003080	.000087	.0000371	.0005472
%RSD	33.47084	18.53452	7.513509	38.38271	26.58973	18.41285	1.800177
#1	-.000299	-.000211	.0334336	.0010705	-.000259	.0002234	.0310122
#2	-.000179	-.000153	.0372102	.0008712	-.000424	.0001585	.0302164
#3	-.000170	-.000218	.0387609	.0004660	-.000296	.0002219	.0299636
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0036027	.0023286	.0006288	.0006016	-.155584	.0007986	.0025493
Stddev	.0000375	.0062980	.0003055	.0000393	.008248	.0008772	.0001669
%RSD	1.041753	270.4628	48.58364	6.536664	5.301149	109.8381	6.545106
#1	.0036234	-.000664	.0009499	.0006436	-.148647	.0005301	.0025347
#2	.0036253	.009565	.0003417	.0005955	-.153401	.0000871	.0027230
#3	.0035594	-.001915	.0005948	.0005657	-.164703	.0017787	.0023903
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.115870	-.002887	.0002775	-.000660	.0008363	.0241365	.0064235
Stddev	.018827	.000100	.0001640	.000404	.0001068	.0049261	.0009741
%RSD	16.24802	3.448960	59.07704	61.16777	12.77372	20.40910	15.16442
#1	-.124517	-.002916	.0004473	-.000841	.0009410	.0275167	.0058643
#2	-.094273	-.002969	.0001200	-.000197	.0007274	.0264084	.0058580
#3	-.128819	-.002776	.0002653	-.000941	.0008405	.0184845	.0075483

Sample Name: P5093-02 Acquired: 12/10/2024 12:22:41 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0293635	-.004088	-.000079
Stddev	.0010765	.000137	.000017
%RSD	3.665925	3.347895	21.42124
#1	.0305932	-.003940	-.000098
#2	.0285914	-.004115	-.000076
#3	.0289061	-.004210	-.000064

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2451.731	60592.91	13731.96	1671.694	4339.976
Stddev	3.913	138.85	32.92	1.577	1.671
%RSD	.1595866	.2291543	.2397231	.0943596	.0385101
#1	2449.171	60443.05	13700.62	1670.290	4338.899
#2	2449.787	60618.50	13729.00	1671.392	4341.902
#3	2456.235	60717.20	13766.26	1673.401	4339.128

Sample Name: P5093-02DUP Acquired: 12/10/2024 12:27:01 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.006685	-.007502	.0005848	.0037699	.0001363	.0153198	-.003978
Stddev	.002114	.000925	.0004140	.0017501	.0005521	.0011400	.000293
%RSD	31.61665	12.32798	70.78733	46.42310	405.2127	7.441270	7.366473
#1	-.008864	-.006997	.0008264	.0057521	.0005238	.0164356	-.003995
#2	-.006549	-.006941	.0001068	.0024381	.0003809	.0141571	-.004263
#3	-.004643	-.008570	.0008211	.0031195	-.000496	.0153667	-.003678
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000191	-.000142	.0195318	.0004966	-.000316	.0004245	.0290138
Stddev	.000033	.000067	.0011805	.0001738	.000041	.0001844	.0022825
%RSD	17.24390	47.28564	6.043754	34.99655	13.11916	43.42860	7.867049
#1	-.000153	-.000218	.0186623	.0004130	-.000333	.0002150	.0275699
#2	-.000206	-.000118	.0208756	.0006964	-.000346	.0004965	.0316453
#3	-.000213	-.000090	.0190574	.0003804	-.000269	.0005620	.0278262
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0030720	-.001611	.0008359	.0005931	-.164333	.0014692	.0015703
Stddev	.0001038	.006133	.0003008	.0001615	.001764	.0006043	.0000469
%RSD	3.379636	380.6121	35.98152	27.22346	1.073396	41.13117	2.989065
#1	.0031295	.002726	.0006224	.0004586	-.165613	.0012247	.0016020
#2	.0029522	-.008628	.0011799	.0007722	-.165066	.0010254	.0015926
#3	.0031345	.001068	.0007055	.0005486	-.162321	.0021574	.0015164
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.147444	-.003229	.0004044	-.000693	.0004937	.0210704	.0083139
Stddev	.016801	.000069	.0001099	.000510	.0004508	.0041811	.0004796
%RSD	11.39461	2.127487	27.16081	73.62896	91.30936	19.84338	5.768540
#1	-.134049	-.003233	.0004945	-.000195	.0004190	.0204267	.0080540
#2	-.141990	-.003295	.0004368	-.000669	.0009772	.0255360	.0080205
#3	-.166295	-.003158	.0002821	-.001214	.0000849	.0172485	.0088674

Sample Name: P5093-02DUP Acquired: 12/10/2024 12:27:01 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0268881	-.003683	-.000096
Stddev	.0048006	.000112	.000006
%RSD	17.85397	3.048156	5.925776
#1	.0311067	-.003805	-.000100
#2	.0216646	-.003584	-.000090
#3	.0278931	-.003659	-.000099

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2463.681	60252.96	13429.68	1689.716	4308.356
Stddev	4.185	117.81	41.29	4.261	2.891
%RSD	.1698588	.1955184	.3074886	.2521770	.0671071
#1	2458.865	60118.22	13391.29	1685.079	4305.393
#2	2465.750	60304.17	13424.39	1690.611	4308.505
#3	2466.429	60336.50	13473.37	1693.459	4311.170

Sample Name: P5093-02LX5 Acquired: 12/10/2024 12:31:23 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002182	-.001466	-.000109	.0011296	-.000064	-.000941	-.003716
Stddev	.001155	.000884	.000329	.0010388	.001375	.003907	.000143
%RSD	52.92124	60.28022	301.4443	91.96575	2137.982	415.0329	3.858570

#1	-.000860	-.002109	-.000372	.0012763	-.001546	.000552	-.003807
#2	-.002697	-.001832	.000260	.0020872	.001170	.001999	-.003791
#3	-.002991	-.000458	-.000215	.0000252	.000183	-.005375	-.003551

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000010	-.000095	-.002729	.0018638	-.000098	-.000270	.0079955
Stddev	.000031	.000086	.002799	.0003178	.000089	.000051	.0008824
%RSD	306.0583	90.20965	102.5396	17.05111	90.58663	18.92294	11.03630

#1	-.000019	-.000000	-.000404	.0022194	.000000	-.000276	.0084564
#2	-.000035	-.000118	-.005836	.0016075	-.000172	-.000217	.0085520
#3	.000024	-.000168	-.001948	.0017646	-.000123	-.000318	.0069781

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0003297	-.010485	.0002679	.0003038	-.091426	.0009566	.0005088
Stddev	.0000370	.009314	.0000606	.0003590	.013613	.0001818	.0002068
%RSD	11.22869	88.83797	22.62322	118.1819	14.89019	18.99982	40.64194

#1	.0003282	-.021179	.0002212	-.000008	-.105512	.0011664	.0002757
#2	.0002935	-.006126	.0003364	.000223	-.090425	.0008512	.0005805
#3	.0003675	-.004149	.0002461	.000696	-.078340	.0008521	.0006703

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.074406	-.003270	-.000140	.0030183	.0002351	.0095578	.0018366
Stddev	.021855	.000105	.000188	.0006603	.0001523	.0019382	.0020170
%RSD	29.37251	3.198435	134.4111	21.87799	64.78382	20.27890	109.8247

#1	-.070741	-.003264	.000071	.0029616	.0003029	.0112751	.0007335
#2	-.054615	-.003377	-.000291	.0037051	.0000607	.0099419	.0006116
#3	-.097862	-.003168	-.000200	.0023881	.0003417	.0074563	.0041645

Sample Name: P5093-02LX5 Acquired: 12/10/2024 12:31:23 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0087732	-.001876	-.000142
Stddev	.0041087	.000284	.000009
%RSD	46.83234	15.12182	6.125038
#1	.0083636	-.002062	-.000139
#2	.0130713	-.001550	-.000152
#3	.0048846	-.002017	-.000136

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2484.912	59589.78	13131.11	1718.738	4208.676
Stddev	4.500	88.87	21.42	3.140	5.182
%RSD	.1811016	.1491348	.1631553	.1827106	.1231164
#1	2482.979	59487.51	13123.83	1715.181	4203.166
#2	2481.700	59633.58	13155.22	1721.125	4209.409
#3	2490.055	59648.24	13114.27	1719.908	4213.451

Sample Name: CCV02 Acquired: 12/10/2024 12:35:43 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.843507	4.941749	4.763238	4.923433	4.903165	9.776393	9.623230
Stddev	.007969	.070074	.009890	.010942	.010800	.035975	.052084
%RSD	.1645335	1.417997	.2076362	.2222333	.2202611	.3679749	.5412337
#1	4.848317	4.916653	4.752832	4.925590	4.913897	9.734865	9.619076
#2	4.847896	4.887678	4.764367	4.911574	4.892299	9.798014	9.573347
#3	4.834308	5.020915	4.772516	4.933136	4.903299	9.796300	9.677267
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2340355	2.363836	23.39493	.9690589	2.368788	1.226323	4.755058
Stddev	.0006101	.004256	.07651	.0027390	.002142	.001769	.017714
%RSD	.2606727	.1800592	.3270494	.2826405	.0904148	.1442153	.3725304
#1	.2333803	2.359307	23.30663	.9688460	2.366420	1.228341	4.739866
#2	.2341392	2.364447	23.43656	.9664326	2.369353	1.225043	4.774515
#3	.2345871	2.367754	23.44161	.9718981	2.370590	1.225586	4.750792
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.320005	23.49345	2.371663	1.213646	24.67535	2.397108	2.475743
Stddev	.009645	.15066	.003309	.000517	.05803	.005108	.007613
%RSD	.4157161	.6412898	.1395171	.0426131	.2351656	.2130973	.3074881
#1	2.310693	23.32599	2.368015	1.213497	24.73713	2.391567	2.468139
#2	2.329951	23.61800	2.372504	1.214222	24.66690	2.401629	2.483365
#3	2.319371	23.53636	2.374471	1.213221	24.62200	2.398129	2.475724
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.73554	4.703090	4.947202	4.780467	4.766902	4.866901	4.848190
Stddev	.05532	.014406	.005867	.015674	.015017	.017709	.012117
%RSD	.2236503	.3063072	.1185936	.3278763	.3150205	.3638695	.2499277
#1	24.67291	4.690461	4.948935	4.766502	4.751280	4.852082	4.843169
#2	24.75598	4.718781	4.940664	4.777477	4.781229	4.862108	4.839391
#3	24.77774	4.700029	4.952007	4.797420	4.768196	4.886514	4.862010

Sample Name: CCV02 Acquired: 12/10/2024 12:35:43 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.707124	4.892756	4.863999
Stddev	.022141	.012615	.037288
%RSD	.4703812	.2578325	.7666154

#1	4.692651	4.880093	4.828199
#2	4.696109	4.905322	4.902615
#3	4.732613	4.892853	4.861183

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2339.920	55581.97	12918.25	1613.309	3705.591
Stddev	6.000	32.40	35.29	6.601	1.621
%RSD	.2564132	.0582866	.2731618	.4091675	.0437406

#1	2333.602	55605.25	12945.54	1618.023	3703.957
#2	2340.616	55544.97	12878.40	1605.765	3707.199
#3	2345.541	55595.69	12930.81	1616.139	3705.616

Sample Name: CCB02 Acquired: 12/10/2024 12:39:54 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000383	.0000376	-.000166	.0023250	.0003790	-.005451	-.004399
Stddev	.0024416	.0003875	.000410	.0018862	.0003047	.001983	.000227
%RSD	6376.540	1030.230	247.6001	81.12541	80.40943	36.37972	5.168140
#1	.0007066	-.000408	-.000639	.0001474	.0007063	-.005546	-.004175
#2	.0020762	.000229	.000076	.0034470	.0001034	-.003422	-.004392
#3	-.002668	.000293	.000066	.0033806	.0003273	-.007384	-.004630
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000509	.0000105	-.011928	-.000682	.0001431	-.000452	-.005568
Stddev	.0000260	.0000668	.004029	.000401	.0000765	.000074	.000299
%RSD	51.06191	635.4100	33.77870	58.80175	53.42176	16.47040	5.369673
#1	.0000209	-.000062	-.016269	-.000383	.0000706	-.000528	-.005241
#2	.0000657	.000069	-.011209	-.000525	.0002230	-.000447	-.005636
#3	.0000660	.000025	-.008307	-.001137	.0001357	-.000379	-.005827
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000319	-.020026	-.000023	.0008146	-.083740	.0003609	-.000054
Stddev	.000095	.006044	.000412	.0002267	.011226	.0011109	.000032
%RSD	29.73241	30.17976	1767.369	27.82458	13.40519	307.8359	58.68261
#1	-.000294	-.021057	-.000177	.0009117	-.096209	.0003131	-.000059
#2	-.000239	-.025488	.000444	.0005556	-.080574	-.000725	-.000020
#3	-.000423	-.013533	-.000337	.0009765	-.074438	.001495	-.000084
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.065037	.0034154	.0003800	.0033626	.0005698	.0058306	-.001872
Stddev	.015589	.0005359	.0001608	.0002702	.0001377	.0050443	.001778
%RSD	23.96962	15.69187	42.32471	8.034794	24.16366	86.51436	94.97435
#1	-.082977	.0040006	.0003940	.0035069	.0004727	.0116405	-.001931
#2	-.057354	.0029485	.0002126	.0030509	.0005094	.0025679	-.003619
#3	-.054782	.0032970	.0005333	.0035300	.0007274	.0032833	-.000065

Sample Name: CCB02 Acquired: 12/10/2024 12:39:54 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB02 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.000698	-.001792	-.000089
Stddev	.002636	.000430	.000010
%RSD	377.6462	23.98844	10.80682

#1	-.002196	-.002160	-.000079
#2	.002345	-.001895	-.000097
#3	-.002243	-.001320	-.000092

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2478.930	59386.29	13182.42	1714.087	4274.074
Stddev	2.966	57.59	13.35	7.776	6.975
%RSD	.1196536	.0969730	.1012787	.4536456	.1631922

#1	2482.347	59452.72	13169.78	1715.899	4282.127
#2	2477.434	59355.64	13181.10	1720.798	4270.105
#3	2477.010	59350.51	13196.38	1705.565	4269.989

Sample Name: P5093-02MS Acquired: 12/10/2024 12:44:57 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6612266	1.626136	.7840913	1.615529	.7039294	1.810765	.1716293
Stddev	.0033061	.008929	.0030778	.002919	.0010505	.001780	.0006080
%RSD	.4999972	.5490723	.3925305	.1806898	.1492310	.0982787	.3542306
#1	.6576500	1.615891	.7807849	1.612258	.7047542	1.809580	.1716342
#2	.6618589	1.630258	.7846161	1.616461	.7027468	1.812811	.1722348
#3	.6641708	1.632260	.7868730	1.617868	.7042873	1.809904	.1710190
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1647495	.1575026	.9276269	.3599608	.1659362	.2689462	2.587372
Stddev	.0001687	.0004865	.0060786	.0008977	.0005730	.0003987	.002954
%RSD	.1023981	.3088772	.6552821	.2493853	.3453281	.1482293	.1141742
#1	.1649443	.1570411	.9287599	.3608465	.1652867	.2693528	2.589327
#2	.1646519	.1574560	.9330593	.3590516	.1661517	.2689298	2.583973
#3	.1646523	.1580107	.9210616	.3599841	.1663702	.2685560	2.588815
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1768643	1.693002	.4133783	.0632412	2.381763	.2686009	.1827034
Stddev	.0005804	.013431	.0017988	.0003804	.010806	.0010777	.0011262
%RSD	.3281399	.7933175	.4351478	.6014733	.4536792	.4012213	.6163984
#1	.1774168	1.702324	.4116334	.0628157	2.375795	.2674679	.1835258
#2	.1762596	1.699076	.4132750	.0635482	2.394236	.2687218	.1831647
#3	.1769167	1.677607	.4152265	.0633598	2.375258	.2696131	.1814198
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.542431	.2244211	.3888072	.5733756	.1800282	.6682875	4.506723
Stddev	.033558	.0006812	.0001696	.0033095	.0001476	.0021336	.016746
%RSD	.3928339	.3035412	.0436102	.5772007	.0819840	.3192659	.3715797
#1	8.520382	.2251326	.3889403	.5709527	.1801236	.6663232	4.488283
#2	8.581050	.2243559	.3888649	.5720278	.1801028	.6679820	4.510899
#3	8.525860	.2237749	.3886163	.5771464	.1798582	.6705574	4.520985

Sample Name: P5093-02MS Acquired: 12/10/2024 12:44:57 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0089602	.1827029	.1828463
Stddev	.0028614	.0002948	.0003857
%RSD	31.93419	.1613331	.2109399
#1	.0114703	.1830430	.1832712
#2	.0095659	.1825203	.1827495
#3	.0058445	.1825455	.1825182

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2441.618	59731.14	13332.88	1666.194	4188.559
Stddev	4.200	25.61	39.33	8.378	2.641
%RSD	.1720025	.0428751	.2950205	.5028012	.0630527
#1	2437.133	59701.65	13290.63	1658.036	4187.327
#2	2442.263	59744.03	13368.43	1665.770	4186.760
#3	2445.458	59747.75	13339.59	1674.775	4191.591

Sample Name: P5093-02MSD Acquired: 12/10/2024 12:48:58 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6502445	1.617803	.7810544	1.586171	.6918335	1.780545	.1702888
Stddev	.0037170	.022605	.0022769	.008085	.0016747	.006061	.0007430
%RSD	.5716292	1.397239	.2915111	.5096912	.2420667	.3403941	.4363130

#1	.6482925	1.611759	.7788188	1.584107	.6921506	1.775184	.1711465
#2	.6479102	1.598835	.7809741	1.579318	.6900229	1.779331	.1698780
#3	.6545308	1.642815	.7833704	1.595087	.6933270	1.787122	.1698419

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1659711	.1567949	.9171603	.3598218	.1649015	.2657991	2.547238
Stddev	.0002501	.0003953	.0055476	.0005241	.0004533	.0008291	.019831
%RSD	.1507065	.2520843	.6048617	.1456557	.2749238	.3119472	.7785441

#1	.1657224	.1563506	.9234349	.3600154	.1648107	.2666660	2.562184
#2	.1662226	.1571075	.9129064	.3592284	.1645004	.2650138	2.554791
#3	.1659684	.1569267	.9151394	.3602215	.1653934	.2657173	2.524740

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1750915	1.701579	.4108896	.0629630	2.319728	.2678291	.1805534
Stddev	.0012482	.025631	.0006485	.0004361	.012417	.0023041	.0012433
%RSD	.7128693	1.506301	.1578392	.6926444	.5352870	.8602964	.6886148

#1	.1764533	1.730911	.4105338	.0625229	2.325483	.2701655	.1814604
#2	.1748191	1.690334	.4104969	.0633950	2.305478	.2677631	.1791361
#3	.1740019	1.683494	.4116382	.0629710	2.328224	.2655587	.1810636

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.300045	.2245993	.3852344	.5732471	.1788033	.6482522	4.578555
Stddev	.025577	.0014459	.0011336	.0017979	.0002095	.0041976	.023841
%RSD	.3081555	.6437585	.2942515	.3136422	.1171516	.6475224	.5207202

#1	8.329419	.2250796	.3857564	.5712228	.1789586	.6476864	4.574154
#2	8.282699	.2257440	.3839339	.5738601	.1788862	.6443662	4.557220
#3	8.288019	.2229744	.3860130	.5746583	.1785651	.6527040	4.604290

Sample Name: P5093-02MSD Acquired: 12/10/2024 12:48:58 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0029674	.1795319	.1803512
Stddev	.0023507	.0007037	.0003646
%RSD	79.21619	.3919581	.2021516
#1	.0007797	.1801335	.1806268
#2	.0026697	.1787581	.1804891
#3	.0054527	.1797042	.1799378

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2503.087	60542.70	13406.64	1717.661	4278.141
Stddev	8.126	140.38	37.40	16.600	9.202
%RSD	.3246589	.2318764	.2789817	.9664555	.2150886
#1	2497.781	60381.03	13368.97	1699.766	4274.207
#2	2512.443	60613.27	13407.19	1732.558	4288.656
#3	2499.037	60633.79	13443.77	1720.661	4271.560

Sample Name: P5093-02A Acquired: 12/10/2024 12:53:01 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6572112	1.644630	.7908776	1.596730	.6999857	1.779179	.1743029
Stddev	.0008227	.017514	.0018899	.004979	.0005884	.006078	.0007908
%RSD	.1251867	1.064939	.2389591	.3118066	.0840609	.3415992	.4536835

#1	.6565805	1.634137	.7909827	1.591172	.6997662	1.775438	.1736957
#2	.6581418	1.634903	.7889373	1.598239	.6995386	1.775907	.1740159
#3	.6569112	1.664848	.7927127	1.600780	.7006524	1.786192	.1751971

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1668959	.1583437	.9139703	.3568490	.1665896	.2682735	2.567520
Stddev	.0005812	.0000843	.0022475	.0002769	.0000850	.0007782	.010189
%RSD	.3482116	.0532549	.2459090	.0776110	.0510455	.2900664	.3968352

#1	.1672863	.1583947	.9161755	.3570757	.1666073	.2674017	2.559578
#2	.1671735	.1582464	.9116827	.3565403	.1666644	.2688978	2.563974
#3	.1662281	.1583900	.9140525	.3569309	.1664971	.2685209	2.579008

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1776187	1.712615	.4151855	.0629821	2.350322	.2689853	.1811283
Stddev	.0005080	.009113	.0005745	.0002298	.037157	.0003999	.0011695
%RSD	.2860271	.5321230	.1383621	.3647963	1.580947	.1486778	.6456771

#1	.1775525	1.705846	.4154736	.0627218	2.315210	.2688947	.1798742
#2	.1771470	1.709022	.4145240	.0631566	2.346524	.2686384	.1813218
#3	.1781565	1.722977	.4155589	.0630678	2.389233	.2694227	.1821890

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	8.300624	.2261268	.3878449	.5779932	.1801353	.6551647	4.630581
Stddev	.114682	.0009635	.0014104	.0009253	.0006343	.0110206	.016219
%RSD	1.381602	.4261126	.3636508	.1600937	.3521345	1.682114	.3502481

#1	8.194844	.2270083	.3872826	.5769314	.1802655	.6476802	4.618775
#2	8.284524	.2262740	.3868024	.5784213	.1794459	.6499941	4.623893
#3	8.422505	.2250981	.3894497	.5786271	.1806944	.6678199	4.649074

Sample Name: P5093-02A Acquired: 12/10/2024 12:53:01 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0020286	.1815361	.1822934
Stddev	.0018797	.0012365	.0009364
%RSD	92.65698	.6811179	.5136634

#1	.0023017	.1801353	.1815462
#2	.0037568	.1819976	.1819901
#3	.0000274	.1824754	.1833438

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2494.900	60837.23	13327.26	1740.193	4252.434
Stddev	3.110	296.89	31.04	13.538	1.907
%RSD	.1246463	.4880103	.2328948	.7779408	.0448389

#1	2498.378	61033.62	13293.07	1753.879	4252.355
#2	2493.935	60982.39	13353.67	1739.891	4254.379
#3	2492.387	60495.69	13335.05	1726.808	4250.568

Sample Name: P5141-01 Acquired: 12/10/2024 12:57:02 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.008057	-.012701	.0003623	.0056362	-.002883	37.20664
Stddev	.002580	.000692	.0001598	.0002572	.001185	.06507
%RSD	32.02410	5.452082	44.11189	4.563866	41.08988	.1748990
#1	-.009783	-.012903	.0001801	.0053459	-.004059	37.13964
#2	-.009298	-.013269	.0004790	.0058358	-.001690	37.21067
#3	-.005091	-.011930	.0004276	.0057268	-.002902	37.26960
Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.001116	-.000135	-.000196	15.20800	.7189474	.0017409
Stddev	.000238	.000078	.000046	.02873	.0020349	.0000858
%RSD	21.36766	57.35242	23.33221	.1889153	.2830328	4.927920
#1	-.000843	-.000149	-.000194	15.20019	.7166433	.0016488
#2	-.001284	-.000052	-.000151	15.23982	.7197010	.0018185
#3	-.001221	-.000205	-.000242	15.18397	.7204980	.0017554
Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0204911	1.749773	.0194320	3.079565	.1116791	.0002273
Stddev	.0003915	.011612	.0002767	.038544	.0002939	.0002921
%RSD	1.910476	.6636418	1.423742	1.251617	.2631623	128.4989
#1	.0207614	1.763167	.0192437	3.040380	.1119860	-.000083
#2	.0200422	1.743613	.0197496	3.117434	.1116512	.000269
#3	.0206697	1.742538	.0193026	3.080882	.1114002	.000496
Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1784.242	.0008381	1.146207	231.8815	5.452368	.0193612
Stddev	22.707	.0001206	.004501	.9479	.011373	.0002908
%RSD	1.272659	14.38559	.3926445	.4087861	.2085936	1.501743
#1	1810.281	.0008688	1.149540	232.5314	5.442950	.0196957
#2	1773.891	.0007051	1.147993	230.7938	5.465003	.0191690
#3	1768.555	.0009403	1.141088	232.3192	5.449149	.0192189

Sample Name: P5141-01 Acquired: 12/10/2024 12:57:02 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0384407	-.000038	.8612972	3.422589	F 860.7584	.0006289
Stddev	.0006192	.000028	.0026463	.024100	4.6845	.0005720
%RSD	1.610821	73.93279	.3072425	.7041545	.5442236	90.96015
#1	.0380961	-.000010	.8597771	3.449288	865.2196	.0012595
#2	.0391555	-.000037	.8597617	3.416037	861.1769	.0004836
#3	.0380704	-.000066	.8643529	3.402442	855.8788	.0001435

Elem	Sr4077
Units	ppm
Avg	.0772382
Stddev	.0001622
%RSD	.2100581
#1	.0772082
#2	.0770930
#3	.0774133

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1838.667	44312.05	11956.03	1270.136	2713.604
Stddev	9.565	136.19	29.35	13.773	11.745
%RSD	.5202098	.3073322	.2455029	1.084410	.4328039
#1	1839.927	44158.24	11937.31	1255.538	2712.048
#2	1847.539	44360.62	11940.91	1271.969	2726.050
#3	1828.534	44417.30	11989.86	1282.901	2702.716

Sample Name: P5174-01 Acquired: 12/10/2024 13:01:25 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1688141	.0034992	8.547799	-.064000	.0080308	130.7107
Stddev	.0028549	.0043262	.008760	.000902	.0015263	.4416
%RSD	1.691177	123.6345	.1024774	1.408903	19.00610	.3378080

#1	.1655210	.0000016	8.557896	-.062970	.0095981	130.3010
#2	.1705923	.0021591	8.542229	-.064385	.0079452	130.6526
#3	.1703290	.0083369	8.543273	-.064645	.0065490	131.1784

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.159083	.0140566	.0541829	53.66693	.3436042	.1829871
Stddev	.019578	.0001240	.0003337	.06008	.0010442	.0002606
%RSD	.4707224	.8821533	.6158878	.1119560	.3038897	.1424035

#1	4.159743	.0141981	.0545249	53.71258	.3424498	.1829307
#2	4.178323	.0140046	.0538581	53.59886	.3444829	.1832713
#3	4.139184	.0139671	.0541658	53.68935	.3438798	.1827594

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.778559	321.3143	6.336742	55.80971	.5310449	-.001339
Stddev	.001308	1.7997	.011379	.03356	.0009149	.000298
%RSD	.0735285	.5601090	.1795752	.0601407	.1722917	22.25544

#1	1.779289	319.2883	6.349682	55.77346	.5319966	-.001610
#2	1.777049	321.9266	6.328297	55.83972	.5309664	-.001386
#3	1.779339	322.7279	6.332248	55.81593	.5301718	-.001020

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.128636	.4329488	5.528243	20.95545	.1462427	.0119749
Stddev	.003953	.0009814	.009451	.05021	.0015822	.0001257
%RSD	.1857223	.2266769	.1709515	.2396048	1.081869	1.049326

#1	2.129899	.4340820	5.520224	20.90856	.1444844	.0118788
#2	2.124206	.4323743	5.538662	20.94937	.1466925	.0119287
#3	2.131804	.4323902	5.525842	21.00843	.1475513	.0121171

Sample Name: P5174-01 Acquired: 12/10/2024 13:01:25 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2119521	3.554780	2.535497	F 15.47183	5.219589	.2598558
Stddev	.0020335	.007431	.013101	.09246	.014440	.0011317
%RSD	.9594303	.2090438	.5167009	.5976253	.2766474	.4354961
#1	.2123160	3.557440	2.520685	15.51967	5.232661	.2587543
#2	.2137791	3.546386	2.540243	15.53057	5.222017	.2597978
#3	.2097612	3.560516	2.545564	15.36525	5.204089	.2610154

Elem	Sr4077
Units	ppm
Avg	.1755431
Stddev	.0023175
%RSD	1.320170
#1	.1780827
#2	.1735430
#3	.1750037

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2694.929	66407.92	15933.01	1875.473	3379.126
Stddev	12.122	135.80	10.63	8.791	9.250
%RSD	.4498105	.2044931	.0666903	.4687486	.2737352
#1	2702.843	66564.71	15945.26	1885.603	3384.481
#2	2700.970	66327.55	15926.22	1870.974	3384.452
#3	2680.973	66331.50	15927.55	1869.841	3368.445

Sample Name: P5175-01 Acquired: 12/10/2024 13:05:46 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0130758	-.024211	.1192576	-.047914	-.006083	99.42772
Stddev	.0050265	.004165	.0008343	.001306	.001605	.05943
%RSD	38.44123	17.20108	.6995524	2.725515	26.38444	.0597717

#1	.0074671	-.019516	.1188939	-.047954	-.004233	99.49535
#2	.0145868	-.027460	.1186669	-.046588	-.006922	99.38385
#3	.0171735	-.025657	.1202119	-.049199	-.007095	99.40396

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5875250	.0059750	.0224395	48.55641	.2443468	.1680336
Stddev	.0014831	.0000614	.0000476	.12577	.0003831	.0002181
%RSD	.2524293	1.028092	.2121020	.2590200	.1567942	.1298048

#1	.5885324	.0059059	.0224928	48.67733	.2442559	.1678365
#2	.5882207	.0059958	.0224012	48.42629	.2447673	.1679964
#3	.5858220	.0060233	.0224246	48.56560	.2440174	.1682679

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6242242	232.6914	2.726087	58.53862	.2823512	-.004779
Stddev	.0012908	.5692	.002567	.17563	.0005742	.000041
%RSD	.2067775	.2446223	.0941731	.3000307	.2033738	.8577509

#1	.6227582	233.1275	2.727723	58.69124	.2817080	-.004805
#2	.6247244	232.0475	2.727411	58.34665	.2825332	-.004800
#3	.6251900	232.8993	2.723128	58.57799	.2828124	-.004732

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.595546	.3788105	.4280399	32.20607	.0952081	.0250702
Stddev	.006269	.0021395	.0020794	.11077	.0012728	.0003626
%RSD	.1743417	.5647990	.4858060	.3439345	1.336813	1.446142

#1	3.590434	.3811955	.4296869	32.33057	.0966731	.0247498
#2	3.602540	.3770600	.4257032	32.16921	.0945772	.0249971
#3	3.593664	.3781760	.4287295	32.11844	.0943742	.0254638

Sample Name: P5175-01 Acquired: 12/10/2024 13:05:46 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000094	8.596776	2.211959	F 13.84401	F 18.00261	.1496305
Stddev	.000951	.014950	.007731	.03466	.05253	.0003900
%RSD	1015.678	.1739080	.3494947	.2503401	.2917902	.2606200
#1	.000358	8.612041	2.214897	13.80829	17.94901	.1499289
#2	.000547	8.596127	2.217789	13.87750	18.05400	.1491893
#3	-.001186	8.582161	2.203190	13.84624	18.00483	.1497734

Elem	Sr4077
Units	ppm
Avg	-.149867
Stddev	.000639
%RSD	.4264033
#1	-.150177
#2	-.149132
#3	-.150292

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2827.403	69449.91	16695.60	1942.541	3324.025
Stddev	3.885	188.77	31.15	15.758	3.826
%RSD	.1374075	.2718058	.1865601	.8112211	.1150883
#1	2823.099	69244.62	16661.04	1926.121	3319.614
#2	2830.650	69616.00	16721.50	1957.541	3326.445
#3	2828.461	69489.11	16704.25	1943.962	3326.015

Sample Name: P5176-01 Acquired: 12/10/2024 13:09:52 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0288721	-.010987	.3200120	-.043039	-.005488	107.4674	.4583057
Stddev	.0043077	.001710	.0004279	.001943	.000874	.1080	.0007163
%RSD	14.91987	15.56269	.1337046	4.514336	15.92136	.1004648	.1562916
#1	.0285596	-.009856	.3197107	-.040980	-.005310	107.3434	.4574909
#2	.0247292	-.012954	.3205017	-.044840	-.006436	107.5177	.4588361
#3	.0333276	-.010152	.3198236	-.043297	-.004716	107.5409	.4585901
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0068994	.0150507	33.99237	.1778697	.1176202	.2598155	205.6056
Stddev	.0000436	.0001630	.12020	.0015929	.0007124	.0010339	.9218
%RSD	.6313605	1.083186	.3536197	.8955454	.6056425	.3979488	.4483464
#1	.0068978	.0152079	33.91942	.1762956	.1168123	.2609904	204.8206
#2	.0069438	.0150618	34.13111	.1778328	.1178906	.2594119	205.3754
#3	.0068567	.0148824	33.92659	.1794807	.1181578	.2590443	206.6207
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.388721	31.33081	.1989906	-.003435	8.734927	.3405024	.4387767
Stddev	.013865	.12699	.0002394	.000141	.038956	.0015618	.0027366
%RSD	.3159212	.4053338	.1203290	4.109287	.4459777	.4586789	.6236831
#1	4.375689	31.19719	.1992584	-.003273	8.743609	.3405529	.4395087
#2	4.403290	31.44994	.1989162	-.003502	8.692362	.3420384	.4357485
#3	4.387183	31.34532	.1987971	-.003530	8.768809	.3389160	.4410728
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	7.078817	.1224084	.0044026	.0122364	4.201998	4.036702	6.653702
Stddev	.056756	.0007397	.0000198	.0006867	.010059	.031410	.054378
%RSD	.8017792	.6043153	.4507322	5.612001	.2393808	.7780999	.8172595
#1	7.079443	.1226198	.0044225	.0128907	4.196459	4.019323	6.592743
#2	7.021751	.1215860	.0044027	.0115213	4.213608	4.017823	6.671146
#3	7.135259	.1230194	.0043828	.0122971	4.195926	4.072960	6.697218

Sample Name: P5176-01 Acquired: 12/10/2024 13:09:52 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	2.614017	.0807381	-.068141
Stddev	.014330	.0003866	.000706
%RSD	.5481990	.4788829	1.036411
#1	2.597472	.0810080	-.067687
#2	2.622121	.0802951	-.067780
#3	2.622459	.0809110	-.068954

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2731.049	66169.77	15734.29	1870.971	3443.937
Stddev	9.263	186.55	61.38	12.804	6.533
%RSD	.3391749	.2819239	.3901057	.6843254	.1897066
#1	2720.431	66206.84	15731.82	1857.733	3436.622
#2	2737.472	66335.00	15674.19	1883.290	3449.192
#3	2735.244	65967.47	15796.87	1871.892	3445.997

Sample Name: P5176-03 Acquired: 12/10/2024 13:13:58 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0432034	-.013377	.3817704	-.049014	-.007134	127.8610	.7657682
Stddev	.0020579	.002383	.0016252	.001883	.000231	.3808	.0021562
%RSD	4.763403	17.81305	.4257111	3.842301	3.232043	.2978025	.2815686
#1	.0448492	-.015952	.3799118	-.049172	-.007073	127.5352	.7638429
#2	.0408960	-.012927	.3824747	-.050813	-.007388	127.7681	.7680980
#3	.0438650	-.011251	.3829247	-.047057	-.006939	128.2796	.7653639
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0084820	.0177640	95.83052	.2552785	.1355538	.3632128	239.4685
Stddev	.0001605	.0003305	.23430	.0010144	.0005240	.0020444	.7508
%RSD	1.892566	1.860746	.2444898	.3973579	.3865376	.5628651	.3135359
#1	.0085238	.0177956	95.64998	.2546110	.1353420	.3648081	239.4098
#2	.0083047	.0174187	96.09528	.2564458	.1351688	.3609082	240.2470
#3	.0086175	.0180775	95.74628	.2547786	.1361505	.3639220	238.7488
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	6.143191	47.63105	.2384606	-.004434	21.52168	.4587965	.7996504
Stddev	.019012	.02285	.0006226	.000181	.09038	.0011363	.0004560
%RSD	.3094887	.0479830	.2610881	4.089981	.4199535	.2476625	.0570239
#1	6.130890	47.61867	.2386831	-.004389	21.55998	.4584112	.7999340
#2	6.165089	47.65743	.2377574	-.004279	21.58660	.4579030	.7998929
#3	6.133594	47.61706	.2389414	-.004634	21.41845	.4600753	.7991244
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	13.43118	.1636323	.0081500	.2877831	4.957615	3.843246	8.443122
Stddev	.03034	.0020474	.0003874	.0007114	.012738	.016103	.055257
%RSD	.2258593	1.251225	4.753810	.2471834	.2569385	.4189862	.6544623
#1	13.39618	.1644784	.0082039	.2873843	4.945194	3.833030	8.506703
#2	13.45008	.1651211	.0085077	.2873606	4.970648	3.834900	8.415962
#3	13.44726	.1612975	.0077384	.2886044	4.957003	3.861808	8.406701

Sample Name: P5176-03 Acquired: 12/10/2024 13:13:58 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	5.582967	.1065499	.1462352
Stddev	.019041	.0008901	.0009990
%RSD	.3410486	.8353804	.6831332

#1	5.599709	.1055329	.1451208
#2	5.562254	.1069297	.1465341
#3	5.586937	.1071871	.1470506

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2503.429	60875.19	14586.34	1740.192	3265.069
Stddev	5.783	87.39	6.43	1.247	7.207
%RSD	.2310079	.1435589	.0440864	.0716507	.2207432

#1	2503.695	60778.85	14584.96	1740.585	3263.026
#2	2509.075	60897.34	14580.72	1741.195	3273.078
#3	2497.517	60949.38	14593.35	1738.796	3259.104

Sample Name: P5196-01 Acquired: 12/10/2024 13:18:01 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0855611	-.000534	.1347902	-.032148	-.002086	59.03452	1.009260
Stddev	.0009592	.000798	.0005312	.002424	.001008	.06661	.002426
%RSD	1.121045	149.3680	.3940794	7.539431	48.34617	.1128346	.2404148
#1	.0866636	-.001385	.1353691	-.031598	-.002986	59.08934	1.008107
#2	.0851011	.000197	.1346761	-.034799	-.000996	59.05383	1.012048
#3	.0849185	-.000414	.1343253	-.030046	-.002275	58.96038	1.007625
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0071780	.0102839	17.68865	.1593969	.0925274	.2511541	178.0014
Stddev	.0000767	.0001129	.11356	.0004893	.0004841	.0011585	.3623
%RSD	1.068787	1.097884	.6419738	.3069683	.5232248	.4612869	.2035643
#1	.0072505	.0102669	17.69111	.1593932	.0920697	.2514465	177.6704
#2	.0071858	.0101805	17.80095	.1589095	.0924784	.2498774	178.3885
#3	.0070977	.0104043	17.57388	.1598881	.0930342	.2521384	177.9451
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.769702	28.05563	.2253650	-.002237	.9834753	.2820607	.5249934
Stddev	.032790	.18277	.0005774	.000287	.0075806	.0008196	.0005402
%RSD	.5683165	.6514536	.2562145	12.84158	.7707986	.2905583	.1028988
#1	5.771413	28.09363	.2246994	-.002459	.9769512	.2826815	.5254077
#2	5.801603	28.21641	.2257309	-.001913	.9816835	.2823688	.5243824
#3	5.736090	27.85684	.2256648	-.002341	.9917913	.2811317	.5251902
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.25564	.0832609	.0030341	.0080420	1.818036	3.860051	5.626735
Stddev	.02506	.0000953	.0001645	.0006609	.005277	.003026	.008587
%RSD	.2443084	.1144712	5.421782	8.217730	.2902647	.0783887	.1526095
#1	10.23993	.0832782	.0028714	.0081952	1.816177	3.862339	5.629827
#2	10.24245	.0831581	.0032003	.0073180	1.823991	3.861192	5.617030
#3	10.28453	.0833464	.0030306	.0086128	1.813940	3.856620	5.633347

Sample Name: P5196-01 Acquired: 12/10/2024 13:18:01 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.479945	.1395483	-.089962
Stddev	.005791	.0004838	.000281
%RSD	.3912702	.3466586	.3128152
#1	1.473351	.1394152	-.089640
#2	1.482278	.1391451	-.090158
#3	1.484205	.1400847	-.090089

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2712.791	65166.42	15144.92	1864.290	3646.590
Stddev	6.897	48.13	85.93	3.474	8.241
%RSD	.2542572	.0738528	.5673987	.1863673	.2259996
#1	2713.789	65127.05	15102.19	1860.334	3646.471
#2	2719.135	65152.13	15088.72	1865.691	3654.890
#3	2705.449	65220.07	15243.84	1866.845	3638.409

Sample Name: P5196-01DUP Acquired: 12/10/2024 13:22:08 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0864213	.0010493	.1357761	-.032550	-.002058	59.75755	1.027051
Stddev	.0047977	.0040241	.0016089	.001326	.001149	.16125	.004135
%RSD	5.551501	383.4884	1.184944	4.074958	55.84925	.2698474	.4026232

#1	.0914787	.0006382	.1374929	-.032144	-.003306	59.64634	1.024207
#2	.0819344	-.002753	.1355324	-.034032	-.001043	59.94248	1.031794
#3	.0858507	.005263	.1343030	-.031474	-.001825	59.68381	1.025151

Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0071210	.0098969	17.98016	.1601729	.0932391	.2497152	181.2063
Stddev	.0000893	.0001151	.04914	.0007193	.0002853	.0009083	.7381
%RSD	1.254297	1.162570	.2733208	.4490705	.3060055	.3637375	.4073084

#1	.0071989	.0099030	17.97760	.1607697	.0933181	.2507134	180.5869
#2	.0070235	.0100088	17.93234	.1593743	.0934765	.2494951	181.0091
#3	.0071405	.0097789	18.03053	.1603746	.0929225	.2489372	182.0230

Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	5.861784	28.26697	.2269481	-.001955	.9986636	.2843436	.5312579
Stddev	.003531	.03967	.0007928	.000363	.0157292	.0017115	.0009904
%RSD	.0602427	.1403475	.3493340	18.54293	1.575024	.6019143	.1864172

#1	5.858987	28.29857	.2278078	-.002341	.9805071	.2833992	.5301474
#2	5.865752	28.22245	.2262458	-.001621	1.008148	.2863193	.5320496
#3	5.860613	28.27989	.2267909	-.001904	1.007336	.2833124	.5315768

Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.44419	.0847890	.0030427	.0084070	1.850188	4.024900	5.614946
Stddev	.07420	.0009872	.0004305	.0006578	.002494	.010980	.020467
%RSD	.7104330	1.164256	14.14776	7.824026	.1347760	.2728078	.3645017

#1	10.35882	.0838648	.0035206	.0076530	1.851447	4.012562	5.593440
#2	10.48056	.0846734	.0026854	.0088630	1.851802	4.028540	5.617215
#3	10.49318	.0858289	.0029220	.0087049	1.847316	4.033598	5.634184

Sample Name: P5196-01DUP Acquired: 12/10/2024 13:22:08 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	1.476136	.1424375	-.091704
Stddev	.007839	.0010900	.000887
%RSD	.5310316	.7652645	.9668910
#1	1.483773	.1413659	-.091388
#2	1.476525	.1435450	-.091019
#3	1.468110	.1424015	-.092705

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2688.682	64611.45	15039.35	1849.953	3613.383
Stddev	6.629	59.41	52.54	3.650	3.082
%RSD	.2465349	.0919456	.3493221	.1973259	.0853009
#1	2692.764	64634.82	14981.18	1850.513	3609.906
#2	2692.248	64655.62	15053.52	1853.291	3615.780
#3	2681.034	64543.91	15083.34	1846.055	3614.461

Sample Name: CCV03 Acquired: 12/10/2024 13:26:15 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.917775	4.914472	4.849173	4.995577	4.981866	9.964274	9.640386
Stddev	.028217	.087664	.005544	.024528	.012913	.025333	.082431
%RSD	.5737789	1.783790	.1143240	.4909908	.2591908	.2542383	.8550600
#1	4.949673	4.992488	4.853215	5.022167	4.996753	9.935396	9.548407
#2	4.896074	4.931321	4.851450	4.990726	4.973706	9.974678	9.665167
#3	4.907577	4.819606	4.842853	4.973837	4.975139	9.982749	9.707583
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2376687	2.410831	23.75368	.9961431	2.416773	1.249880	4.813050
Stddev	.0008924	.003029	.04380	.0019705	.001584	.002531	.006727
%RSD	.3754723	.1256439	.1843961	.1978167	.0655395	.2025398	.1397731
#1	.2370400	2.410959	23.70780	.9959319	2.417535	1.252614	4.815461
#2	.2386901	2.413794	23.75820	.9982107	2.417832	1.247618	4.818239
#3	.2372760	2.407740	23.79505	.9942866	2.414952	1.249409	4.805449
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.317536	23.97406	2.421671	1.237864	23.99866	2.434473	2.524090
Stddev	.002411	.11154	.002882	.001751	.23630	.003413	.000928
%RSD	.1040303	.4652429	.1189887	.1414471	.9846187	.1401758	.0367634
#1	2.314753	23.87842	2.421949	1.236082	24.20835	2.432877	2.523179
#2	2.318982	23.94717	2.424404	1.239582	24.04500	2.438391	2.525034
#3	2.318873	24.09658	2.418661	1.237927	23.74262	2.432151	2.524056
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.95714	4.765709	5.035680	4.864459	4.790292	4.998862	4.911632
Stddev	.08816	.003520	.016076	.013588	.002378	.009279	.031517
%RSD	.3532596	.0738652	.3192478	.2793255	.0496387	.1856198	.6416783
#1	25.02962	4.761767	5.053329	4.876913	4.788244	4.993518	4.893892
#2	24.98280	4.766820	5.031841	4.866495	4.792899	4.993492	4.948021
#3	24.85899	4.768539	5.021871	4.849968	4.789731	5.009577	4.892984

Sample Name: CCV03 Acquired: 12/10/2024 13:26:15 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.770672	4.890922	4.881850
Stddev	.018634	.012189	.039742
%RSD	.3905858	.2492123	.8140844

#1	4.779903	4.896254	4.851205
#2	4.782888	4.899536	4.867590
#3	4.749225	4.876976	4.926755

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2272.149	53775.14	12596.11	1546.639	3596.384
Stddev	7.935	90.81	13.01	8.755	5.064
%RSD	.3492407	.1688733	.1033190	.5660899	.1408018

#1	2263.211	53670.49	12584.33	1539.333	3590.576
#2	2278.363	53833.30	12610.08	1556.344	3599.873
#3	2274.873	53821.62	12593.92	1544.240	3598.703

Sample Name: CCB03 Acquired: 12/10/2024 13:30:26 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0001101	-.000821	-.000218	.0012741	-.000352	-.007311	-.003715
Stddev	.0019952	.000897	.000603	.0003263	.000612	.006070	.000400
%RSD	1812.342	109.3399	276.6669	25.60982	173.8842	83.03046	10.76464
#1	-.002129	-.001686	.000380	.0012169	-.000877	-.007844	-.003470
#2	.001701	-.000882	-.000208	.0009801	.000320	-.013097	-.004177
#3	.000758	.000106	-.000825	.0016251	-.000498	-.000992	-.003499
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000253	-.000010	-.005567	-.000644	-.000040	-.000356	-.002380
Stddev	.0000441	.000060	.002724	.000119	.000035	.000151	.004464
%RSD	174.0266	582.6440	48.92997	18.51468	86.78698	42.39599	187.5469
#1	-.000016	.000058	-.006488	-.000647	-.000078	-.000187	-.000460
#2	.000072	-.000055	-.007711	-.000524	-.000009	-.000477	.000802
#3	.000020	-.000034	-.002502	-.000762	-.000034	-.000405	-.007483
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000324	-.011749	-.000069	.0003670	.0006168	-.000573	-.000005
Stddev	.000161	.005985	.000185	.0002135	.0099460	.001084	.000284
%RSD	49.62439	50.94580	268.9684	58.18300	1612.555	189.1432	6095.692
#1	-.000510	-.005272	.000058	.0002107	-.009824	-.001560	-.000326
#2	-.000237	-.012898	.000017	.0002801	.001694	.000588	.000211
#3	-.000226	-.017076	-.000281	.0006103	.009980	-.000747	.000102
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0286133	.0039548	.0004531	.0032799	.0005350	.0069628	.0010494
Stddev	.0293032	.0005858	.0003195	.0003047	.0001721	.0030844	.0003008
%RSD	102.4111	14.81325	70.51009	9.289053	32.17356	44.29834	28.66500
#1	-.005132	.0034633	.0006346	.0031277	.0006230	.0037116	.0011392
#2	.047631	.0046030	.0006406	.0030812	.0006453	.0098477	.0012951
#3	.043341	.0037980	.0000842	.0036307	.0003367	.0073292	.0007139

Sample Name: CCB03 Acquired: 12/10/2024 13:30:26 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB03 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0066334	-.001201	-.000111
Stddev	.0029140	.000122	.000025
%RSD	43.92992	10.18003	22.61601

#1	.0095906	-.001285	-.000134
#2	.0065449	-.001257	-.000084
#3	.0037646	-.001060	-.000113

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2412.906	57150.99	12597.70	1654.021	4123.861
Stddev	2.482	148.90	34.96	11.069	5.617
%RSD	.1028776	.2605305	.2775446	.6691967	.1362042

#1	2412.681	57021.05	12583.44	1645.736	4117.780
#2	2410.544	57118.47	12637.54	1649.736	4128.855
#3	2415.494	57313.46	12572.12	1666.592	4124.948

Sample Name: P5196-01LX5 Acquired: 12/10/2024 13:34:47 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0169867	.0005885	.0286861	-.005437	-.002071	13.55848	.2314465
Stddev	.0030563	.0018626	.0007212	.001365	.001491	.06332	.0021057
%RSD	17.99219	316.4918	2.514229	25.09630	72.00185	.4670459	.9098008
#1	.0200732	.0006233	.0293792	-.006516	-.001846	13.50069	.2297414
#2	.0169253	.0024334	.0279397	-.003903	-.003661	13.54857	.2307978
#3	.0139616	-.001291	.0287394	-.005891	-.000705	13.62617	.2338002
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0018064	.0007214	4.190441	.0369034	.0186154	.0615384	41.47691
Stddev	.0000242	.0000249	.026204	.0003995	.0000513	.0004644	.14796
%RSD	1.340180	3.449196	.6253197	1.082618	.2757370	.7546830	.3567199
#1	.0018302	.0007445	4.161792	.0365362	.0186288	.0615845	41.32721
#2	.0018073	.0007245	4.196337	.0368450	.0185586	.0610526	41.48045
#3	.0017818	.0006951	4.213195	.0373289	.0186586	.0619780	41.62306
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.387530	6.544235	.0458778	-.000712	.2096121	.0666783	.1221684
Stddev	.012532	.037435	.0002259	.000322	.0193688	.0006519	.0002542
%RSD	.9031587	.5720285	.4923747	45.15456	9.240311	.9776413	.2080728
#1	1.375221	6.505796	.0460098	-.000589	.1922372	.0665028	.1219222
#2	1.387097	6.546334	.0460067	-.001077	.2061040	.0674000	.1221530
#3	1.400272	6.580577	.0456170	-.000470	.2304953	.0661321	.1224299
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.268999	.0195999	.0005712	.0042981	.4302622	.9164719	1.141725
Stddev	.022227	.0006575	.0000925	.0007753	.0036572	.0114727	.006636
%RSD	.9795921	3.354385	16.19946	18.03830	.8499892	1.251837	.5812598
#1	2.264364	.0203370	.0004743	.0049416	.4263547	.9050280	1.146316
#2	2.293178	.0190740	.0005807	.0045154	.4308290	.9164145	1.144742
#3	2.249455	.0193888	.0006586	.0034373	.4336028	.9279733	1.134115

Sample Name: P5196-01LX5 Acquired: 12/10/2024 13:34:47 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.2987918	.0309897	-.020784
Stddev	.0010758	.0005203	.000015
%RSD	.3600630	1.678800	.0736918
#1	.3000258	.0309809	-.020766
#2	.2980507	.0304739	-.020790
#3	.2982991	.0315143	-.020795

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2529.812	59628.27	13288.01	1758.533	3991.476
Stddev	3.397	114.11	36.25	7.747	5.038
%RSD	.1342966	.1913734	.2728022	.4405301	.1262177
#1	2529.522	59522.12	13319.07	1752.887	3988.799
#2	2533.344	59613.73	13296.78	1755.347	3997.287
#3	2526.568	59748.95	13248.18	1767.365	3988.341

Sample Name: P5196-01MS Acquired: 12/10/2024 13:39:03 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7099818	1.747713	1.040164	1.459209	.3832580	70.23877
Stddev	.0020541	.015495	.001022	.012270	.0018450	.10423
%RSD	.2893125	.8865652	.0982367	.8408960	.4814020	.1483988

#1	.7094329	1.739207	1.041260	1.446295	.3814628	70.25657
#2	.7122545	1.738334	1.039238	1.460619	.3851491	70.12679
#3	.7082579	1.765597	1.039993	1.470714	.3831621	70.33296

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9061723	.1650316	.1915922	21.44941	.4904239	.2827586
Stddev	.0028950	.0007746	.0001257	.10841	.0008404	.0002711
%RSD	.3194731	.4693468	.0656226	.5054218	.1713655	.0958640

#1	.9093539	.1652715	.1914794	21.40001	.4913892	.2824467
#2	.9036932	.1641654	.1917278	21.37450	.4900282	.2829368
#3	.9054699	.1656577	.1915695	21.57372	.4898545	.2828923

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4178282	179.0666	2.415629	34.42769	.6456622	.0583986
Stddev	.0007817	.5435	.012443	.27866	.0010013	.0001095
%RSD	.1870848	.3035344	.5151129	.8094084	.1550759	.1875319

#1	.4178043	178.4989	2.414153	34.24070	.6447150	.0583458
#2	.4170587	179.1186	2.403989	34.29440	.6455618	.0583254
#3	.4186215	179.5823	2.428744	34.74796	.6467099	.0585245

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.696706	.5324575	.7066944	20.83637	.2910203	.3347245
Stddev	.018395	.0030847	.0027578	.08976	.0013714	.0007671
%RSD	.4975926	.5793331	.3902365	.4308089	.4712493	.2291697

#1	3.717322	.5302431	.7041450	20.93952	.2894542	.3342204
#2	3.690823	.5311486	.7096216	20.79368	.2916004	.3343459
#3	3.681973	.5359808	.7063167	20.77593	.2920064	.3356073

Sample Name: P5196-01MS Acquired: 12/10/2024 13:39:03 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6370816	2.450872	5.021866	F 11.18411	1.582752	.3424608
Stddev	.0005312	.006062	.027651	.03445	.005397	.0023522
%RSD	.0833800	.2473204	.5506113	.3080436	.3409999	.6868457
#1	.6373937	2.447218	4.997436	11.21299	1.576520	.3451240
#2	.6373828	2.447529	5.051885	11.14598	1.585834	.3406676
#3	.6364682	2.457869	5.016279	11.19335	1.585901	.3415907

Elem	Sr4077
Units	ppm
Avg	.0920736
Stddev	.0011639
%RSD	1.264087
#1	.0933660
#2	.0911082
#3	.0917467

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2613.753	63023.26	14411.56	1804.272	3545.078
Stddev	4.436	19.86	58.78	2.021	5.995
%RSD	.1697105	.0315060	.4078849	.1119881	.1691059
#1	2614.640	63027.25	14411.71	1804.478	3538.379
#2	2617.678	63001.72	14470.27	1806.182	3549.938
#3	2608.940	63040.83	14352.70	1802.156	3546.917

Sample Name: P5196-01MSD Acquired: 12/10/2024 13:43:02 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7110135	1.736636	1.029966	1.465015	.3865075	69.98836
Stddev	.0016335	.010111	.003437	.001004	.0007121	.03489
%RSD	.2297460	.5822406	.3336857	.0685321	.1842381	.0498527

#1	.7116467	1.739792	1.026109	1.466021	.3868997	69.95311
#2	.7091581	1.744793	1.031083	1.464014	.3856855	69.98910
#3	.7122355	1.725323	1.032705	1.465009	.3869372	70.02288

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8964329	.1633502	.1898206	21.38247	.4852305	.2806791
Stddev	.0028896	.0007514	.0001476	.10001	.0016931	.0004708
%RSD	.3223423	.4599652	.0777565	.4677162	.3489237	.1677227

#1	.8951684	.1625347	.1896669	21.28852	.4850419	.2801773
#2	.8997392	.1640145	.1898336	21.48760	.4836396	.2807488
#3	.8943911	.1635014	.1899613	21.37128	.4870100	.2811111

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4132266	177.8836	2.389667	34.16218	.6398612	.0587146
Stddev	.0002418	.5171	.016107	.21839	.0014824	.0001687
%RSD	.0585059	.2906873	.6740425	.6392655	.2316684	.2872994

#1	.4131037	177.2887	2.373560	33.92168	.6389984	.0588058
#2	.4130710	178.1374	2.405775	34.34811	.6390124	.0585199
#3	.4135052	178.2248	2.389668	34.21674	.6415729	.0588180

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.650998	.5284419	.6983470	20.76235	.2837353	.3346472
Stddev	.016417	.0025833	.0000844	.07145	.0018331	.0003624
%RSD	.4496571	.4888483	.0120861	.3441553	.6460674	.1082899

#1	3.660691	.5258706	.6984443	20.77196	.2818011	.3345762
#2	3.632043	.5310370	.6983038	20.68658	.2854470	.3350398
#3	3.660260	.5284181	.6982930	20.82852	.2839578	.3343256

Sample Name: P5196-01MSD Acquired: 12/10/2024 13:43:02 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6324418	2.427551	4.965758	F 10.96019	1.561981	.3389495
Stddev	.0021512	.008164	.014861	.03664	.002373	.0001007
%RSD	.3401347	.3363204	.2992669	.3343143	.1519526	.0297064
#1	.6312369	2.421896	4.958067	10.99632	1.564385	.3389450
#2	.6349253	2.436911	4.956320	10.96120	1.561920	.3390524
#3	.6311631	2.423846	4.982889	10.92306	1.559639	.3388512

Elem	Sr4077
Units	ppm
Avg	.0908999
Stddev	.0005868
%RSD	.6456012
#1	.0909584
#2	.0914553
#3	.0902860

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2607.029	63095.97	14494.55	1801.295	3561.728
Stddev	3.898	128.47	45.35	12.786	5.443
%RSD	.1495313	.2036055	.3128645	.7098411	.1528133
#1	2610.012	62947.79	14510.64	1786.561	3564.558
#2	2608.456	63176.13	14443.35	1809.479	3565.174
#3	2602.618	63163.98	14529.66	1807.845	3555.454

Sample Name: P5196-01A Acquired: 12/10/2024 13:47:01 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.7165648	1.818995	1.038965	1.474769	.3850526	70.56299
Stddev	.0017689	.014689	.002589	.002057	.0020026	.12823
%RSD	.2468537	.8075440	.2492100	.1394838	.5200796	.1817290

#1	.7179598	1.819755	1.041587	1.472736	.3841187	70.64459
#2	.7145753	1.803941	1.036410	1.474722	.3836876	70.41518
#3	.7171593	1.833290	1.038898	1.476849	.3873516	70.62919

Elem	Ba4934	Be2348	Cd2265	Ca3736	Cr2677	Co2286
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.8953577	.1655750	.1919835	21.17579	.4924444	.2824104
Stddev	.0007450	.0006337	.0006521	.04715	.0005815	.0007402
%RSD	.0832080	.3827455	.3396772	.2226586	.1180795	.2620890

#1	.8956508	.1650970	.1919568	21.17794	.4924010	.2820866
#2	.8959115	.1653340	.1913451	21.22182	.4930464	.2818873
#3	.8945107	.1662938	.1926485	21.12760	.4918858	.2832573

Elem	Cu2247	Fe2404	Mn2576	Mg2790	Ni2316	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.4207734	176.2864	2.372947	34.35263	.6430817	.0575973
Stddev	.0011012	.5699	.005970	.09226	.0012703	.0003949
%RSD	.2617018	.3232642	.2515951	.2685592	.1975332	.6856891

#1	.4208171	175.9597	2.366590	34.25100	.6426448	.0576725
#2	.4196511	176.9444	2.378435	34.37579	.6420875	.0579493
#3	.4218521	175.9550	2.373817	34.43110	.6445128	.0571702

Elem	Na5895	V_2924	Zn2138	K_7664	B_2496	Mo2020
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	3.621600	.5304698	.7044098	20.78559	.2870459	.3369991
Stddev	.012932	.0016648	.0035875	.02797	.0012733	.0008269
%RSD	.3570868	.3138327	.5092961	.1345578	.4435753	.2453797

#1	3.626763	.5309477	.7060686	20.80810	.2858756	.3372638
#2	3.631152	.5318433	.7068678	20.79440	.2868604	.3360722
#3	3.606883	.5286183	.7002930	20.75428	.2884018	.3376613

Sample Name: P5196-01A Acquired: 12/10/2024 13:47:01 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	Sn1899	Ti3361	Si2881	P_1774	S_1820	Li6707
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6385536	2.454824	5.509793	F 10.99970	1.573493	.3400576
Stddev	.0037445	.001713	.019268	.04280	.001832	.0009443
%RSD	.5864098	.0697620	.3497125	.3891014	.1164312	.2776836
#1	.6351023	2.454195	5.492425	11.03272	1.571480	.3411250
#2	.6380234	2.453516	5.506433	10.95135	1.573934	.3393312
#3	.6425349	2.456762	5.530520	11.01504	1.575064	.3397166

Elem	Sr4077
Units	ppm
Avg	.0920629
Stddev	.0005475
%RSD	.5946602
#1	.0926102
#2	.0915152
#3	.0920633

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2607.119	62665.45	14369.43	1782.026	3549.605
Stddev	7.566	194.13	33.03	14.334	7.068
%RSD	.2902192	.3097854	.2298396	.8043796	.1991077
#1	2601.260	62489.58	14331.68	1769.300	3542.632
#2	2604.435	62633.02	14392.95	1779.224	3549.420
#3	2615.661	62873.75	14383.68	1797.554	3556.764

Sample Name: LR1 Acquired: 12/10/2024 13:52:57 Type: Unk
Method: NON EPA-6010-200.7(v2517) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0303679	.1054883	-.000587	-.286200	-.026261	1911.822	.0112680
Stddev	.0142869	.0051608	.005734	.010606	.005065	6.766	.0001921
%RSD	47.04598	4.892298	977.4212	3.705834	19.28724	.3539132	1.705042
#1	.0440815	.1094956	-.001241	-.282180	-.020786	1918.971	.0112068
#2	.0155696	.1073043	-.005966	-.278191	-.027218	1905.519	.0114833
#3	.0314526	.0996649	.005447	-.298228	-.030780	1910.976	.0111139
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0099028	.1146877	1673.479	-.001678	.0470106	.1157653	1002.265
Stddev	.0001400	.0012323	8.566	.000793	.0010465	.0026139	1.457
%RSD	1.414185	1.074454	.5118813	47.22783	2.225988	2.257925	.1453398
#1	.0098140	.1144259	1674.929	-.001067	.0480063	.1136204	1003.234
#2	.0100642	.1160298	1681.228	-.001394	.0471057	.1186768	1000.590
#3	.0098302	.1136073	1664.280	-.002574	.0459199	.1149988	1002.971
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.124805	1701.378	.0177537	-.068949	2077.950	.0822706	.3385260
Stddev	.000334	14.407	.0011424	.000942	8.069	.0019607	.0035456
%RSD	.2679518	.8468017	6.434534	1.365916	.3883122	2.383227	1.047364
#1	-.124783	1711.404	.0189963	-.068976	2085.968	.0809071	.3377158
#2	-.124482	1707.863	.0175158	-.069877	2069.832	.0845176	.3424066
#3	-.125150	1684.868	.0167491	-.067994	2078.049	.0813871	.3354557
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1358.069	.3477018	-.016767	.0204327	-.036921	.1788766	.0976980
Stddev	1.839	.0030110	.000415	.0022055	.000740	.0034262	.0018227
%RSD	.1354366	.8659638	2.474848	10.79386	2.005358	1.915402	1.865669
#1	1358.107	.3504490	-.016314	.0215982	-.036262	.1788420	.0958597
#2	1359.889	.3481737	-.017129	.0178890	-.037723	.1823200	.0995048
#3	1356.211	.3444828	-.016857	.0218109	-.036779	.1754679	.0977296

Sample Name: LR1 Acquired: 12/10/2024 13:52:57 Type: Unk
Method: NON EPA-6010-200.7(v2517) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.238581	-.269526	-.990556
Stddev	.006438	.002351	.001479
%RSD	2.698432	.8723520	.1492608
#1	-.239331	-.269308	-.991626
#2	-.231801	-.271979	-.988869
#3	-.244611	-.267292	-.991174

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1328.041	33506.99	9246.405	918.8214	1870.792
Stddev	4.099	78.76	14.409	9.6589	5.628
%RSD	.3086582	.2350665	.1558322	1.051232	.3008416
#1	1330.546	33532.44	9262.550	924.1002	1873.379
#2	1323.310	33418.64	9234.850	907.6735	1864.335
#3	1330.266	33569.87	9241.816	924.6907	1874.661

Sample Name: LR2 Acquired: 12/10/2024 13:57:54 Type: Unk
Method: NON EPA-6010-200.7(v2517) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0123903	-.030508	256.2228	.0096221	.0021457	.0567828	^F *****
Stddev	.0026024	.002635	.6829	.0013969	.0031097	.0046140	-----
%RSD	21.00370	8.637763	.2665342	14.51784	144.9287	8.125688	-----
#1	.0153951	-.027764	257.0088	.0111711	.0057342	.0586782	^ -----
#2	.0108599	-.030739	255.7750	.0092372	.0002396	.0601472	^ -----
#3	.0109158	-.033019	255.8845	.0084580	.0004634	.0515229	^ -----
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.002699	-.005291	-.073512	.0123323	-.018696	234.0294	.0093517
Stddev	.000016	.000141	.010399	.0006691	.000456	1.6388	.0021396
%RSD	.5832679	2.661356	14.14572	5.425874	2.440189	.7002674	22.87919
#1	-.002710	-.005360	-.061584	.0115963	-.018180	235.6160	.0118222
#2	-.002681	-.005129	-.078280	.0129039	-.018860	234.1294	.0081226
#3	-.002706	-.005384	-.080672	.0124967	-.019047	232.3429	.0081102
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	41.24258	-.035584	51.74518	.0061949	.5743366	-.016239	38.44382
Stddev	.29610	.012605	.08842	.0001085	.0094988	.000302	.39886
%RSD	.7179511	35.42342	.1708748	1.751648	1.653869	1.860317	1.037508
#1	40.97598	-.023773	51.80397	.0062531	.5676822	-.016273	38.22250
#2	41.19049	-.034123	51.64350	.0062618	.5852147	-.016524	38.90427
#3	41.56127	-.048856	51.78807	.0060697	.5701129	-.015922	38.20470
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5162457	-.001801	-.002847	-.003669	-.043457	-.003597	2.773912
Stddev	.0199470	.000401	.000269	.000947	.000551	.004493	.028530
%RSD	3.863858	22.24341	9.462820	25.82334	1.267699	124.9159	1.028498
#1	.5285286	-.001373	-.003112	-.003577	-.042984	-.008503	2.805797
#2	.5269782	-.002167	-.002574	-.002771	-.044062	-.002601	2.765141
#3	.4932303	-.001862	-.002856	-.004659	-.043326	.000315	2.750797

Sample Name: LR2 Acquired: 12/10/2024 13:57:54 Type: Unk
Method: NON EPA-6010-200.7(v2517) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	-.015479	.0005102	.0020879
Stddev	.004631	.0006224	.0000376
%RSD	29.92010	121.9774	1.800559

#1	-.010295	.0009385	.0020725
#2	-.019208	.0007958	.0021307
#3	-.016934	-.000204	.0020603

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	1975.332	55213.65	12679.28	1499.338	3726.646
Stddev	1.975	94.67	77.30	5.175	3.098
%RSD	.0999704	.1714575	.6096743	.3451800	.0831281

#1	1976.056	55205.73	12742.93	1501.169	3729.937
#2	1973.097	55312.04	12701.66	1503.349	3723.787
#3	1976.842	55123.20	12593.26	1493.496	3726.213

Sample Name: CCV04 Acquired: 12/10/2024 14:19:58 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	4.916683	4.833436	4.846965	4.980599	5.002758	9.887202	9.756563
Stddev	.020836	.061487	.010023	.026133	.013320	.015214	.066575
%RSD	.4237762	1.272113	.2067934	.5247018	.2662626	.1538797	.6823645
#1	4.924409	4.799016	4.843614	4.974651	5.009111	9.871009	9.758643
#2	4.893088	4.796869	4.839047	4.957952	4.987450	9.901200	9.688972
#3	4.932553	4.904424	4.858235	5.009193	5.011712	9.889396	9.822074
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2418729	2.411023	23.97163	.9912288	2.418415	1.252961	4.802636
Stddev	.0002981	.004930	.12402	.0015446	.004969	.004896	.014958
%RSD	.1232303	.2044591	.5173702	.1558294	.2054617	.3907254	.3114532
#1	.2416735	2.410270	23.84600	.9930124	2.417737	1.252585	4.785438
#2	.2417296	2.406513	23.97489	.9903362	2.413820	1.248265	4.809852
#3	.2422155	2.416286	24.09398	.9903378	2.423688	1.258034	4.812617
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	2.363190	24.03408	2.422640	1.232932	24.62330	2.454606	2.506264
Stddev	.010712	.19177	.005035	.002557	.28708	.007193	.012742
%RSD	.4532794	.7979002	.2078196	.2073685	1.165897	.2930609	.5084244
#1	2.355492	23.82209	2.421722	1.230420	24.93890	2.447920	2.499983
#2	2.358655	24.08468	2.418127	1.235531	24.55336	2.453680	2.520928
#3	2.375424	24.19547	2.428071	1.232844	24.37766	2.462217	2.497882
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	24.85720	4.847499	5.019672	4.850965	4.839470	4.916787	5.011077
Stddev	.12671	.012671	.018476	.014474	.005533	.028839	.032762
%RSD	.5097480	.2613979	.3680694	.2983692	.1143372	.5865515	.6537907
#1	25.00190	4.833025	5.010372	4.845235	4.840723	4.888291	5.000765
#2	24.80360	4.852882	5.007694	4.840234	4.833417	4.916113	4.984712
#3	24.76610	4.856590	5.040950	4.867427	4.844269	4.945958	5.047754

Sample Name: CCV04 Acquired: 12/10/2024 14:19:58 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCV04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	4.783829	4.939892	4.960055
Stddev	.018675	.039063	.010114
%RSD	.3903792	.7907741	.2039074

#1	4.777877	4.981906	4.971694
#2	4.768855	4.933098	4.953402
#3	4.804755	4.904671	4.955069

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2279.811	54271.40	12469.59	1569.599	3609.823
Stddev	5.626	77.67	28.53	1.103	8.937
%RSD	.2467578	.1431076	.2287940	.0702809	.2475657

#1	2276.924	54284.86	12485.21	1569.617	3602.805
#2	2286.294	54341.46	12486.90	1568.487	3619.883
#3	2276.216	54187.89	12436.66	1570.693	3606.780

Sample Name: CCB04 Acquired: 12/10/2024 14:24:08 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	As1890	Tl1908	Pb2203	Se1960	Sb2068	Al3961	Ba4934
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000845	.0000463	-.000213	.0027421	.0002738	-.007698	-.005553
Stddev	.001560	.0003471	.000302	.0016374	.0019280	.001952	.000411
%RSD	184.6888	749.6793	142.1686	59.71467	704.1415	25.35114	7.403593
#1	-.000140	.0004285	-.000410	.0013877	.0003497	-.007865	-.006019
#2	.000238	-.000249	-.000364	.0022768	-.001691	-.005668	-.005244
#3	-.002633	-.000041	.000135	.0045619	.002163	-.009561	-.005395
Elem	Be2348	Cd2265	Ca3736	Cr2677	Co2286	Cu2247	Fe2404
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000077	.0000602	-.006661	-.000450	.0000488	.0000372	-.002039
Stddev	.0000372	.0000282	.002117	.000298	.0000952	.0000325	.003331
%RSD	481.4610	46.81536	31.78901	66.29167	195.3046	87.22633	163.3638
#1	.0000477	.0000920	-.006932	-.000514	.0000888	.0000728	-.001868
#2	.0000013	.0000384	-.008629	-.000125	.0001174	.0000092	-.005451
#3	-.000026	.0000503	-.004421	-.000711	-.000060	.0000297	.001203
Elem	Mn2576	Mg2790	Ni2316	Ag3280	Na5895	V_2924	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.000263	-.011725	-.000175	.0008117	.1794810	.0012061	-.000242
Stddev	.000171	.010956	.000040	.0002147	.0229279	.0003584	.000177
%RSD	65.12212	93.44353	23.01330	26.44671	12.77456	29.71152	72.92587
#1	-.000066	-.003948	-.000137	.0010190	.1581443	.0015047	-.000075
#2	-.000374	-.024255	-.000171	.0005903	.1765754	.0013049	-.000426
#3	-.000349	-.006971	-.000218	.0008258	.2037232	.0008087	-.000225
Elem	K_7664	B_2496	Mo2020	Sn1899	Ti3361	Si2881	P_1774
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1299972	.0013724	.0003968	.0025984	.0004516	.0093719	-.001478
Stddev	.0371806	.0001391	.0001425	.0004305	.0005147	.0044202	.001446
%RSD	28.60108	10.13297	35.91488	16.56664	113.9748	47.16366	97.87293
#1	.0878521	.0015272	.0005613	.0028402	.0001679	.0109746	-.001269
#2	.1439817	.0013318	.0003186	.0021014	.0001412	.0127672	-.003017
#3	.1581577	.0012581	.0003105	.0028536	.0010457	.0043740	-.000147

Sample Name: CCB04 Acquired: 12/10/2024 14:24:08 Type: Unk
Method: NON EPA-6010-200.7(v2514) Mode: CONC Corr. Factor: 1.000000
User: Kareem Custom ID1: CCB04 Custom ID2: Custom ID3:
Comment:

Elem	S_1820	Li6707	Sr4077
Units	ppm	ppm	ppm
Avg	.0040434	.0006566	-.000104
Stddev	.0034765	.0004548	.000004
%RSD	85.97811	69.26305	4.039795

#1	.0034388	.0001334	-.000102
#2	.0009089	.0008797	-.000101
#3	.0077826	.0009568	-.000109

Int. Std.	Y_2243	Y_3600	Y_3710	Y_2243	In2306
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	2394.542	57065.97	12526.97	1632.919	4101.546
Stddev	7.339	63.94	21.66	10.976	8.430
%RSD	.3064982	.1120421	.1728939	.6721633	.2055415

#1	2389.579	57032.16	12531.78	1620.263	4093.763
#2	2391.074	57139.71	12545.83	1639.831	4100.375
#3	2402.973	57026.03	12503.32	1638.662	4110.501

SOP ID : M3010A-Digestion-17

SDG No : N/A

Matrix : WATER

Pipette ID: ICP A

Balance ID : N/A

Filter paper ID : N/A

pH Strip ID : M6069

Hood ID : #3

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

Start Digest Date: 12/09/2024 Time : 09:10 Temp : 96 °C

End Digest Date: 12/09/2024 Time : 12:20 Temp : 96 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: 

Supervisor Signature: 

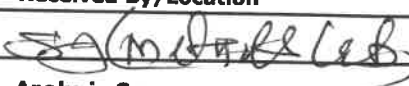
Temp : 1. 96°C 2. N/A

Standardized Name	MLS USED	STD REF. # FROM LOG
LFS-1	0.25	M6000
LFS-2	0.25	M6009
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
Conc. HNO3	3.00	M6126
1:1 HCL	5.00	MP83499
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
N/A	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

HOT BLOCK#1 CELL #50 Temp: 96 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
12/09/24 12:50	 met 10 direction	
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
P5074-02	COMP	N/A	50	25	Colorless	Colorless	Clear	Clear	N/A	1
P5093-01	LL-001	N/A	50	25	Colorless	Colorless	Clear	Clear	N/A	2
P5093-02	LL-001-FB-12-4-24	N/A	50	25	Colorless	Colorless	Clear	Clear	N/A	3
P5093-02MS	LL-001-FB-12-4-24MS	N/A	50	25	Colorless	Colorless	Clear	Clear	M6000,M6009	5
P5093-02MSD	LL-001-FB-12-4-24MSD	N/A	50	25	Colorless	Colorless	Clear	Clear	M6000,M6009	6
P5093-02DUP	LL-001-FB-12-4-24DUP	N/A	50	25	Colorless	Colorless	Clear	Clear	N/A	4
P5141-01	WATER TREATMENT DISCHARGE	N/A	50	25	Colorless	Colorless	Clear	Clear	N/A	7
P5145-01	286085	N/A	50	25	Colorless	Colorless	Clear	Clear	N/A	8
PB165464BL	PBW464	N/A	50	25	Colorless	Colorless	Clear	Clear	N/A	9
PB165464BS	LCS464	N/A	50	25	Colorless	Colorless	Clear	Clear	M6000,M6009	10

WORKLIST(Hardcopy Internal Chain)

Worklist Name : PB165464

Worklist ID : 186114

Department : Digestion

Date : 12-09-2024 08:26:18

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
P5074-02	COMP	Water	Metals ICP-Group1	1:1 HNO3 to pH < 2	ARAM01	M11	12/04/2024	6010D
P5093-01	LL-001	Water	Metals ICP-TAL	1:1 HNO3 to pH < 2	RTHR01	L41	12/04/2024	6010D
P5093-02	LL-001-FB-12-4-24	Water	Metals ICP-TAL	1:1 HNO3 to pH < 2	RTHR01	L41	12/04/2024	6010D
P5141-01	WATER TREATMENT DISCHAF	Water	Metals Group5	1:1 HNO3 to pH < 2	VERI01	M11	12/05/2024	6010D
P5145-01	286085	Water	Metals PSEG Group2	1:1 HNO3 to pH < 2	PSEG03	L51	12/05/2024	6010D

Date/Time

12/09/24 8:50

Raw Sample Received by:

Raw Sample Relinquished by:

Date/Time

12/09/24 7:50

Raw Sample Received by:

Raw Sample Relinquished by:

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133866

Review By	mohan	Review On	12/13/2024 3:24:42 AM
Supervise By	jaswal	Supervise On	12/13/2024 3:25:04 AM
STD. NAME	STD REF.#		
ICAL Standard	MP83552,MP83553,MP83554,MP83555,MP83556,MP83558		
ICV Standard	MP83559		
CCV Standard	MP83562		
ICSA Standard	MP83560,MP83561		
CRI Standard	MP83558		
LCS Standard			
Chk Standard	MP83565,MP83566		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	12/10/24 10:38		Kareem	OK
2	S1	S1	CAL2	12/10/24 10:43		Kareem	OK
3	S2	S2	CAL3	12/10/24 10:47		Kareem	OK
4	S3	S3	CAL4	12/10/24 10:51		Kareem	OK
5	S4	S4	CAL5	12/10/24 10:56		Kareem	OK
6	S5	S5	CAL6	12/10/24 11:00		Kareem	OK
7	ICV01	ICV01	ICV	12/10/24 11:04		Kareem	OK
8	LLICV01	LLICV01	LLICV	12/10/24 11:08		Kareem	OK
9	ICB01	ICB01	ICB	12/10/24 11:20		Kareem	OK
10	CRI01	CRI01	CRDL	12/10/24 11:24		Kareem	OK
11	ICSA01	ICSA01	ICSA	12/10/24 11:36		Kareem	OK
12	ICSAB01	ICSAB01	ICSAB	12/10/24 11:40		Kareem	OK
13	CCV01	CCV01	CCV	12/10/24 11:44		Kareem	OK
14	CCB01	CCB01	CCB	12/10/24 11:48		Kareem	OK
15	PB165463BL	PB165463BL	MB	12/10/24 11:53		Kareem	OK
16	PB165463BS	PB165463BS	LCS	12/10/24 11:57	0.1ml of m6001 and m6010 were added to 10ml of the sample	Kareem	OK
17	PB165464BL	PB165464BL	MB	12/10/24 12:01		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133866

Review By	mohan	Review On	12/13/2024 3:24:42 AM
Supervise By	jaswal	Supervise On	12/13/2024 3:25:04 AM

STD. NAME	STD REF.#
ICAL Standard	MP83552,MP83553,MP83554,MP83555,MP83556,MP83558
ICV Standard	MP83559
CCV Standard	MP83562
ICSA Standard	MP83560,MP83561
CRI Standard	MP83558
LCS Standard	
Chk Standard	MP83565,MP83566

18	PB165464BS	PB165464BS	LCS	12/10/24 12:06	0.1ml of m6001 and m6010 were added to 10ml of the sample	Kareem	OK
19	P5145-01	286085	SAM	12/10/24 12:10		Kareem	OK
20	P5074-02	COMP	SAM	12/10/24 12:14		Kareem	OK
21	P5093-01	LL-001	SAM	12/10/24 12:18		Kareem	OK
22	P5093-02	LL-001-FB-12-4-24	SAM	12/10/24 12:22		Kareem	OK
23	P5093-02DUP	LL-001-FB-12-4-24DUP	DUP	12/10/24 12:27		Kareem	OK
24	P5093-02L	LL-001-FB-12-4-24L	SD	12/10/24 12:31		Kareem	OK
25	CCV02	CCV02	CCV	12/10/24 12:35		Kareem	OK
26	CCB02	CCB02	CCB	12/10/24 12:39		Kareem	OK
27	P5093-02MS	LL-001-FB-12-4-24MS	MS	12/10/24 12:44	0.1ml of m6001 and m6010 were added to 10ml of the sample	Kareem	OK
28	P5093-02MSD	LL-001-FB-12-4-24MSD	MSD	12/10/24 12:48	0.1ml of m6001 and m6010 were added to 10ml of the sample	Kareem	OK
29	P5093-02A	LL-001-FB-12-4-24A	PS	12/10/24 12:53	0.1ml of m6001 and m6010 were added to 10ml of the sample	Kareem	OK
30	P5141-01	WATER TREATMENT	SAM	12/10/24 12:57		Kareem	OK
31	P5174-01	ROLL-OFF-COMP	SAM	12/10/24 13:01		Kareem	OK
32	P5175-01	OK-01-12062024	SAM	12/10/24 13:05		Kareem	OK
33	P5176-01	EO-02-12062024	SAM	12/10/24 13:09		Kareem	OK
34	P5176-03	EO-03-12062024	SAM	12/10/24 13:13		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB133866

Review By	mohan	Review On	12/13/2024 3:24:42 AM
Supervise By	jaswal	Supervise On	12/13/2024 3:25:04 AM

STD. NAME	STD REF.#
ICAL Standard	MP83552,MP83553,MP83554,MP83555,MP83556,MP83558
ICV Standard	MP83559
CCV Standard	MP83562
ICSA Standard	MP83560,MP83561
CRI Standard	MP83558
LCS Standard	
Chk Standard	MP83565,MP83566

35	P5196-01	MH-761	SAM	12/10/24 13:18		Kareem	OK
36	P5196-01DUP	MH-761DUP	DUP	12/10/24 13:22		Kareem	OK
37	CCV03	CCV03	CCV	12/10/24 13:26		Kareem	OK
38	CCB03	CCB03	CCB	12/10/24 13:30		Kareem	OK
39	P5196-01L	MH-761L	SD	12/10/24 13:34		Kareem	OK
40	P5196-01MS	MH-761MS	MS	12/10/24 13:39	0.1ml of m6001 and m6010 were added to 10ml of the sample	Kareem	OK
41	P5196-01MSD	MH-761MSD	MSD	12/10/24 13:43	0.1ml of m6001 and m6010 were added to 10ml of the sample	Kareem	OK
42	P5196-01A	MH-761A	PS	12/10/24 13:47	0.1ml of m6001 and m6010 were added to 10ml of the sample	Kareem	OK
43	LR1	LR1	HIGH STD	12/10/24 13:52		Kareem	OK
44	LR2	LR2	HIGH STD	12/10/24 13:57		Kareem	OK
45	CCV04	CCV04	CCV	12/10/24 14:19		Kareem	OK
46	CCB04	CCB04	CCB	12/10/24 14:24		Kareem	OK

Prep Standard - Chemical Standard Summary

Order ID : P5141

Test : Metals Group5

Prepbatch ID : PB165464,

Sequence ID/Qc Batch ID: LB133866, LB133866, LB133866, LB133866,

Standard ID :

MP83499, MP83500, MP83552, MP83553, MP83554, MP83555, MP83556, MP83557, MP83558, MP83559, MP83560, MP83561, MP83562, MP83565, MP83566,

Chemical ID :

M5130, M5192, M5218, M5223, M5288, M5295, M5296, M5390, M5393, M5429, M5466, M5467, M5497, M5515, M5658, M5697, M5698, M5747, M5748, M5768, M5798, M5799, M5800, M5801, M5802, M5806, M5814, M5815, M5816, M5817, M5818, M5819, M5820, M5875, M5959, M5962, M5970, M5978, M5982, M5985, M6000, M6009, M6021, M6023, M6028, M6030, M6033, M6121, M6126, W3112,

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
170	1:1HCL	MP83499	12/09/2024	12/28/2024	Eman Mughal	None	None	Sarabjit Jaswal
								12/09/2024

FROM 1250.00000ml of M6121 + 1250.00000ml of W3112 = Final Quantity: 2500.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
902	ICP AES CAL BLK (SO/ICB/CCB)	MP83500	12/06/2024	01/06/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								12/09/2024

FROM 125.00000ml of M6121 + 2350.00000ml of W3112 + 25.00000ml of M6126 = Final Quantity: 2500.000 ml



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
514	CAL BLK (S0/ICB/CCB)	MP83552	12/06/2024	01/06/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 12/11/2024
<u>FROM</u>	125.00000ml of M6121 + 2350.00000ml of W3112 + 25.00000ml of M6126 = Final Quantity: 2500.000 ml							

[illegible]

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
910	ICP AES STD S4	MP83554	12/06/2024	01/06/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								12/11/2024

FROM 50.00000ml of MP83500 + 50.00000ml of MP83553 = Final Quantity: 100.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
909	ICP AES STD S3	MP83555	12/06/2024	01/06/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								12/11/2024

FROM 25.00000ml of MP83553 + 75.00000ml of MP83500 = Final Quantity: 100.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3913	ICP AES STD S2	MP83556	12/06/2024	01/06/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								12/11/2024

FROM 16.00000ml of MP83553 + 184.00000ml of MP83500 = Final Quantity: 200.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2950	ICP AES S1/CRI STOCK STD	MP83557	12/06/2024	01/06/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								12/11/2024

FROM 0.00600ml of M5816 + 0.03000ml of M5798 + 0.03000ml of M6028 + 0.05000ml of M5515 + 0.05000ml of M5658 + 0.05000ml of M6030 + 0.05000ml of M6033 + 0.06000ml of M5747 + 0.10000ml of M5697 + 0.10000ml of M5698 + 0.10000ml of M5801 + 0.10000ml of M5820 + 0.10000ml of M5962 + 0.10000ml of M5970 + 0.10000ml of M5982 + 0.15000ml of M5800 + 0.20000ml of M5748 + 0.20000ml of M5799 + 0.20000ml of M5819 + 0.20000ml of M5978 + 0.20000ml of M6021 + 0.20000ml of M6023 + 0.25000ml of M5467 + 0.25000ml of M5802 + 0.50000ml of M5390 + 0.50000ml of M5814 + 1.00000ml of M5192 + 1.00000ml of M5288 + 1.00000ml of M5497 + 1.00000ml of M5768 + 1.00000ml of M5806 + 2.00000ml of M5818 + 77.68000ml of MP83500 = Final Quantity: 100.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2951	ICP AES S1/CRI WORK STD	MP83558	12/06/2024	01/06/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								12/11/2024

FROM 2.00000ml of MP83557 + 98.00000ml of MP83500 = Final Quantity: 100.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
912	ICP AES ICV SOLN	MP83559	12/06/2024	01/06/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
								12/11/2024

FROM 0.02500ml of M5429 + 0.02500ml of M5815 + 0.02500ml of M5817 + 0.10000ml of M5466 + 0.25000ml of M5218 + 0.25000ml of M5982 + 10.00000ml of M5295 + 89.77500ml of MP83500 = Final Quantity: 100.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
904	ICP AES ICSA SOLN	MP83560	12/06/2024	12/28/2024	Kareem Khairalla	None	None	Sarabjit Jaswal
								12/11/2024

FROM 25.00000ml of M5130 + 225.00000ml of MP83500 = Final Quantity: 250.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
3494	ICP AES ICSAB SOLN-1	MP83561	12/06/2024	12/28/2024	Kareem Khairalla	None	None	Sarabjit Jaswal
								12/11/2024

FROM 0.01000ml of M5815 + 0.01000ml of M5817 + 0.10000ml of M5296 + 0.10000ml of M5970 + 0.10000ml of M5982 + 10.00000ml of M5130 + 10.00000ml of M5223 + 79.50000ml of MP83500 = Final Quantity: 100.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
911	ICP AES CCV SOLN	MP83562	12/06/2024	01/06/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
12/11/2024								

FROM 50.00000ml of MP83500 + 50.00000ml of MP83553 = Final Quantity: 100.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
919	ICP AES INTERNAL STD	MP83565	12/06/2024	01/06/2025	Kareem Khairalla	None	None	Sarabjit Jaswal
12/11/2024								

FROM 1.00000ml of M5959 + 10.00000ml of M5985 + 1969.00000ml of W3112 + 20.00000ml of M6126 = Final Quantity: 2000.000 ml



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
903	ICP AES RINSE SOLN	MP83566	12/06/2024	01/06/2025	Kareem Khairalla	None	None	Sarabjit Jaswal 12/11/2024
<u>FROM</u> 200.00000ml of M6126 + 9800.00000ml of W3112 = Final Quantity: 10000.000 ml								

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	PART A / ICSA (ICP) STOCK SOLN	ICSA-1211	12/28/2024	05/20/2024 /	04/20/2021 / bin	M5130

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 #
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	12/28/2024	05/20/2024 /	04/20/2021 / bin	M5223

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	Z9651Q / CHEM-CLP-4/.25L	S2-MEB711673	11/02/2026	09/19/2022 / jaswal	08/20/2022 / jaswal	M5296

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	10/12/2022 / bin	09/19/2022 / bin	M5393

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57103 / Li, 10000 PPM, 125 ml	070622	07/06/2025	01/30/2023 / bin	01/26/2023 / bin	M5429

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57058 / Cerium, 1000PPM, 100ML	061322	06/13/2025	03/06/2023 / bin	03/01/2023 / bin	M5466

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57058 / Cerium, 1000PPM, 100ML	020623	02/06/2026	03/06/2023 / bin	03/01/2023 / bin	M5467

CHEMICAL RECEIPT LOG BOOK

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.	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.	58024 / Chromium, Cr, 500 ml, 1000 PPM	060523	06/05/2026	08/28/2023 / jaswal	08/25/2023 / jaswal	M5658

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58029 / Cu, 1000 PPM, 500 ml	102523	10/25/2026	04/03/2024 / jaswal	10/27/2023 / jaswal	M5697

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	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.	/ Lead (Pb) 1000PPM	100923	10/09/2026	05/20/2024 / Jaswal	12/20/2023 / jaswal	M5747

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	/ Nickel (Ni) 1000PPM	091223	09/12/2026	01/02/2024 / bin	12/20/2023 / jaswal	M5748

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	58112 / Mg, 10000 PPM, 500 ml	091823	09/18/2026	01/08/2024 / bin	01/03/2024 / bin	M5768

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57004 / Be, 1000 PPM, 125 ml	102523	10/25/2026	02/09/2024 / bin	02/09/2024 / bin	M5798

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57050 / Sn, 1000 PPM, 125 ml	071123	07/11/2026	02/09/2024 / bin	02/09/2024 / bin	M5799

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57027 / CO, 1000 PPM, 125 ml	091923	09/19/2026	05/31/2024 / bin	02/09/2024 / bin	M5800

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57033 / As, 1000 PPM, 125 ml	111323	11/13/2026	02/09/2024 / bin	02/09/2024 / bin	M5801

CHEMICAL RECEIPT LOG BOOK

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.	57005 / B, 1000 PPM, 125 ml	071123	07/11/2026	03/26/2024 / Sohil	01/03/2024 / jaswal	M5814

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

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57014 / Si, 1000 PPM, 125 ml	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 #
Inorganic Ventures	CLPP-CAL-1 / CLP CAL SOLUTION #1, 125mL	T2-MEB714417	01/27/2027	04/19/2024 / jaswal	02/22/2024 / jaswal	M5875

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGY10-1 / YTTRIUM 125mL 10,000ug/mL	V2-Y740548	02/20/2029	07/01/2024 / Jaswal	06/14/2024 / Jaswal	M5959

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

CHEMICAL RECEIPT LOG BOOK

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	CGT11-1 / TITANIUM 125mL 1000ug/mL	T2-TI719972	06/17/2027	08/07/2024 / jaswal	02/22/2024 / Jaswal	M5978

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57038 / Sr, 1000 PPM, 125 ml	031524	03/15/2027	07/01/2024 / Jaswal	06/11/2024 / Jaswal	M5982

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	CGIN10-5 / INDIUM 1 x 500 ml	U2-IN729349	02/21/2028	10/08/2024 / Jaswal	06/14/2024 / Jaswal	M5985

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-1 / Laboratory Fortified Stock Solution 1, 125 ml	T2-MEB723367	08/30/2026	08/13/2024 / Jaswal	05/14/2024 / Jaswal	M6000

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-2 / Laboratory Fortified Stock Solution 2, 125 ml	U2-MEB731108	03/17/2028	08/13/2024 / Jaswal	05/14/2024 / Jaswal	M6009

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57023 / V, 1000 PPM, 125 ml	062424	06/24/2027	09/28/2024 / jaswal	08/05/2024 / Jaswal	M6021

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	57081 / TI, 1000 PPM, 125 ml	0624724	06/27/2027	08/05/2024 / kareem	08/05/2024 / Jaswal	M6023

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Absolute Standards, Inc.	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)	0000275677	05/13/2025	11/13/2024 / Eman	10/13/2024 / Eman	M6121

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	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



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57048
070124
Cadmium (Cd)

Solvent: 24002546 Nitric Acid

Lot #

2% 40.0 Nitric Acid (mL)

Expiration Date: 070127

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6UTB

SE-05 Balance Uncertainty

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

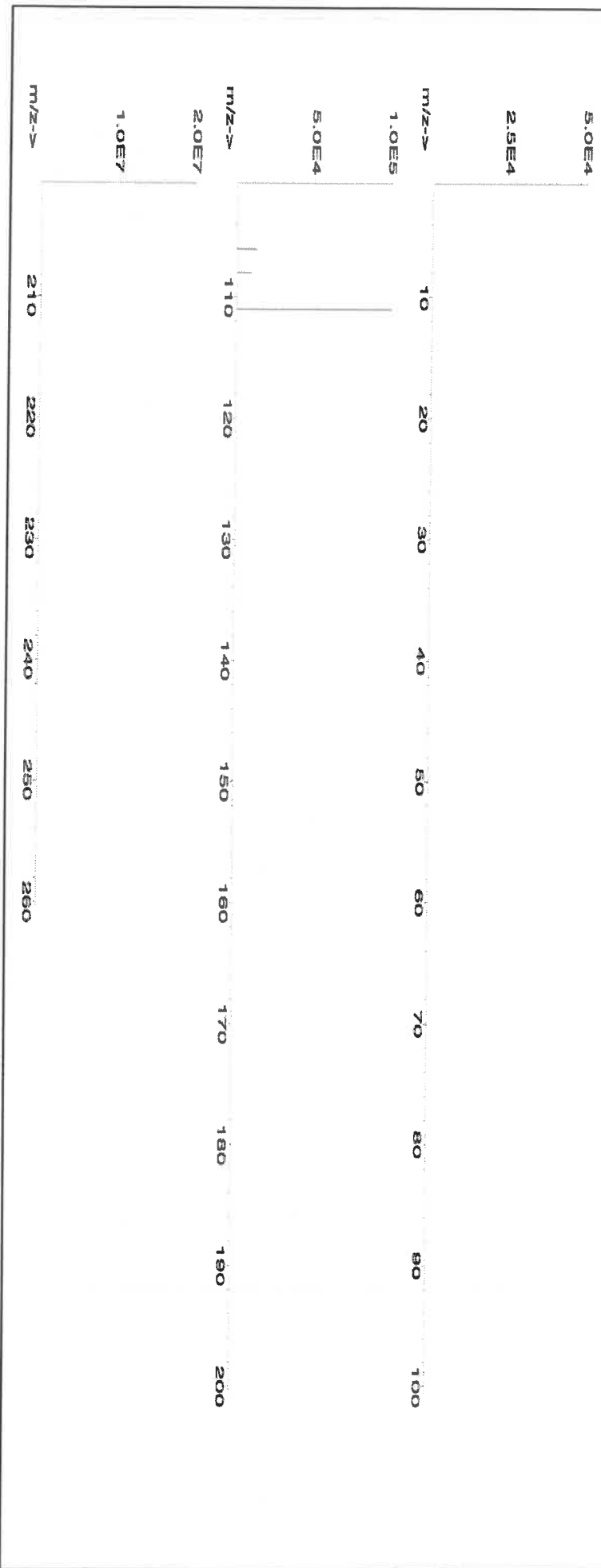
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	070124
<i>Pedro L. Rentas</i>	
Reviewed By:	Pedro L. Rentas
	070124

SDS Information

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

1. Cadmium nitrate tetrahydrate (Cd) IN024 CDM09221A1 1000 99.999 0.10 36.5 5.4797 5.4804 1000.1 2.0 10022-68-1 0.01 mg/m3 orl-rat 60.2mg/kg 3108

[1] Spectrum No.1 [12.514 sec]:\$8148.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.2	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Ba	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Cd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pr	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Refine your results. Redefine your industry.

Certificate of Analysis

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F: 540-585-3012
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1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CHEM-CLP-4
Lot Number: S2-MEB711673
Matrix: 3% (v/v) HNO₃
3% (v/v) HF
Value / Analyte(s): 1 000 µg/mL ea:
Boron, Molybdenum,
Silicon, Tin,
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 6 µg/mL	Molybdenum, Mo	1 000 ± 6 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 6 µg/mL
Titanium, Ti	1 000 ± 7 µg/mL		

Density: 1.030 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	110830
Mo	ICP Assay	3134	130418
Si	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum(w_i)^2(u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 02, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **November 02, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Certificate of Analysis

300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

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 F: 540-585-3012
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1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution	
Catalog Number:	CLPP-CAL-1	
Lot Number:	T2-MEB714417	
Matrix:	5% (v/v) HNO ₃	
Value / Analyte(s):	5 000 µg/mL ea:	Potassium, Sodium,
	Calcium, Magnesium,	
	2 000 µg/mL ea:	Barium,
	Aluminum,	
	1 000 µg/mL ea:	
	Iron,	
	500 µg/mL ea:	Vanadium, Cobalt,
	Nickel,	
	Zinc,	
	Manganese,	
	250 µg/mL ea:	Copper,
	Silver,	
	200 µg/mL ea:	
	Chromium,	
	50 µg/mL ea:	
	Beryllium	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	2 000 ± 7 µg/mL	Barium, Ba	2 000 ± 9 µg/mL
Beryllium, Be	50.00 ± 0.26 µg/mL	Calcium, Ca	5 000 ± 22 µg/mL
Chromium, Cr	200.0 ± 1.0 µg/mL	Cobalt, Co	500.0 ± 2.4 µg/mL
Copper, Cu	250.0 ± 1.0 µg/mL	Iron, Fe	1 000 ± 4 µg/mL
Magnesium, Mg	5 000 ± 20 µg/mL	Manganese, Mn	500.0 ± 2.0 µg/mL
Nickel, Ni	500.0 ± 2.2 µg/mL	Potassium, K	5 000 ± 19 µg/mL
Silver, Ag	250.0 ± 1.1 µg/mL	Sodium, Na	5 000 ± 18 µg/mL
Vanadium, V	499.7 ± 2.2 µg/mL	Zinc, Zn	500.0 ± 2.2 µg/mL

Density: 1.118 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Be	Calculated		See Sec. 4.2
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cr	Calculated		See Sec. 4.2
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	3152a	120715
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
V	IC Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum(w_i)^2 (u_{\text{char } i})^2]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 27, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- January 27, 2027

- The date after which this CRM/RM should not be used.
- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

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2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: CLPP-CAL-3
Lot Number: T2-MEB714159
Matrix: 7% (v/v) HNO₃
Value / Analyte(s):
1 000 µg/mL ea:
Arsenic, Lead,
Selenium, Thallium,
500 µg/mL ea:
Cadmium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Arsenic, As	1 000 ± 8 µg/mL	Cadmium, Cd	500.0 ± 2.1 µg/mL
Lead, Pb	1 000 ± 5 µg/mL	Selenium, Se	1 000 ± 8 µg/mL
Thallium, Tl	1 000 ± 7 µg/mL		

Density: 1.043 g/mL (measured at 20 ± 4 °C)

Assay Information:

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

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum(w_i)^2(u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

January 13, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- January 13, 2027

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

RD:05/14/2024

Certificate of Analysis

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1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	WW-LFS-1
Lot Number:	T2-MEB723367
Matrix:	5% (v/v) HNO ₃

Value / Analyte(s):	1 000 µg/mL ea: Potassium,	
	600 µg/mL ea: Phosphorus,	
	300 µg/mL ea: Sodium,	Iron,
	200 µg/mL ea: Magnesium, Cerium, Thallium,	Aluminum, Selenium,
	100 µg/mL ea: Lead,	Calcium,
	80 µg/mL ea: Arsenic,	
	70 µg/mL ea: Mercury,	
	50 µg/mL ea: Nickel,	
	40 µg/mL ea: Chromium,	
	30 µg/mL ea: Copper, Vanadium,	Boron,
	20 µg/mL ea: Zinc, Barium, Cadmium, Manganese,	Strontium, Beryllium, Cobalt, Lithium,
	7.5 µg/mL ea: Silver	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	200.0 ± 0.7 µg/mL	Arsenic, As	80.0 ± 0.7 µg/mL
Barium, Ba	20.00 ± 0.09 µg/mL	Beryllium, Be	20.00 ± 0.13 µg/mL
Boron, B	30.00 ± 0.18 µg/mL	Cadmium, Cd	20.00 ± 0.09 µg/mL
Calcium, Ca	100.0 ± 0.4 µg/mL	Cerium, Ce	200.0 ± 0.8 µg/mL
Chromium, Cr	40.00 ± 0.30 µg/mL	Cobalt, Co	20.00 ± 0.10 µg/mL
Copper, Cu	30.00 ± 0.13 µg/mL	Iron, Fe	300.0 ± 1.3 µg/mL
Lead, Pb	100.0 ± 0.4 µg/mL	Lithium, Li	20.00 ± 0.08 µg/mL
Magnesium, Mg	200.0 ± 0.8 µg/mL	Manganese, Mn	20.00 ± 0.08 µg/mL
Mercury, Hg	70.0 ± 0.3 µg/mL	Nickel, Ni	50.00 ± 0.22 µg/mL
Phosphorus, P	600.0 ± 2.7 µg/mL	Potassium, K	1 000 ± 4 µg/mL
Selenium, Se	200.0 ± 1.3 µg/mL	Silver, Ag	7.50 ± 0.03 µg/mL
Sodium, Na	300.0 ± 1.4 µg/mL	Strontium, Sr	20.01 ± 0.08 µg/mL
Thallium, Tl	200.0 ± 1.4 µg/mL	Vanadium, V	30.00 ± 0.13 µg/mL
Zinc, Zn	20.00 ± 0.09 µg/mL		

Density: 1.034 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Ag	Calculated		See Sec. 4.2
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
As	ICP Assay	3103a	100818
B	ICP Assay	3107	190605
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
Ce	ICP Assay	3110	090504
Ce	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
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Li	ICP Assay	3129a	100714
Li	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	Traceable to 3152A	S2-NA700842
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Sr	EDTA	928	928
Sr	ICP Assay	Traceable to 3153a	K2-SR650985
Tl	ICP Assay	3158	151215
V	IC Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum ((w_i)^2 (u_{\text{char } i}^2))]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

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

August 30, 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

- August 30, 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:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

RD:05/14/2024

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: WW-LFS-2
Lot Number: U2-MEB731108
Matrix: 5% (v/v) HNO₃
tr. HF
Value / Analyte(s):
200 µg/mL ea:
Silica,
80 µg/mL ea:
Antimony,
70 µg/mL ea:
Tin,
40 µg/mL ea:
Molybdenum,
20 µg/mL ea:
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	80.1 ± 0.6 µg/mL	Molybdenum, Mo	40.03 ± 0.18 µg/mL
Silica, SiO ₂	200.2 ± 1.3 µg/mL	Tin, Sn	70.0 ± 0.4 µg/mL
Titanium, Ti	20.01 ± 0.13 µg/mL		

Density: 1.025 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Mo	Calculated		See Sec. 4.2
Sb	ICP Assay	3102a	140911
SiO ₂	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925
Ti	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, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

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

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

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

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum (w_i)^2 (u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{TS} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{TS} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; info@inorganicventures.com;

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 17, 2023

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **March 17, 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





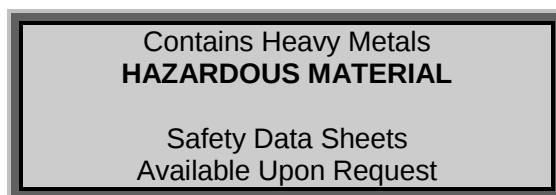
Instructions for QATS Reference Material: ICP-AES ICS

**QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)**

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.



(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) BREAKAGE OR MISSING ITEMS

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

**QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120**

(C) ANALYSIS OF SAMPLES

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,





Instructions for QATS Reference Material: ICP-AES ICS

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

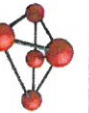
Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.

ICSA
M5126
M5127
M5128
M5129
M5130

ICSB
M5219
M5220
M5221
M5222
M5223



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57042
051722
Molybdenum (Mo)

Lot #
Solvent:

MKB08597V Ammonium hydroxide

0.5%

15.0

Ammonium hydroxide

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

051725
Ambient (20 °C)
1000

Volume shown below was diluted to (mL):

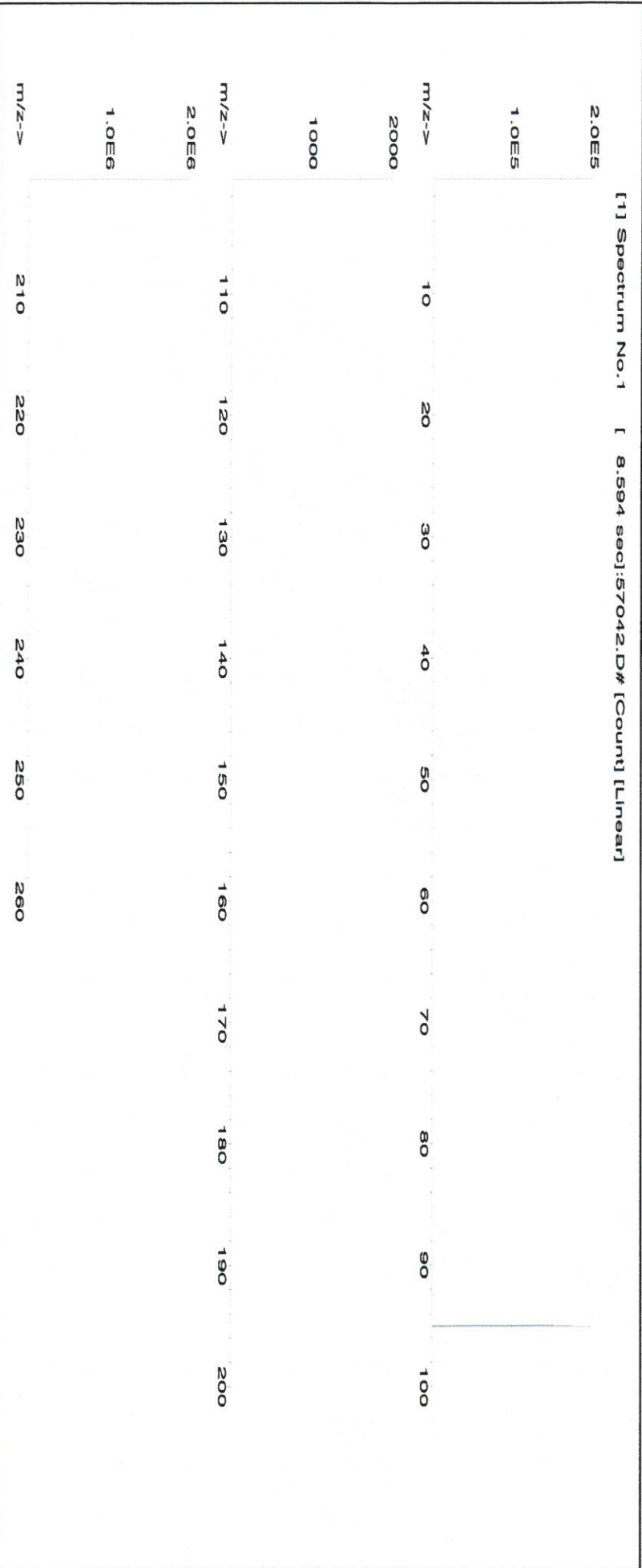
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Lawrence Barry
	051722
Reviewed By:	Pedro L. Rendas
	051722

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	SRM
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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 or-trat 333 mg/kg 3134





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<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.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

Certificate of Analysis

300 Technology Drive
 Christiansburg, VA 24073 USA
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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).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
 Catalog Number: CHEM-QC-4
 Lot Number: S2-MEB711674
 Matrix: 3% (v/v) HNO₃
 3% (v/v) HF
 Value / Analyte(s): 1 000 µg/mL ea:
 Boron, Molybdenum,
 Silicon, Tin,
 Titanium

Second Source: Whenever possible, this solution was manufactured from a second set of concentrates in our manufacturing facility.

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Boron, B	1 000 ± 7 µg/mL	Molybdenum, Mo	1 000 ± 5 µg/mL
Silicon, Si	1 000 ± 7 µg/mL	Tin, Sn	1 000 ± 5 µg/mL
Titanium, Ti	1 001 ± 6 µg/mL		

Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
B	ICP Assay	3107	110830
Mo	ICP Assay	3134	130418
Si	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

$u_{\text{char}} = [\sum(w_i)^2(u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

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

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

November 02, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **November 02, 2026**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Instructions for QATS Reference Material: ICP-AES ICS

**QATS LABORATORY INORGANIC REFERENCE MATERIAL
INTERFERENCE CHECK SAMPLE SET FOR ICP-AES (ICSA WITH ICSB)**

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

Contains Heavy Metals
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more bottles of Aqueous Reference Material, each composed of metals at various concentrations and prepared with nitrate salts and oxy-acids of the respective elements in a 5% nitric acid matrix. **For the reference material source in reporting ICSA and ICSAB mixture use "USEPA". For the reference material lot number for the ICSA use "ICSA-1211" and for the ICSAB mixture use "ICSA-1211+ICSB-0710".**

CAUTION: The bottle(s) should be protected from light during storage to ensure the stability of silver which is contained in the ICSB solution. The bottle(s) should be stored at room temperature. **Do not allow the solution(s) to freeze.**

(B) BREAKAGE OR MISSING ITEMS

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

**QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120**

(C) ANALYSIS OF SAMPLES

The interference check sample set is to be used to verify inter-element and background correction factors of inductively-coupled plasma (ICP) spectrometers. This reference material set consists of two (2) concentrated solutions. The ICSA solution contains the four (4) interferent elements: Al, Ca, Fe, and Mg. The ICSB solution contains the analytes: Ag, As, Sb, Ba, Be,





Instructions for QATS Reference Material: ICP-AES ICS

Cd, Co, Cr, Cu, Mn, Ni, Pb, Tl, Se, V, and Zn. This instruction sheet provides the nominal values for ICP-AES Part A and Part B target analytes when diluted as directed.

Using Class "A" glassware, preparation and analysis must be performed according to the following instructions:

ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSA solution by ICP-AES.

ICSB-0710, Analytes, mixed with ICSA-1211, Interferents: Pipet 10 mL of the ICSA solution and 10 mL of the ICSB solution into a 100 mL volumetric flask and dilute to volume with 2% v/v HNO₃. Analyze this ICSAB solution by ICP-AES.

(D) "CERTIFIED VALUE" CONCENTRATIONS OF QATS ICP-AES ICS SOLUTION(S)

The "Certified Value" concentrations of the elements, listed in Table 1 below, were derived from statistically pooled analysis results from the following sources, if available: QATS Laboratory, CLP laboratories, Quarterly Blind (QB)/Proficiency Testing (PT) events, CLP pre-award events, and external referee laboratories.

Table 1. "CERTIFIED VALUES" FOR INTERFERENCE CHECK SAMPLE ICP-AES ICSA-1211, AND ICSA-1211 MIXED WITH ICSB-0710

Element	CRQL	Part A (µg/L)	Low Limit (µg/L)	High Limit (µg/L)	Part A +Part B (µg/L)	Low Limit (µg/L)	High Limit (µg/L)
Al	200	255000	216000	294000	247000	209000	285000
Sb	60	(0.0)	-60.0	60.0	618	525	711
As	10	(0.0)	-10.0	10.0	104	88.4	120
Ba	200	(6.0)	-194	206	(537)	337	737
Be	5.0	(0.0)	-5.0	5.0	495	420	570
Cd	5.0	(1.0)	-4.0	6.0	972	826	1120
Ca	5000	245000	208000	282000	235000	199000	271000
Cr	10	(52.0)	42.0	62.0	542	460	624
Co	50	(0.0)	-50.0	50.0	476	404	548
Cu	25	(2.0)	-23.0	27.0	511	434	588
Fe	100	101000	85600	116500	99300	84400	114500
Pb	10	(0.0)	-10.0	10.0	(49.0)	39.0	59.0
Mg	5000	255000	216000	294000	248000	210000	286000
Mn	15	(7.0)	-8.0	22.0	507	430	584
Ni	40	(2.0)	-38.0	42.0	954	810	1100
Se	35	(0.0)	-35.0	35.0	(46.0)	11.0	81.0
Ag	10	(0.0)	-10.0	10.0	201	170	232
Tl	25	(0.0)	-25.0	25.0	(108)	83.0	133
V	50	(0.0)	-50.0	50.0	491	417	565
Zn	60	(0.0)	-60.0	60.0	952	809	1095

The acceptance ranges for all analytes in parentheses in the above table were determined using the listed certified value ± 1 times the associated CLP SOW CRQL. The acceptance ranges for all other analytes were determined using the certified value ± 15 percent of the listed certified value.

ICSA
M5126
M5127
M5128
M5129
M5130

ICSB
M5219
M5220
M5221
M5222
M5223



CERTIFIED WEIGHT REPORT:

Part Number: **58119**
Lot Number: **071122**
Description: **Potassium (K)**

Solvent: 20510011 Nitric Acid

Expiration Date: 071125
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): **10000**
NIST Test Number: 6UTB

2% 40.0 (mL) Nitric Acid

Weight shown below was diluted to (mL): 2000.02
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Formulated By:	Lawrence Barry
	071122
Reviewed By:	Pedro L. Rentas
	071122

Compound

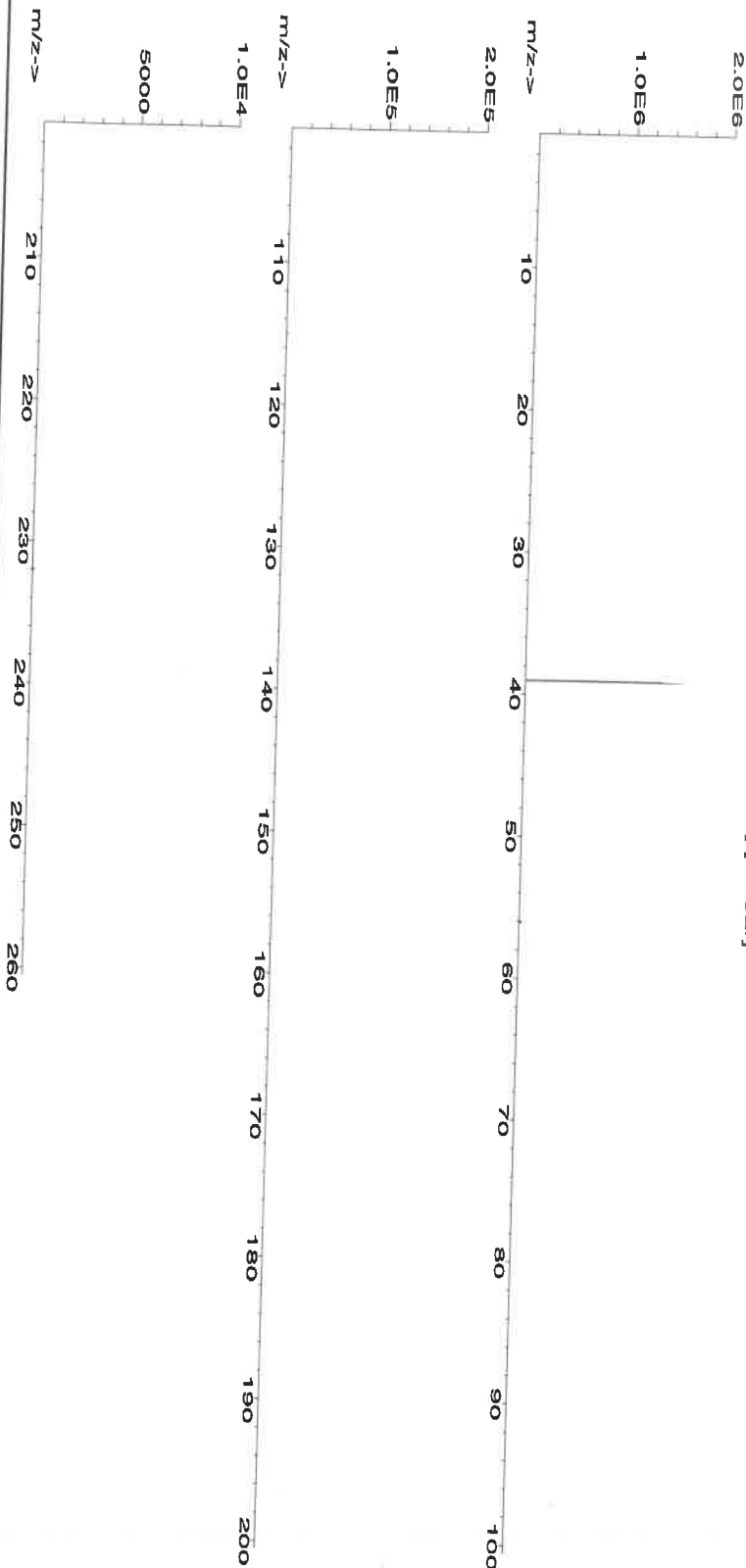
1. Potassium nitrate (K)

RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
IN034	KD022021A1	10000	99.999	0.10	37.6	53.1925	53.1934	10000.2	20.0	7757-79-1	5 mg/m3	or-rat 3015 mg/kg	3141a

SDS Information

(Solvent Safety Info. On Attached pg.)

[1] Spectrum No. 1 [35.763 sec]:58119.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.02	T	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



R: 4/20/21

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INITIAL CALIBRATION VERIFICATION SOLUTIONS
(ICV1, ICV5, AND ICV6)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.

Contains Metals in Dilute Acidic or
Cyanide in Basic Aqueous Solutions
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

M5291
M15292
M15293
M15294
M15295

(A) SAMPLE DESCRIPTION

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. **For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-1014", "ICV5-0415", and "ICV6-0400", respectively.**

(B) BREAKAGE OR MISSING ITEMS

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) ANALYSIS OF SAMPLES

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in µg/L (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

ICV1-1014 For ICP-AES analysis, use a 10-fold dilution by pipetting 10 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.





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

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

- ICV1-1014** For ICP-MS analysis, use a 50-fold dilution by pipetting 2 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.
- ICV5-0415** For the cold vapor analysis of mercury by AA, use a 100-fold dilution by pipetting 1 mL of the ICV5 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) $K_2Cr_2O_7$ and 5% (v/v) nitric acid.
- ICV6-0400** For the analysis of cyanide, use a 100-fold dilution by pipetting 1 mL of the ICV6 concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from $K_3Fe(CN)_6$, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

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

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

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

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



R-09/18/12 (RH)
Certified Reference Material CRM

CERTIFIED WEIGHT REPORT:

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

Solvent: **20510011 Nitric Acid**

M5387 - M5389 - M5390 - M5391 - M5392

Expiration Date: **072125**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**

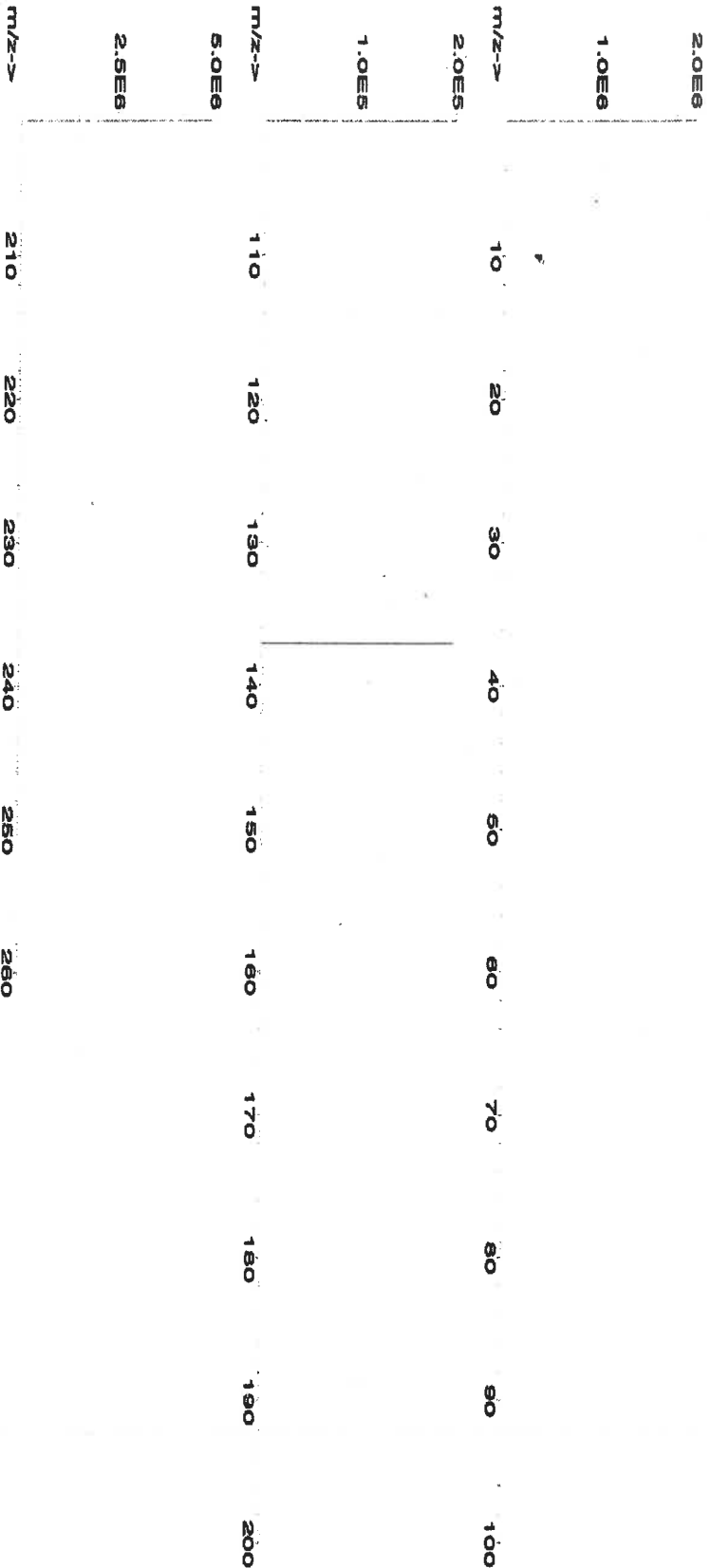
2% **40.0 (mL)** **Nitric Acid**

Weight shown below was diluted to (mL): **2000.02** **5E-05** Balance Uncertainty **0.058** Flask Uncertainty

<i>Giovanni Caporale</i>	
Formulated By:	Giovanni Esposito
Reviewed By:	<i>Pedro L. Rentes</i>
	072122

SDS Information									
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
1. Barium nitrate (Ba)	IN023 BA022019A1	1000	99.899	0.10	52.3	3.82417	3.82426	1000.0	2.0
									1002-31-8
									0.5 mg/m3
									or:at 355 mg/kg
									31046

[1] Spectrum No. 1 [12.514 sec]:58156.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.02	Er	<0.2	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.01	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	T	Cs	<0.02	Cd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.2	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.2	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

Ben. L. R.

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

M5429 R1 0126/23 (B)

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57103
070622
Lithium (Li)

Solvent: 20510011 Nitric Acid

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

070625
Ambient (20 °C)
10000
6UTB

2% 20.0 (mL)

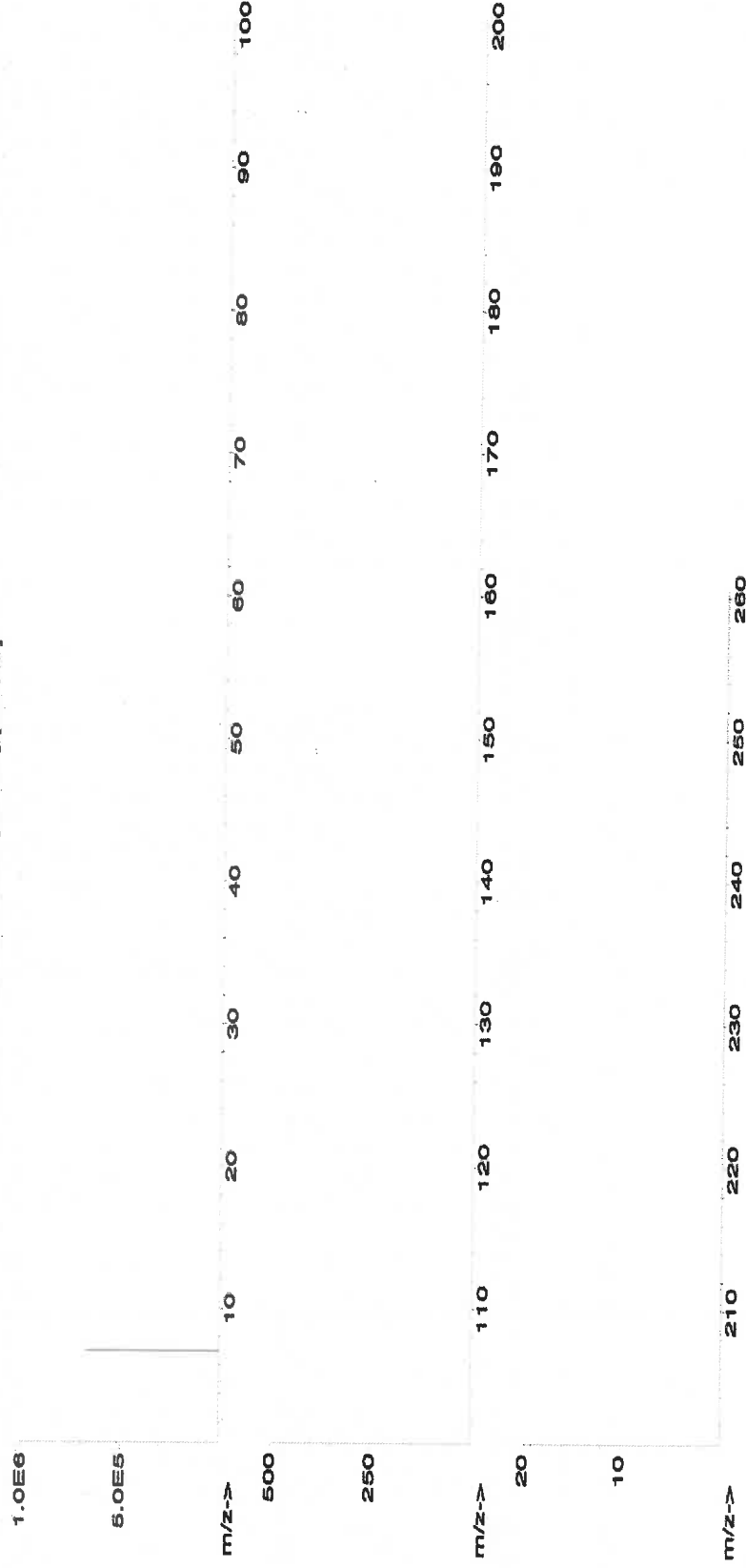
Weight shown below was diluted to (mL): 1000.12
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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

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

1. Lithium nitrate (Li)	IN019	L2042019A1	10000	99.999	0.10	10.0	100.0134	100.0173	10000.4	20.0	7790-69-4	5 mg/m3	of-rat 1426 mg/kg NA
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[1] Spectrum No.1 [9.619 sec]:58103.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.02	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.2	Ho	<0.02	La	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.02	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



AN 5466

Certified Reference Material CRM



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

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57058
061322
Cerium (Ce)

Solvent: 20510011 Nitric Acid

Lot #

Expiration Date:

061325

2% 20.0 Nitric Acid (mL)

Recommended Storage:
Nominal Concentration (µg/mL):

Ambient (20 °C)
1000

NIST Test Number:

6UTB

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): 1000.12 0.058 Flask Uncertainty

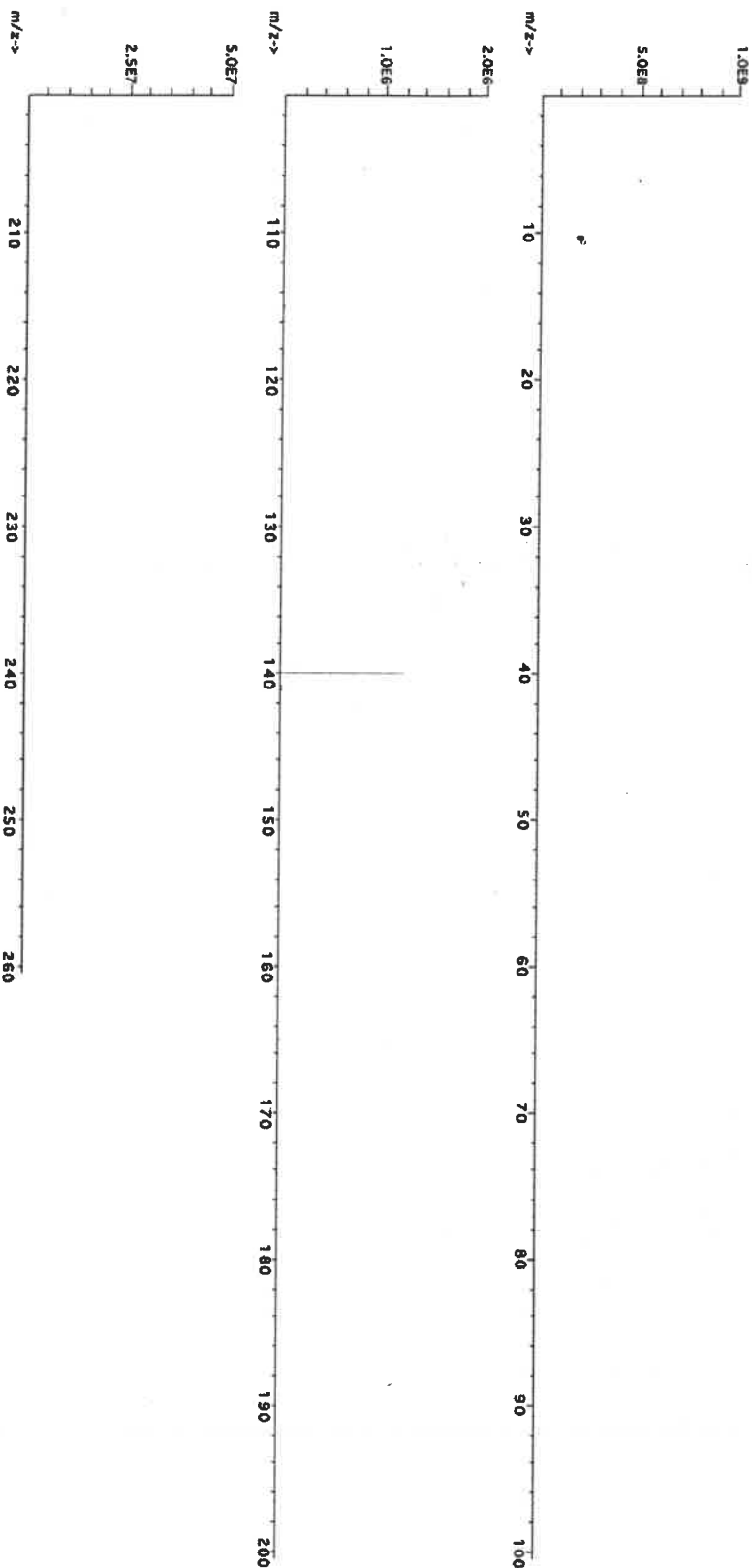
Formulated By:	Lawrence Barry
	061322
Reviewed By:	Pedro L. Renteria
	061322

Compound

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

1. Cerium nitrate hexahydrate (Ce)	IN146	Z512CEB1	1000	99.999	0.10	32.8	3.04919	3.04923	1000.0	2.0	10294-41-4	NA	NA	NA
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[1] Spectrum No.1 [43.472 sec:158.00e [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Er	<0.02	Ho	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Eu	<0.02	In	<0.02	Lu	<0.02	Nb	<0.02	Rc	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	T							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	Pr	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02			Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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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- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57058
020623
Cerium (Ce)

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

020626
Ambient (20 °C)
1000
6UTB

Weight shown below was diluted to (mL):

1000.12

Solvent:

Nitric Acid

2%
20.0
(mL)

Nitric Acid

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Lot #

21110221

Nitric Acid

57058

020623

Cerium (Ce)

020626

Ambient (20 °C)

1000

6UTB

Weight shown below was diluted to (mL):

1000.12

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

2%
20.0
(mL)

Nitric Acid

Formulated By:

Lawrence Barry

020623

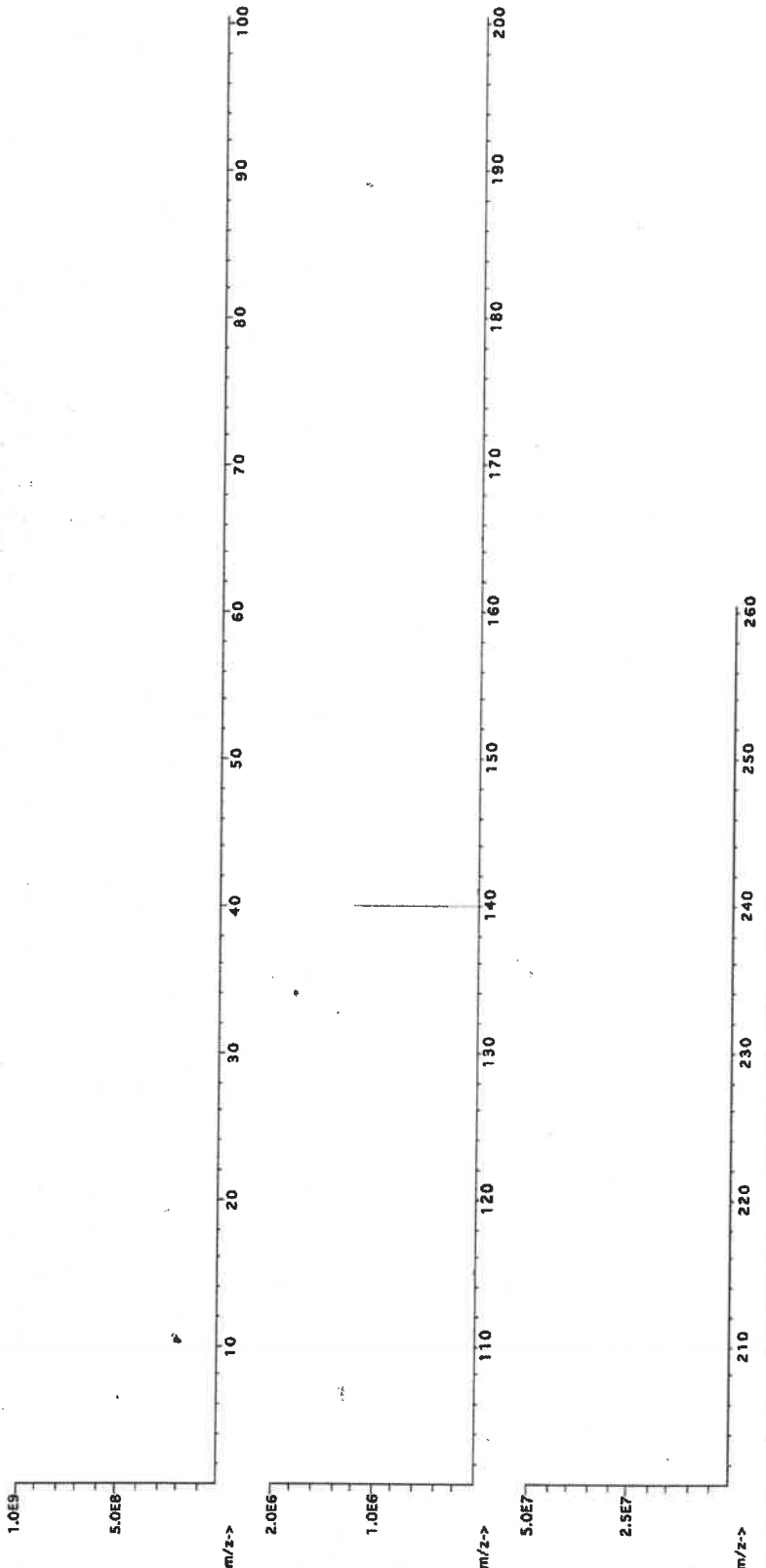
Reviewed By:

Pedro L. Rentas

020623

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information		
										(Solvent Safety Info. On Attached pg.)	CAS#	LD50
1. Cerium nitrate hexahydrate (Ce)	IN146	Z512CEB1	1000	99.999	0.10	32.8	3.04919	3.04921	1000.0	2.0	10294-41-4	NA
											NA	NA

[1] Spectrum No.1 [43.472 sec]58158.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	La	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	<0.2	Ce	T	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	T	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.2	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

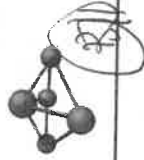
Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * 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).



Certified Reference Material CRM



MS54-MS55 R:03/17/22

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

58126
092122
Iron (Fe)

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

092125
Ambient (20 °C)
10000
6UTB

Weight shown below was diluted to (mL):

5000.1

Solvent: 20510011 Nitric Acid

7.0% 350.0 Nitric Acid
(mL)

5E-05 Balance Uncertainty
0.12 Flask Uncertainty

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

Expanded
Uncertainty

SDS Information

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

NIST
SRM

Actual
Conc. (µg/mL)

Actual
Weight (g)

Actual
Weight (g)

Target
Weight (g)

Assay
(%)

Purity
(%)

Purity
(%)

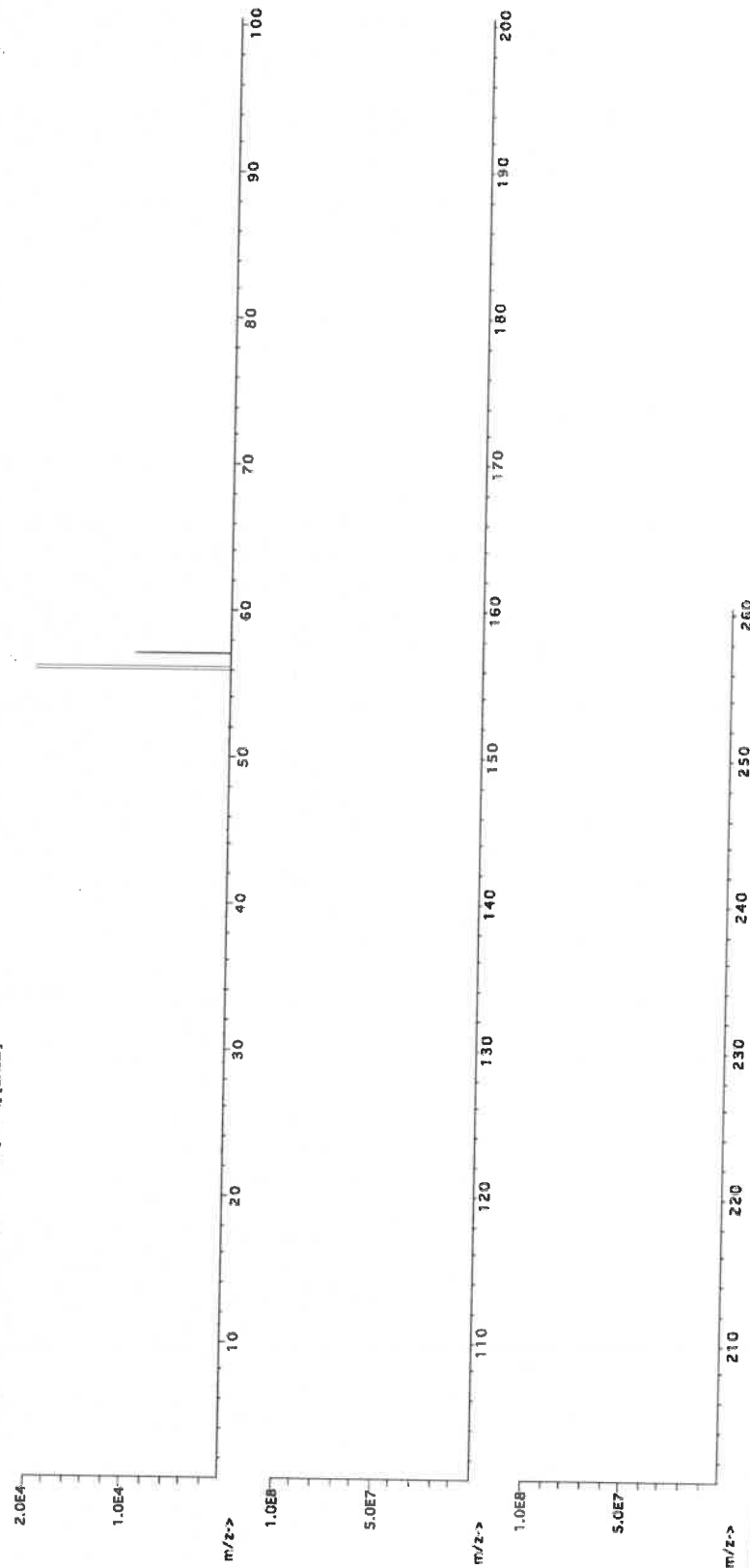
Nominal
Conc. (µg/mL)

Lot
Number

RM#

Compound	1. Iron (Fe)	IN346	2224912-500	10000	99.985	0.10	100.0	50.0034	50.0111	10001.5	20.0	7439-88-6	5 mg/m3	orl-rat 7500mg/kg	3126a
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[1] Spectrum No.1 [30.763 sec]:58126.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.10	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	La	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.05	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.10	Ge	<0.10	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.05
B	<0.02	Cu	<0.10	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

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

Certified by:

Ben P. Galt

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

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

Lot #
21110221
Solvent: Nitric Acid

2.0%

40.0 (mL)
Nitric Acid

Formulated By: *Lawrence Barry*
Lawrence Barry
060523

Expiration Date: 060526
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000

Reviewed By: *Pedro L. Henrias*
Pedro L. Henrias
060523

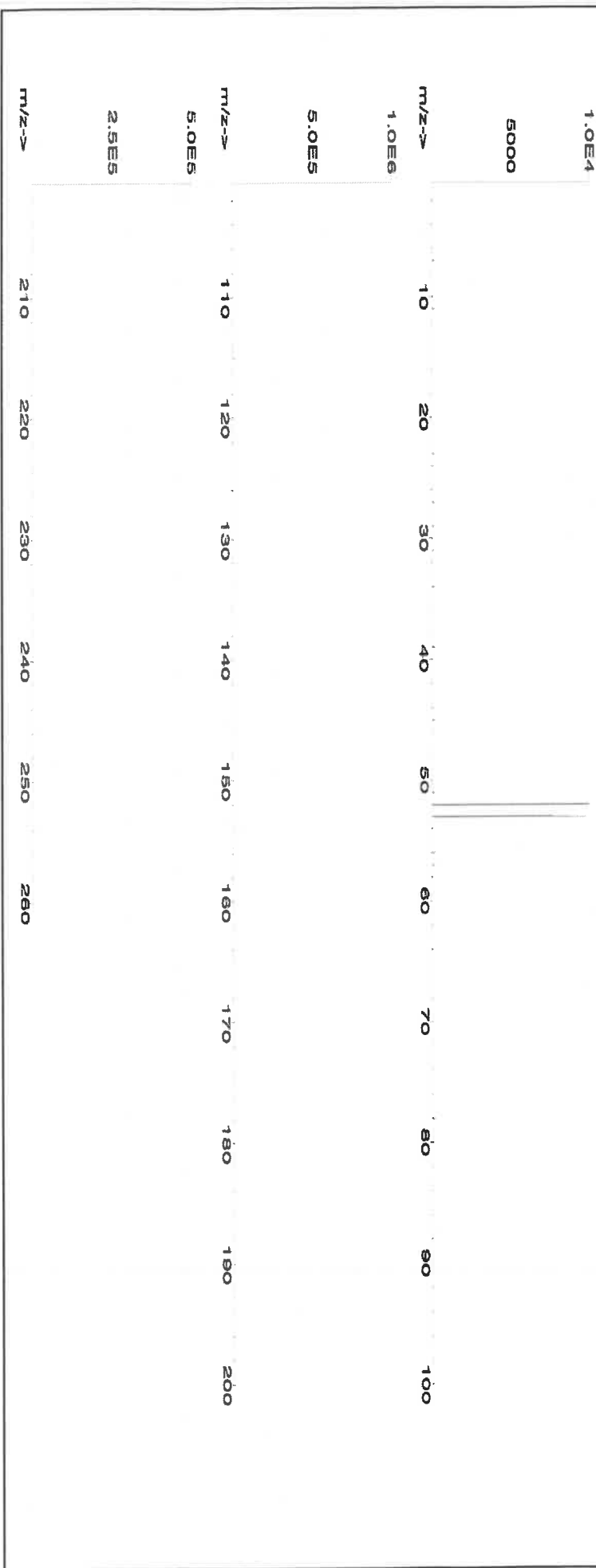
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 2000.02
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
----------	-------------	------------	-----------------	-------------------	------------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

1. Chromium(III) nitrate nonahydrate (Cr) 58124 071122 0.1000 200.0 0.084 1000 10000.1 1000.0 2.2 7789-02-8 0.5 mg(Cr)/m3 or rat 3250 mg/kg 3112a

[1] Spectrum No.1 [31.393 sec]:57024.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	T	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM



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

M5697 R: 10/27/23

CERTIFIED WEIGHT REPORT:

Part Number: **58029**
Lot Number: **102523**
Description: **Copper (Cu)**

Lot # **24002546**
Solvent: **Nitric Acid**

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

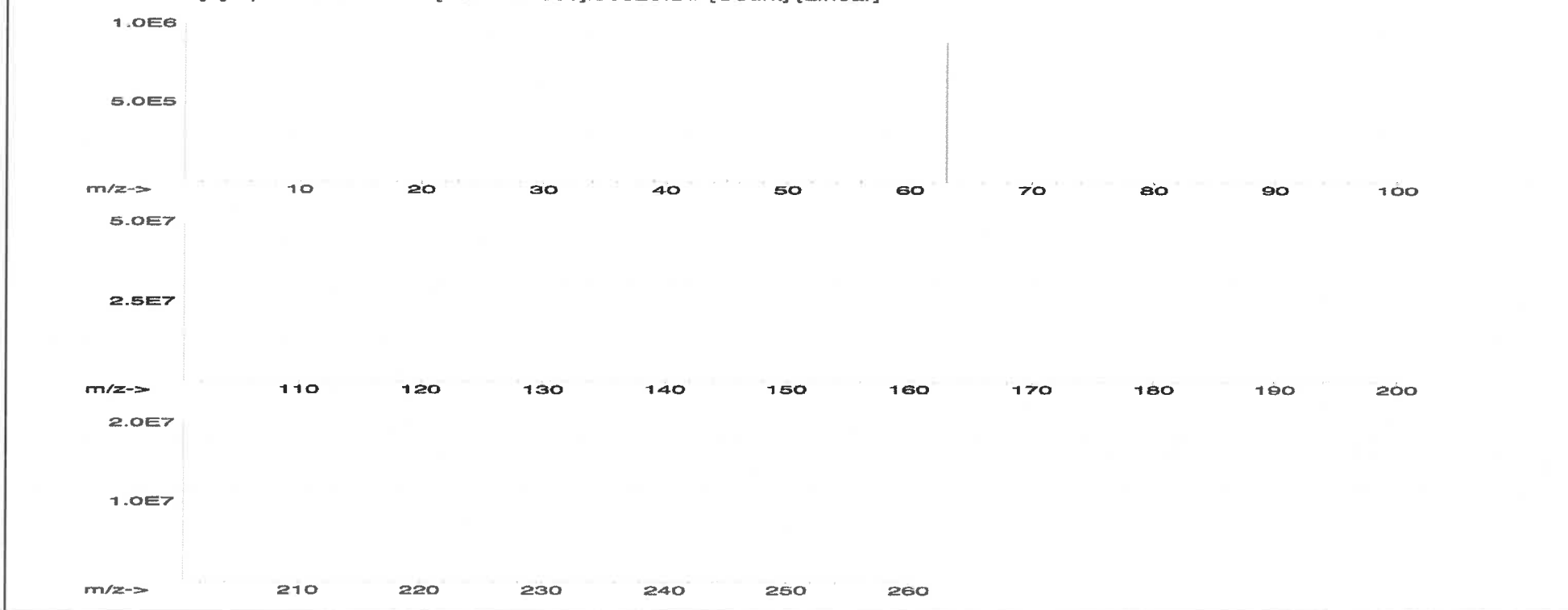
Formulated By:	Benson Chan	102523
Reviewed By:	Pedro L. Rentas	102523

Expanded

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	(Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	NIST SRM
1. Copper(II) nitrate trihydrate (Cu)	58129	100223	0.1000	200.0	0.084	1000	10000.1	1000.0	2.2	10031-43-3	1 mg/m3	ori-rat 794 mg/kg	3114

[1] Spectrum No.1 [33.422 sec]:58029.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																			
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	T	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
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- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM

M5698 R: 10/23/23



CERTIFIED WEIGHT REPORT:

Part Number: 58025
Lot Number: 102623
Description: Manganese (Mn)

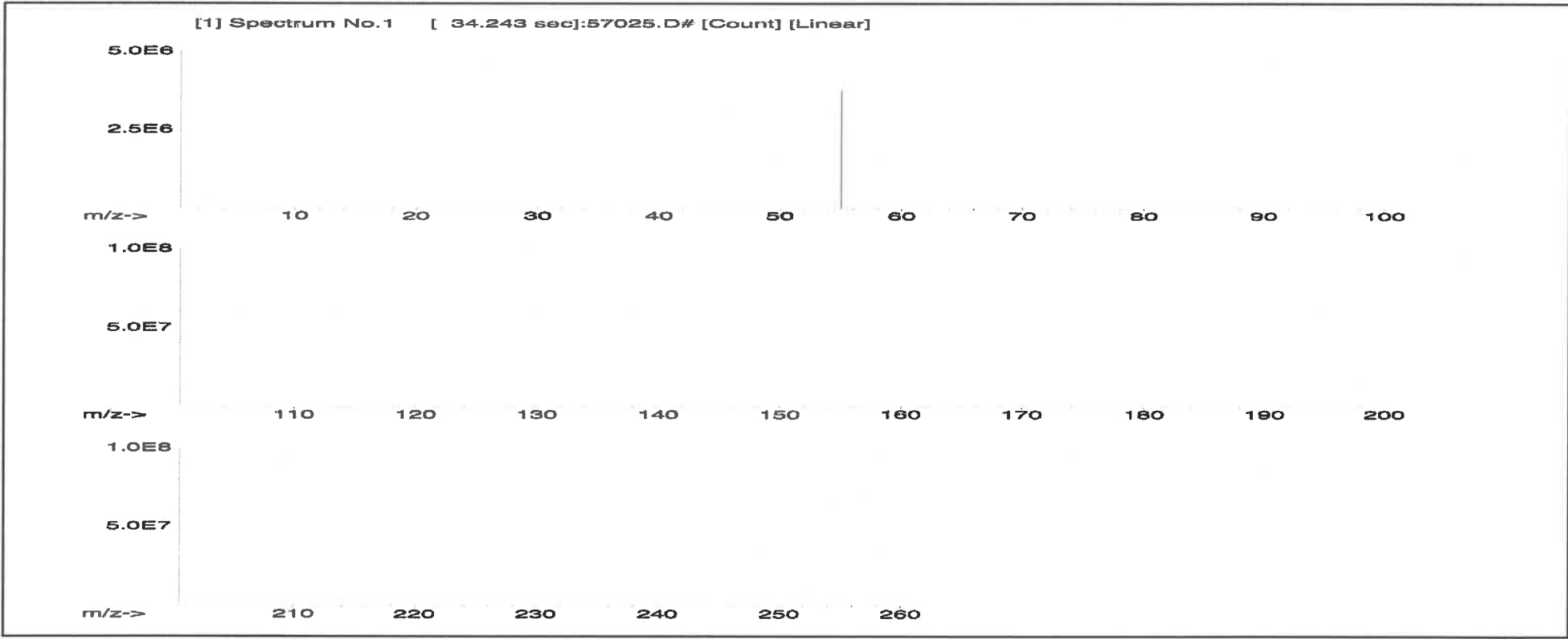
Lot # 24002546
Solvent: Nitric Acid
2.0% 60.0 (mL) Nitric Acid

Formulated By: Benson Chan 102623

Reviewed By: Pedro L. Rentas 102623

Expiration Date: 102626
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB
Volume shown below was diluted to (mL): 3000.41
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Expanded			SDS Information			NIST SRM
							Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Uncertainty +/- (µg/mL)	(Solvent Safety Info. On Attached pg.) CAS#	OSHA PEL (TWA)	LD50	
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	ori-rat >300mg/kg	3132





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																			
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	T	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: **57082**
Lot Number: **100923**
Description: **Lead (Pb)**

Solvent: **24002546 Nitric Acid**

Lot #

R: 12/20/23 MS747

Expiration Date:

2% 60.0 mL Nitric Acid

Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): **1000**

NIST Test Number: **6UTB**

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): **3000.41** 0.06 Flask Uncertainty

Formulated By:	Lawrence Barry
	100923
Reviewed By:	Pedro L. Rentas
	100923

Compound

RM# Lot Number

Nominal Conc. (µg/mL)

Purity (%)

Uncertainty (%)

Assay (%)

Target Weight (g)

Actual Weight (g)

Actual Conc. (µg/mL)

Expanded Uncertainty +/- (µg/mL)

CAS# OSHA PEL (TWA)

LD50 SRM

SDS Information

1. Lead(II) nitrate (Pb)

IN029 PbO122016A1

1000

99.999

0.10

62.5

4.80071

4.80077

1000.0

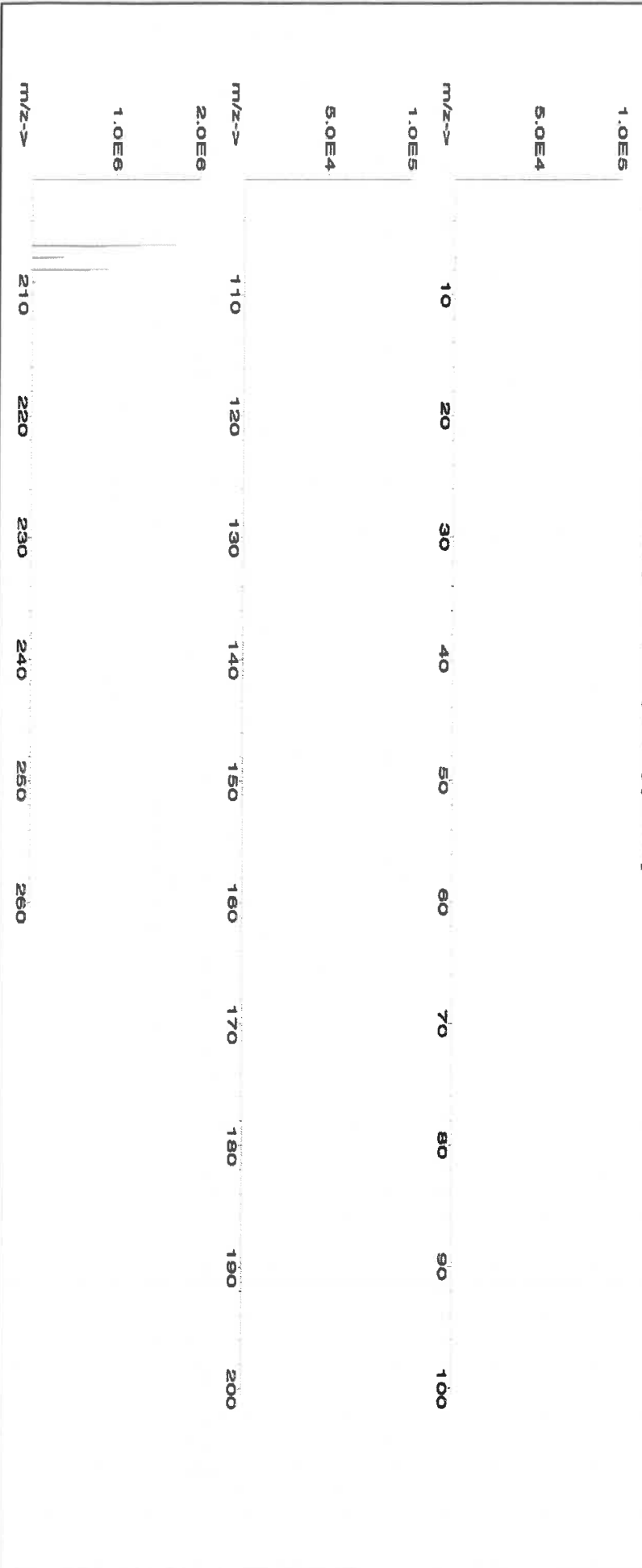
2.0

10099-74-8

0.05 mg/m3

intrms-ret 89 mg/kg 3128

[1] Spectrum No. 1 [14.144 sec]:58082.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Ba	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
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

Physical Characterization:

(T) = Target analyte

Certified by:

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

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
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- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: **57028**
Lot Number: **091223**
Description: **Nickel (NI)**

Lot # **24002546** Solvent: **Nitric Acid**

Expiration Date: **091226**

Recommended Storage: **Ambient (20 °C)**

Nominal Concentration (µg/mL): **1000**

NIST Test Number: **6U7B**

Volume shown below was diluted to (mL): **2000.02**

Balance Uncertainty: **5E-05**

Flask Uncertainty: **0.056**

2.0%

40.0 (mL)

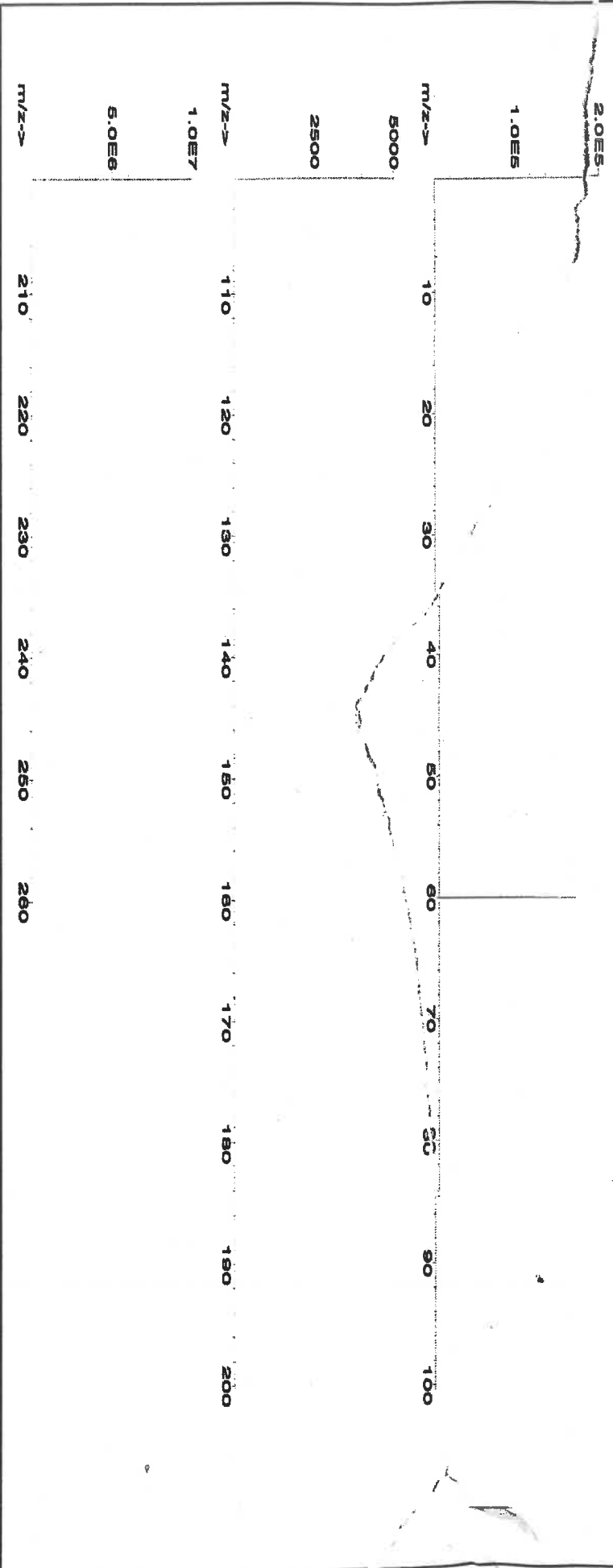
Nitric Acid

Formulated By:	<i>Lawrence Barry</i>	091223
Reviewed By:	<i>Pedro L. Renteria</i>	091223

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty (mL)	Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
----------	-------------	------------	-----------------	-------------------	------------------	--------------	-----------------------	-----------------------	---------------------	----------------------------------	------	----------------	------	----------

1. Nickel(II) nitrate hexahydrate (NI) 58128 062023 0.1000 200.0 0.084 1000 10000.4 1000.0 2.2 13478-00-7 1 mg/m3 or-rel 1620 mg/kg 3136

[1] Spectrum No.1 [9.135 sec]:56028.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	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	Tb	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



M5768 M5769
Certified Reference Material CRM
R: 1/13/24



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

CERTIFIED WEIGHT REPORT:

Part Number: 58112
Lot Number: 091823
Description: Magnesium (Mg)

Solvent: 24002546 Nitric Acid

Lot #

Expiration Date: 091826
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 2000.02 0.058 Flask Uncertainty

2% 40.0 (mL) Nitric Acid

M5768 M5769
BP R: 1/13/24

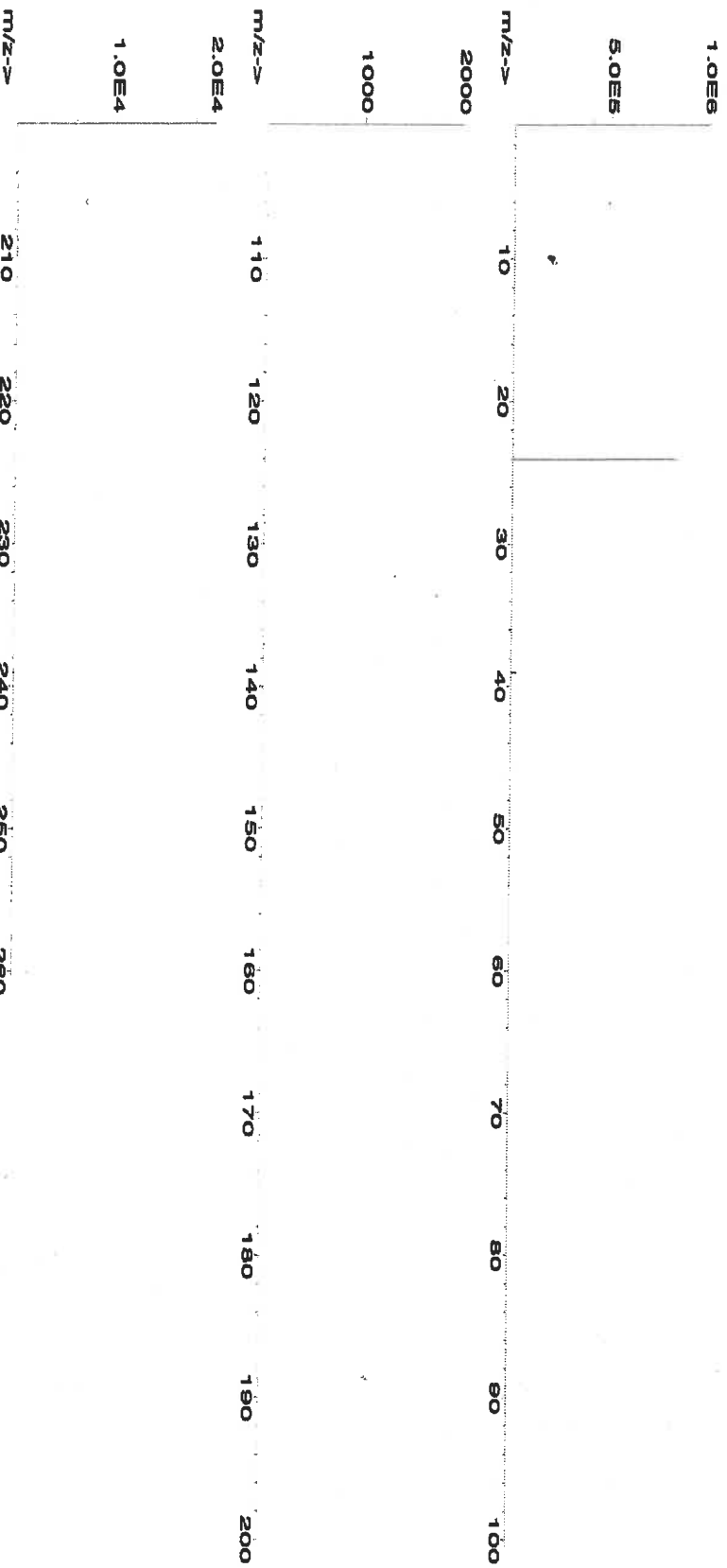
Formulated By: <i>Lawrence Barry</i>		091823
Reviewed By: <i>Pedro L. Rentas</i>		091823

Compound

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

1. Magnesium nitrate hexahydrate (Mg) IN030 M500222A1 10000 99.999 0.10 8.51 234.9118 234.9126 10000.0 20.0 13446-18-9 NA or-rat 5440 mg/kg 3131a

[1] Spectrum No. 1 [19.923 sec]: 58112.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	T	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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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.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57004
Lot Number: 102523
Description: Beryllium (Be)

Lot # 24002546
Solvent: Nitric Acid

Expiration Date:

102526

2.0%

40.0 (mL)

Nitric Acid

Recommended Storage:
Nominal Concentration (µg/mL):

Ambient (20 °C)

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

5E-05

Balance Uncertainty

0.058

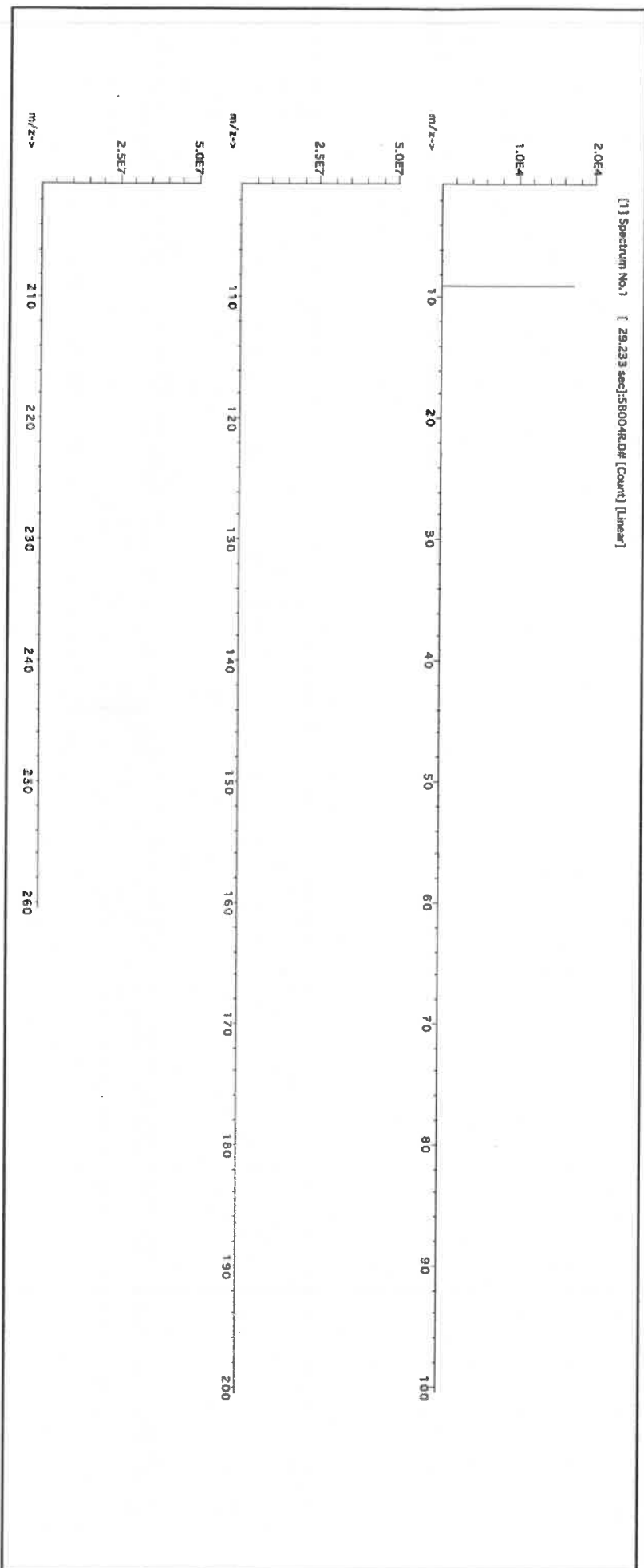
Flask Uncertainty

Formulated By:	Benson Chan	102523
Reviewed By:	Pedro L. Rentas	102523

SDS Information

Compound	Part Number	Lot	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Beryllium nitrate (Be)	58104	091423	0.1000	200.0	0.084	1000	10001.5	1000.0	2.2	13597-99-4	0.2µg/m3	intrinsc-rat 3.16mg/kg	NA
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	<0.02	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	T	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.02	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

* The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
 * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.

* All standard containers are meticulously cleaned prior to use.

* Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).

* Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.

* All Standards should be stored with caps tight and under appropriate laboratory conditions.

* Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: 57050
Lot Number: 071123
Description: Tin (Sn)

Solvents: 21110221 Nitric Acid
22D0562008 Hydrochloric acid

R. 02509124
M599

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

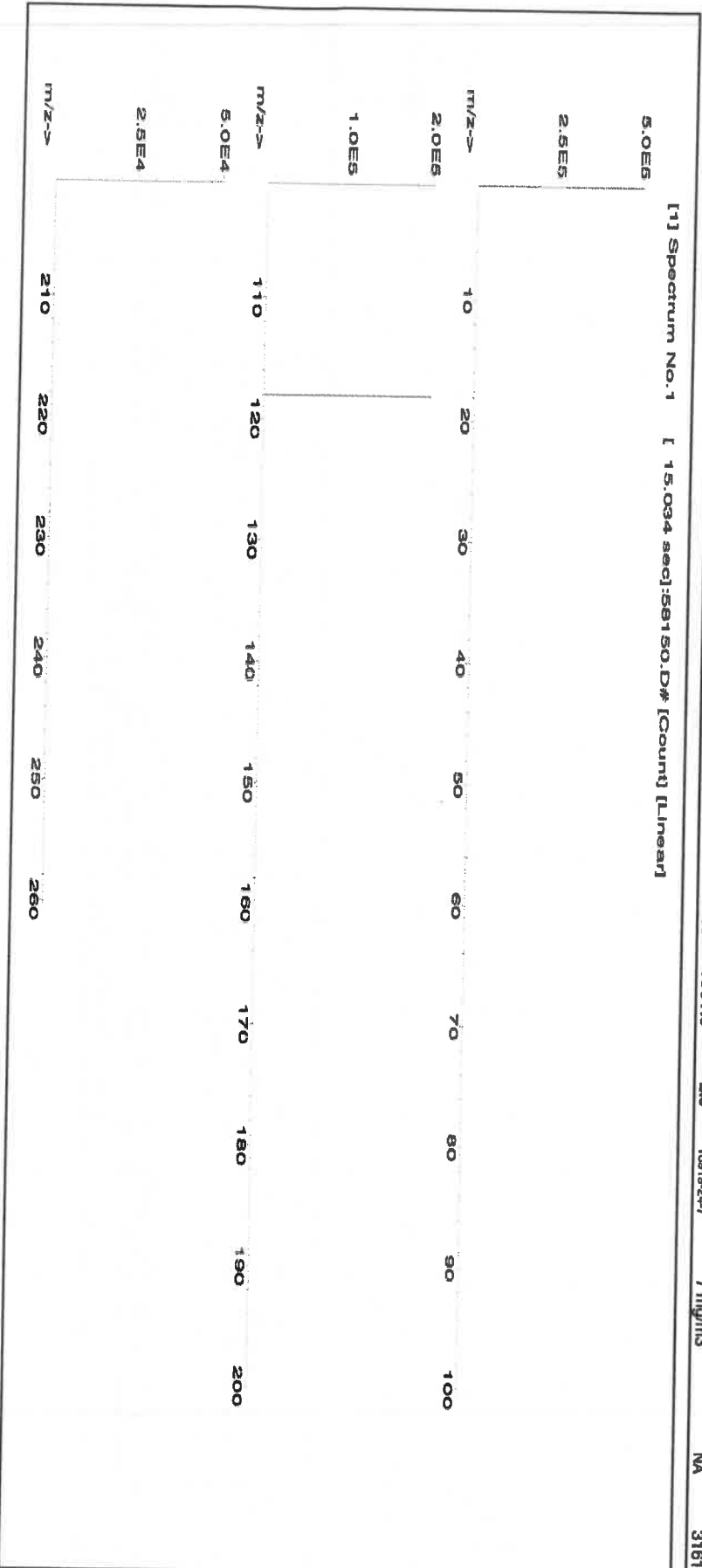
Weight shown below was diluted to (mL): 499.93
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

<i>[Signature]</i>	
Formulated By:	Benson Chan
	071123
Reviewed By:	<i>[Signature]</i>
	Pedro L. Rentas
	071123

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

1. Ammonium hexafluoroantimonate(V) (Sn) IN010 SMD042023A1 1000 99.999 0.10 44.2 1.13107 1.13286 1001.6 2.0 16919-24-7 7 mg/m3 NA 3161a

[1] Spectrum No. 1 [15.034 sec]:56150.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<500	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Ta	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



R: 02/09/24 115800 (54)

CERTIFIED WEIGHT REPORT:

Part Number: 57027
Lot Number: 091923
Description: Cobalt (Co)

Expiration Date: 091926
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 1000
NIST Test Number: 6UTB

Volume shown below was diluted to (mL): 2000.02

5E-05 Balance Uncertainty
0.058 Flask Uncertainty

Lot # 24002546
Solvent: Nitric Acid

2.0% Nitric Acid
40.0 (mL)

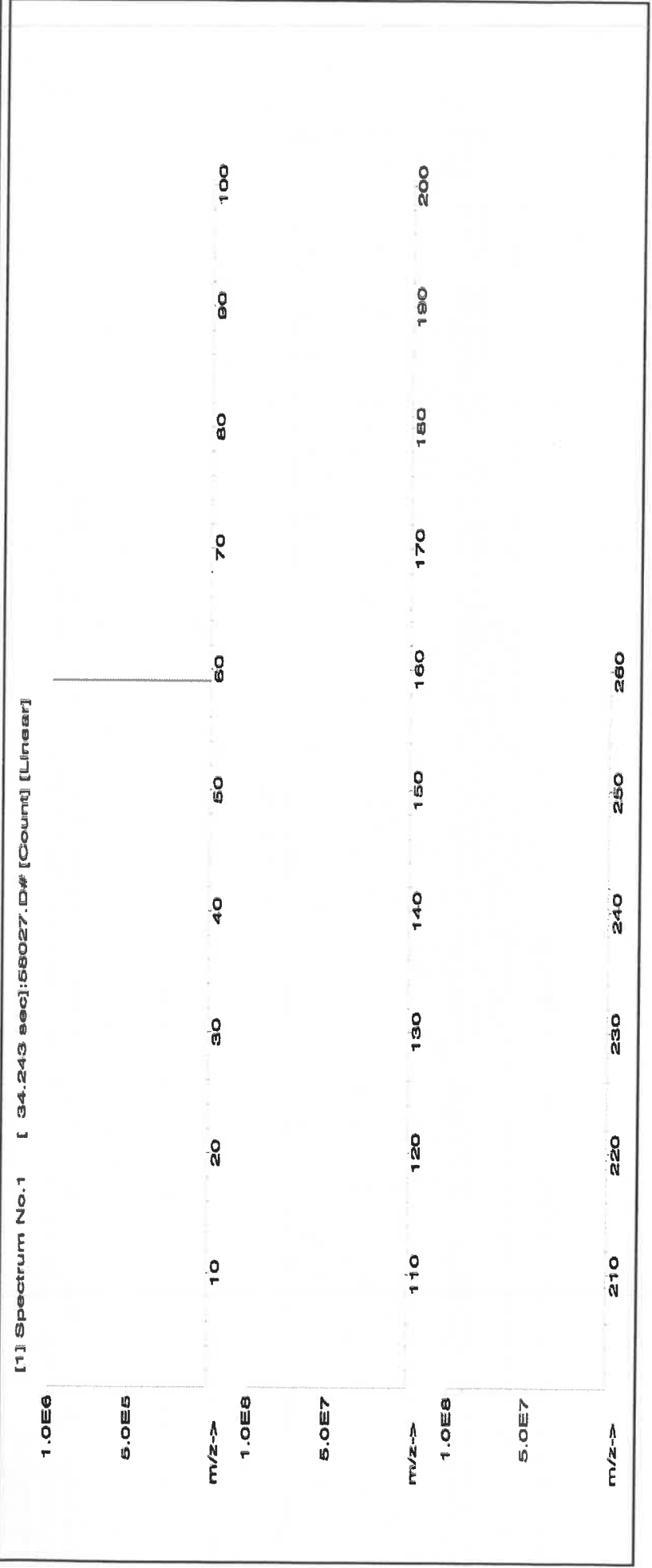
Formulated By:	Lawrence Barry
Reviewed By:	Pedro L. Rentas

SDS Information

Expanded Uncertainty +/- (µg/mL)
Final Conc. (µg/mL)
Initial Conc. (µg/mL)
Nominal Conc. (µg/mL)
Pipette (mL)
Initial Vol. (mL)
Dilution Factor
Part Number
Lot Number

(Solvent Safety Info. On Attached pg.)
CAS#
OSHA PEL (TWA)
LD50
NIST
SRM

1. Cobalt(II) nitrate hexahydrate (Co) 58127 050923 0.1000 200.0 0.084 1000 10000.0 1000.0 2.2 10026-22-9 0.02 mg/m3 orl-rat 691 mg/kg 3113





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.01	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.2	Na	<0.02	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	T	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57033
111323
Arsenic (As)

Lot #
Solvent:

24002546
Nitric Acid

Expiration Date:

111326

2.0%
80.0 (mL)

Nitric Acid

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

4000.0

5E-05

Balance Uncertainty
Flask Uncertainty

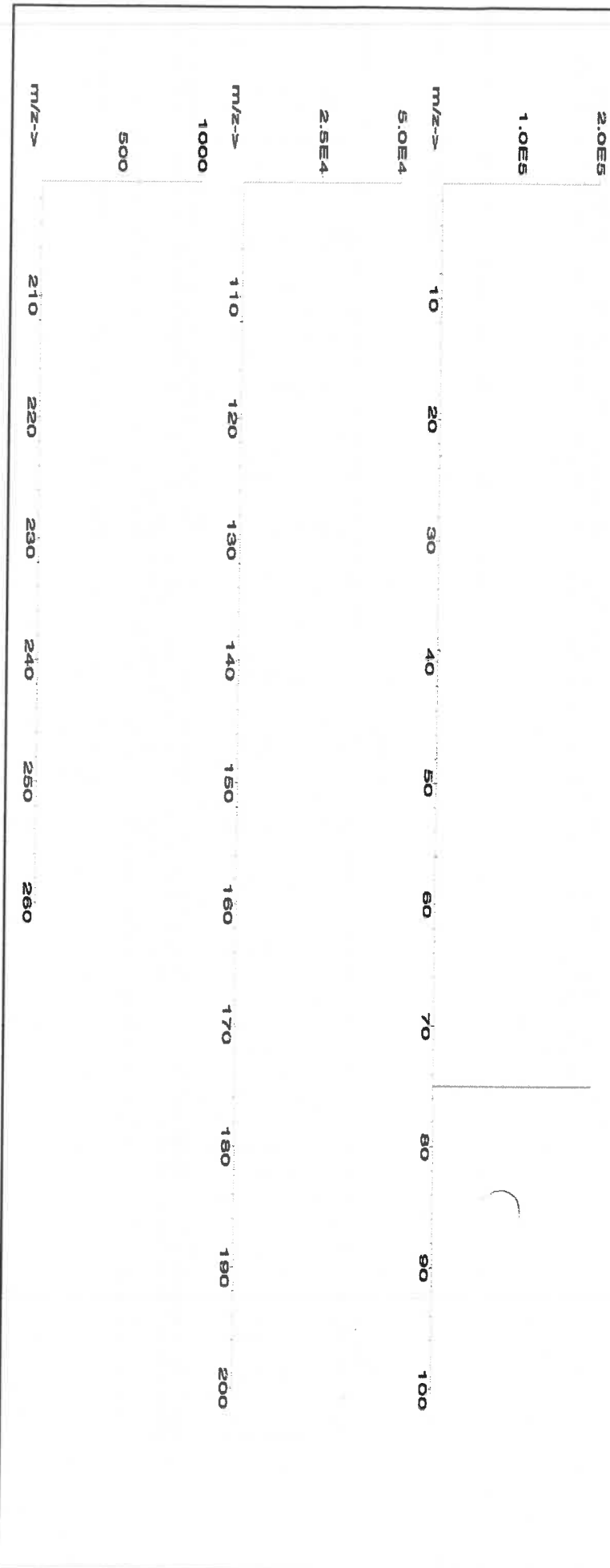
Formulated By:	Lawrence Barry
Reviewed By:	
	Pedro L. Rendas
	111323

Compound

Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	SDS Information (Solvent Safety Info. On Attached pg.)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Arsenic (As)	58133	020522	0.1000	400.0	0.084	1000	10001.0	1000.0	2.0	7440-38-2	0.5 mg/m3	or-rat 500 mg/kg	3103a
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[1] Spectrum No. 1 [34.433 sec]:57033.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<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	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Bc	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge*	<0.02	La	<0.02	Mo	<0.02	Pr	<0.02	Sm	<0.02	S	<0.02	Sa	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
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- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: **57005**
Lot Number: **071123**
Description: **Boron (B)**

Solvent: MKB8697V Ammonium hydroxide

Lot #

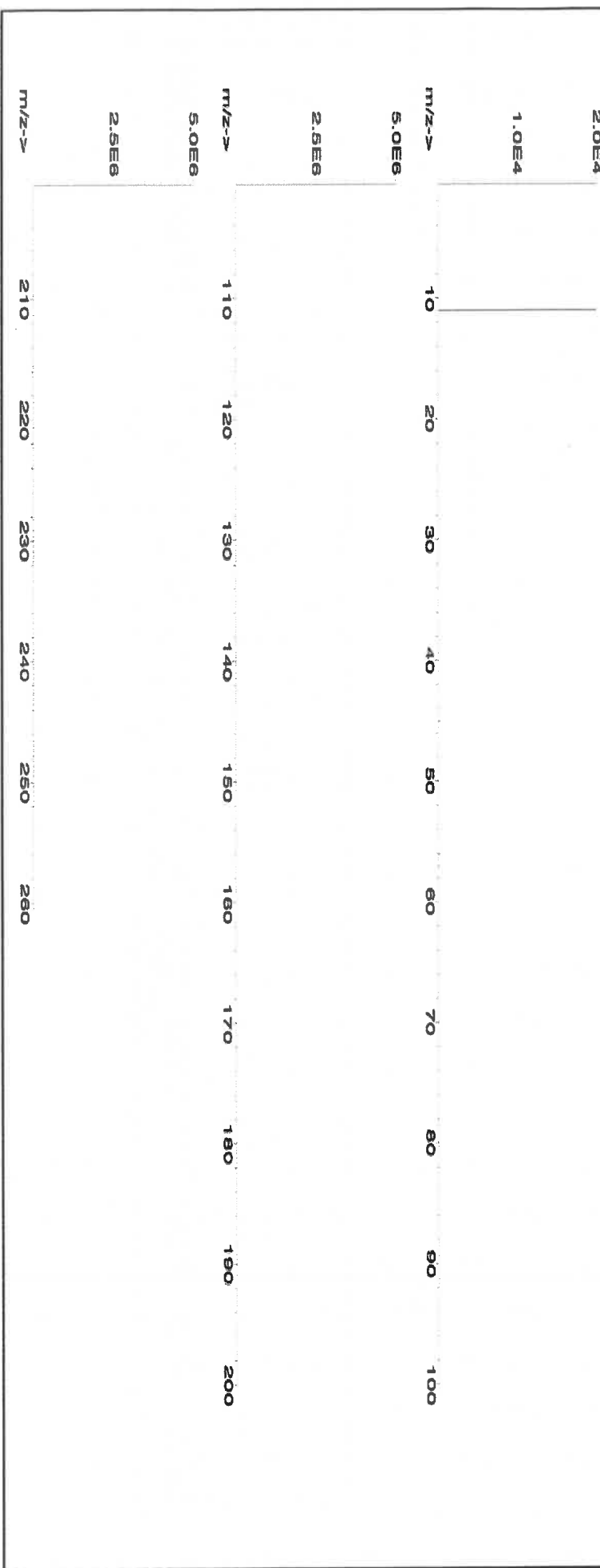
AI: 021009124 M5814

Expiration Date: 071126
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 Balance Uncertainty
2.0% 40.0 Ammonium hydroxide (mL)

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

SDS Information									
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	NIST SRM
Boric acid (B)	IN018 BV082018A1	1000	99.999	0.10	17.3	11.55772	11.56201	1000.4	3107

[1] Spectrum No. 1 [12.275 sec]:56105.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<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	T	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).



CERTIFIED WEIGHT REPORT:

Part Number: 57115
Lot Number: 041723
Description: Phosphorous (P)

Solvent: 21110221 Nitric Acid

Lot #

R102109124 M5815

Expiration Date: 041726
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB

2% 40.0 (mL) Nitric Acid

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

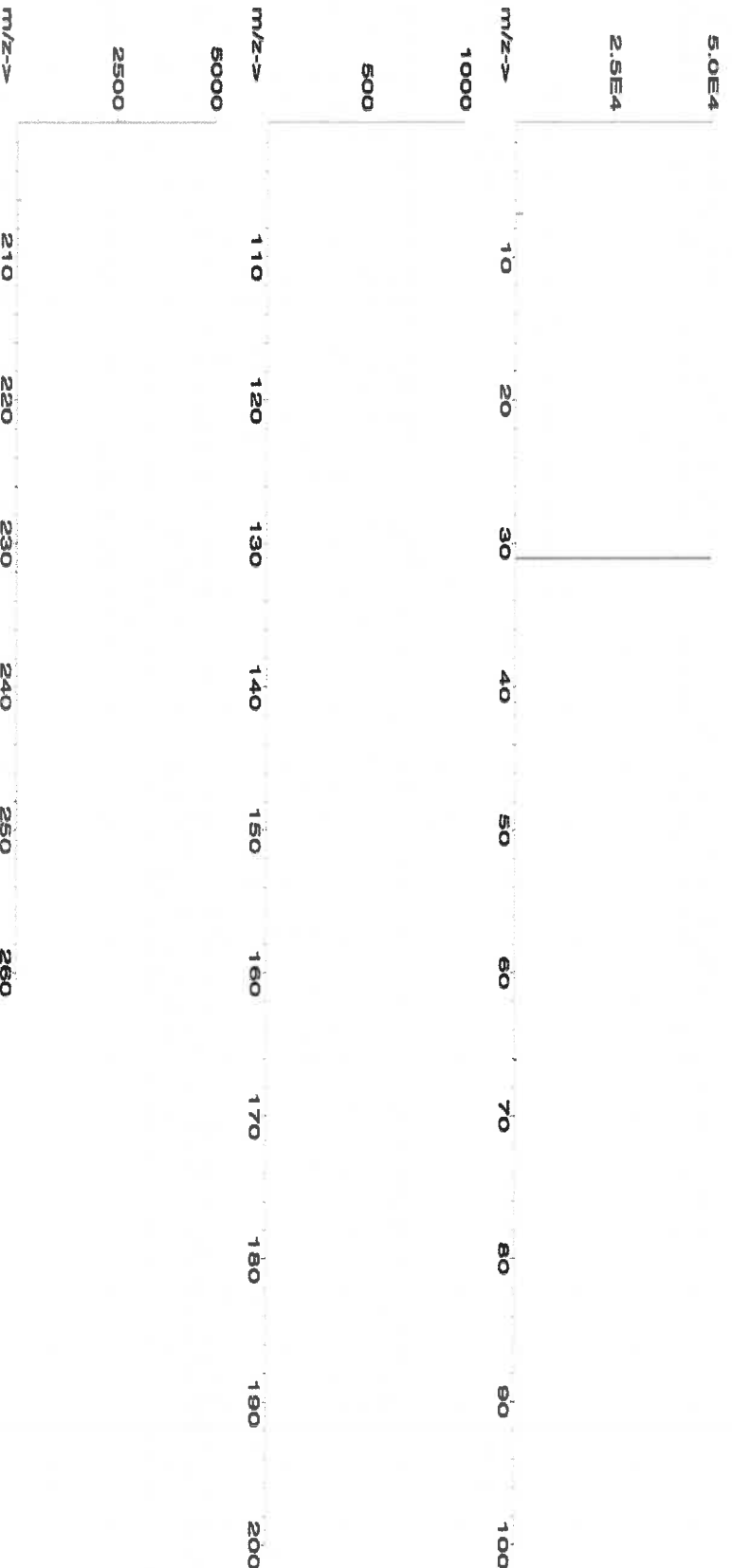
Formulated By: Lawrence Barry	041723
Reviewed By: Pedro L. Rentas	041723

SDS Information

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Ammonium dihydrogen phosphate (P) IN008 PVR2019A1 10000 99.999 0.10 27.5 72.7287 72.7289 10000.0 20.0 7722-76-1 5 mg/m3 or-hal >2000mg/kg 3186

[1] Spectrum No.1 [12.074 sec]:58115.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	T	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57016
122923
Sulfur (S)

Lot #

ASTM Type 1 Water

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

Expiration Date:

122926

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6L7B

Weight shown below was diluted to (mL):

4000.0

SE-05 Balance Uncertainty
0.06 Flask Uncertainty

Compound

RM#
Lot
Number

Nominal
Conc. (µg/mL)

Purity
(%)

Uncertainty
Assay (%)

Target
Weight (g)

Actual
Weight (g)

Actual
Conc. (µg/mL)

Expanded
Uncertainty
± (µg/mL)

CAS#
OSHA PEL (TWA)

LD50
SRM

SDS Information

1. Ammonium sulfate (S)

IN117 SLBR725v

1000

99.9

0.10

24.3

16.4979

16.4980

1000.0

2.0

7783-20-2

NA

or-rel 4250mg/kg

3181

[1] Spectrum No. 1 [33.603 sec]:57016.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	La	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Ba	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Ru	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	S	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	Ta	<0.02	Ti	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

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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).



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57116
071123
Sulfur (S)

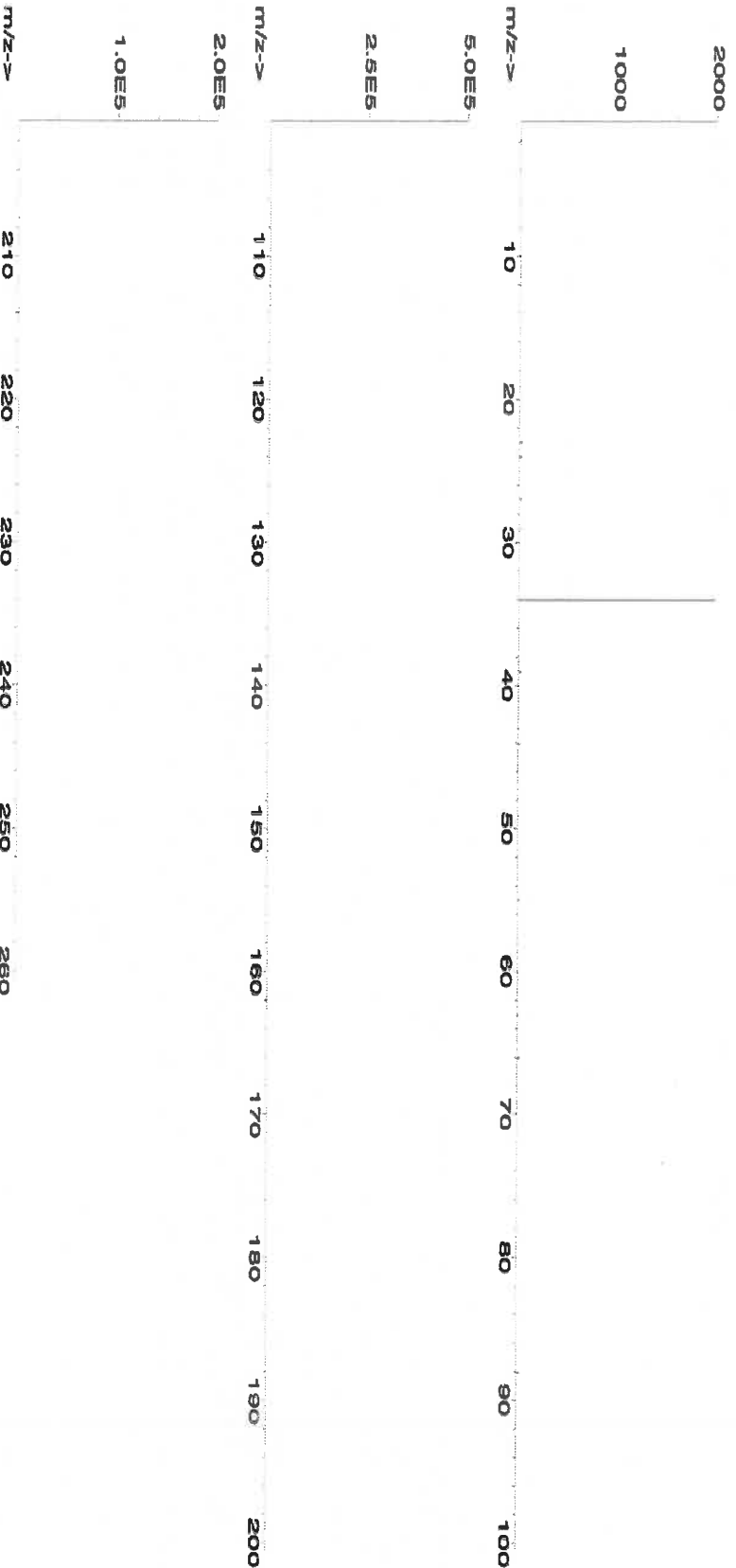
Lot #
Solvent: 071123
ASTM Type 1 Water

Formulated By:	Lawrence Barry
071123	
Reviewed By:	Pedro L. Rentas
071123	

Expiration Date: 071126
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 1999.48
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

SDS Information									
Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)
Ammonium sulfate (S)	IN117 SLBR7225V	10000	99.9	0.10	24.3	82.4675	82.4692	10000.1	20.0
						7763-20-2	NA		
							oral 4250mg/kg	3181	

[1] Spectrum No. 1 [24.004 sec]:58116.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Ti	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	T	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

Physical Characterization:

(T)= Target analyte

Certified by:

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

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

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

Solvent: **24002546 Nitric Acid**

Lot #

R: 02/09/24 M5818

Expiration Date: **122026**

2% 40.0 (mL) Nitric Acid

Recommended Storage: **Ambient (20 °C)**

Nominal Concentration (µg/mL): **1000**

NIST Test Number: **6UTB**

5E-05 Balance Uncertainty

Weight shown below was diluted to (mL): **1999.48 0.058 Flask Uncertainty**

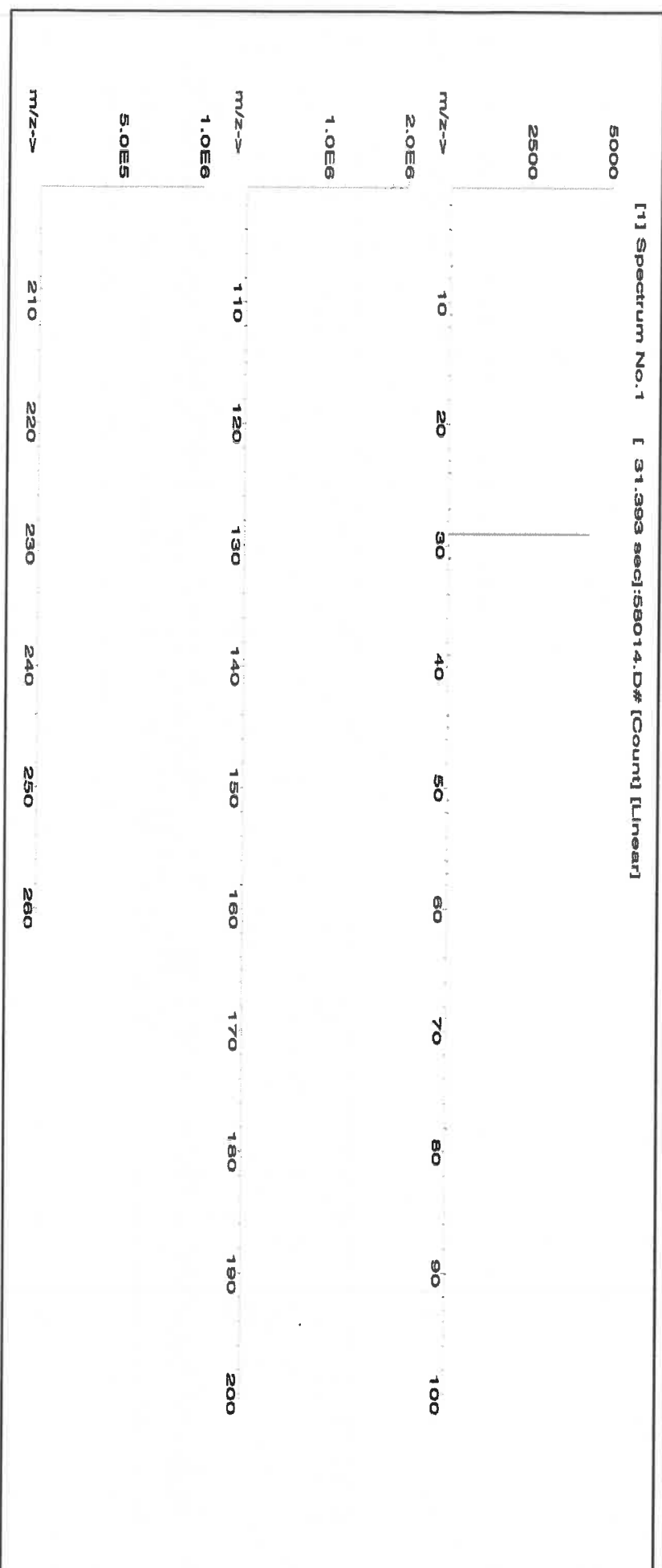
<i>Aleah O Brady</i>	
Formulated By:	Aleah O Brady
Reviewed By:	<i>Pedro L. Rentas</i>
	Pedro L. Rentas
	122023

SDS Information

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Ammonium hexafluorosilicate (Si) IN009 S1D08022A1 1000 99.999 0.10 14.4 13.8854 13.8855 1000.0 2.0 18919-19-0 2.5 mg/m3 off-mus 70 mg/kg NA

[1] Spectrum No. 1 [31.393 sec; 158014.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	T	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Ru	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

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

Solvent: 24002546 Nitric Acid

2% 60.0 (mL) Nitric Acid

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

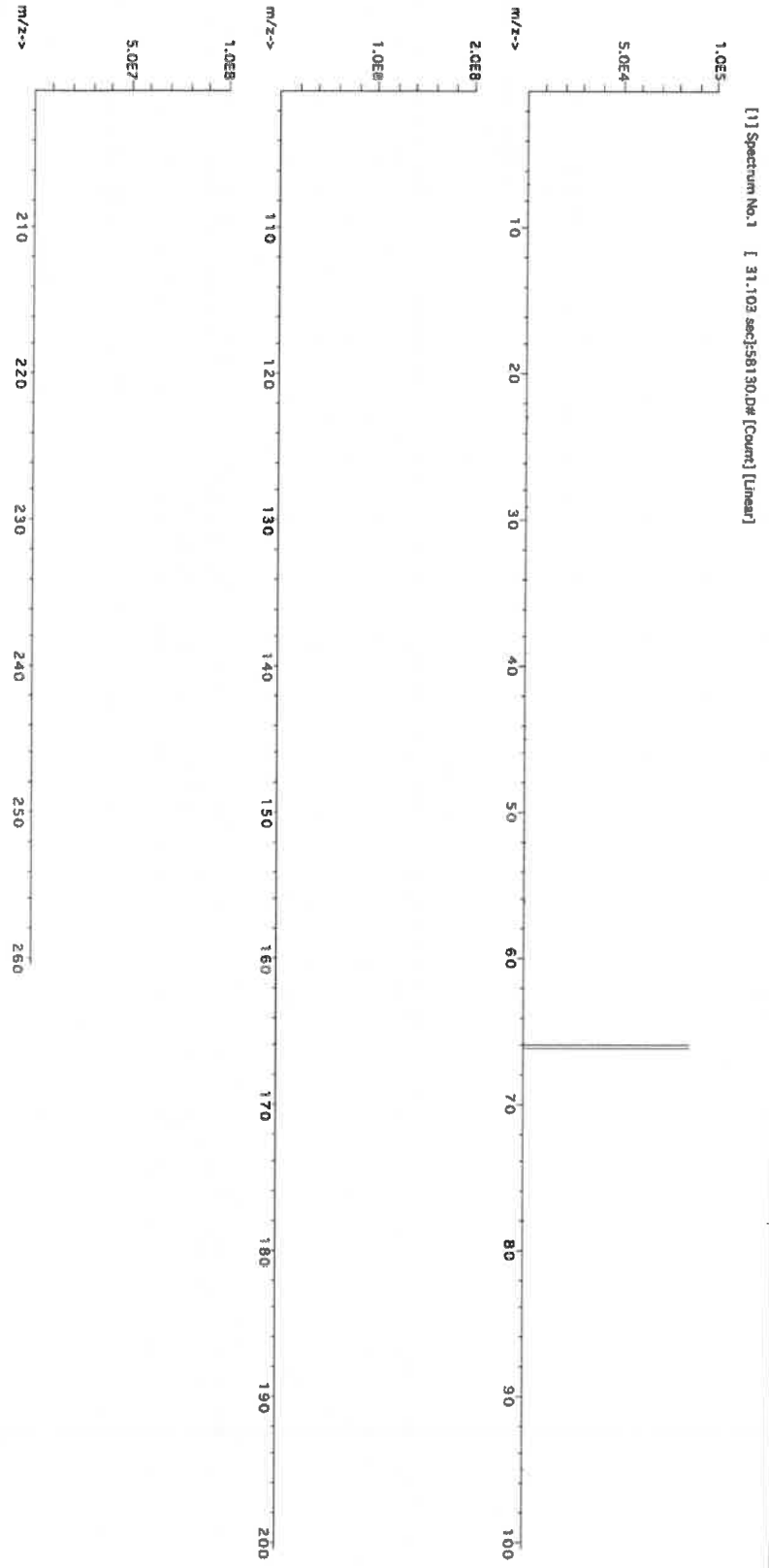
Weight shown below was diluted to (mL): 3000.4 0.06 Balance Uncertainty
Flask Uncertainty

Lot # R: 02109124 MS819

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

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty ± (µg/mL)	CAS#	OSHA PEL (TWA)	LDSO	NIST SRM
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1. Zinc nitrate hexahydrate (Zn)	IN016 ZNE03021A1	1000	99.999	0.10	24.3	12.3475	12.3502	1000.2	2.0	10196-16-6	1 mg/m ³	on-rat 1190mg/kg 3168
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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	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

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

Solvent: 24002546 Nitric Acid

Lot #

R: 02109124 M5820

Formulated By: Lawrence Barry 091123

Reviewed By: Pedro L. Rentas 091123

2% 40.0 (mL) Nitric Acid

Expiration Date: 091126

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

NIST Test Number: 6LJB

5E-05 Balance Uncertainty

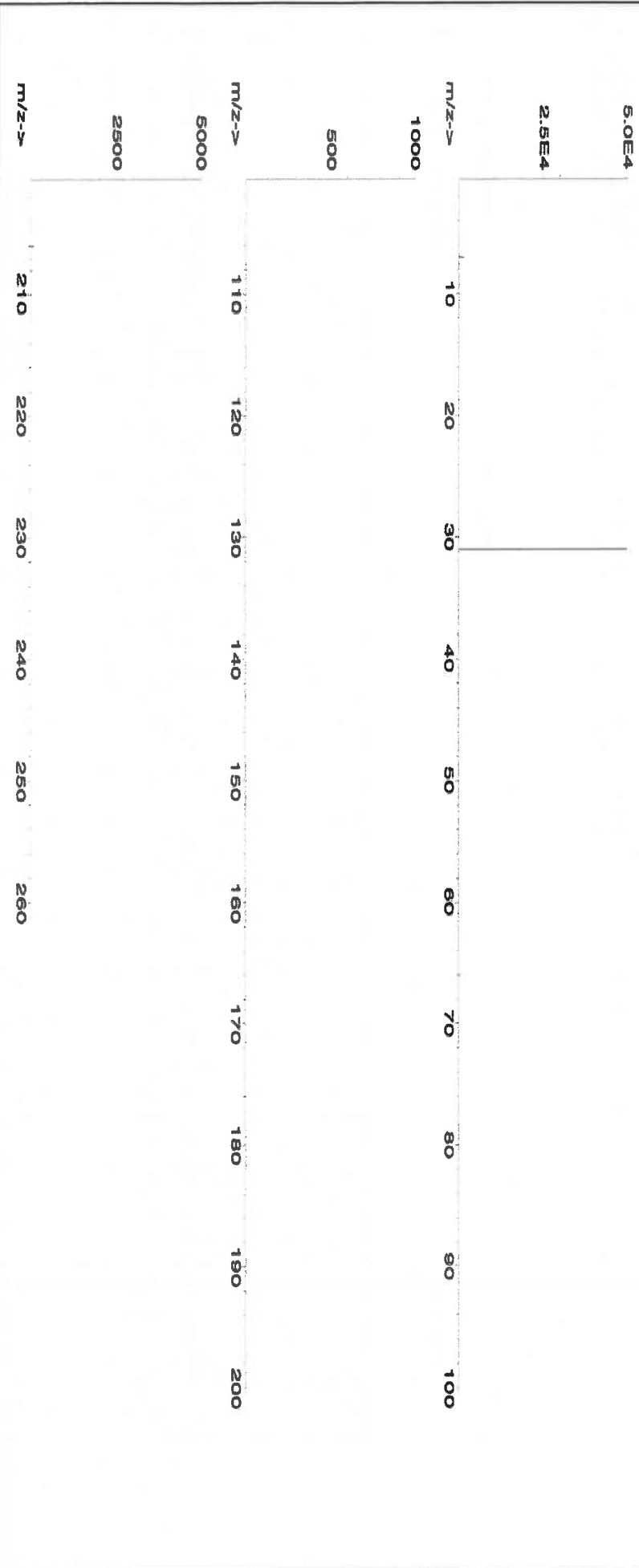
Weight shown below was diluted to (mL): 2000.02 0.058 Flask Uncertainty

Compound

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

1. Ammonium dihydrogen phosphate (P) IN008 PVO62019A1 1000 99.999 0.10 27.5 7.2729 7.2730 1000.0 2.0 7722-76-1 5 mg/m3 xH-rat >2000mg/kg 3186

[1] Spectrum No.1 [12.074 sec]:58115.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Tc	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	T	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sa	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

Certificate of Analysis

M5959 R: 6/14/24

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

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

F: 540-585-3012

info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGY10
Lot Number: V2-Y740548
Matrix: 2% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Yttrium
Starting Material: Yttrium Oxide
Starting Material Lot#: 2661 and 06230520YL
Starting Material Purity: 99.9984%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10000 ± 30 µg/mL
Density: 1.032 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10011 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #2	9997 ± 50 µg/mL ICP Assay NIST SRM 3167a Lot Number: 190730
Assay Method #3	9984 ± 31 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

$u_{char} = [\sum(w_i)^2(u_{char i}^2)]^{1/2}$ where $u_{char i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

M Ag <	0.004600	M Eu	0.009037	M Na	0.086360	M Se <	0.005200	M Zn	0.030125
M Al	0.014862	O Fe	0.002410	M Nb <	0.000570	O Si	0.024100	O Zr <	0.002600
M As <	0.003500	M Ga <	0.000570	M Nd	0.000923	M Sm	0.000461		
M Au <	0.001700	M Gd <	0.003500	M Ni <	0.005700	M Sn <	0.002300		
O B	0.002209	M Ge <	0.005200	M Os <	0.001200	M Sr <	0.004600		
O Ba <	0.002500	M Hf <	0.000570	n P <		M Ta <	0.000570		
O Be <	0.001400	M Hg <	0.000570	M Pb	0.005020	M Tb	0.001044		
M Bi <	0.003500	M Ho	0.009037	M Pd <	0.005100	M Te <	0.002300		
O Ca	0.009841	M In <	0.002300	M Pr <	0.002300	M Th <	0.000570		
M Cd <	0.000570	M Ir <	0.000570	M Pt <	0.000570	M Ti <	0.003500		
M Ce <	0.002300	O K	0.018677	M Rb <	0.000570	M Tl <	0.000570		
M Co <	0.000570	M La	0.000461	M Re <	0.000570	M Tm <	0.003500		
M Cr <	0.004000	O Li <	0.009300	M Rh <	0.008000	M U <	0.000570		
M Cs <	0.000570	M Lu	0.000582	M Ru <	0.000570	M V	0.001265		
M Cu	0.002610	O Mg	0.001486	n S <		M W <	0.002300		
M Dy	0.003815	M Mn	0.000582	M Sb	0.005422	s Y <			
M Er	0.003615	M Mo <	0.005700	M Sc <	0.001200	M Yb	0.001827		

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

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 88.91 +3 6 Y(OH)(H₂O)_{x+2}

Chemical Compatibility -Soluble in HCl, H₂SO₄ and HNO₃. Avoid HF, H₃PO₄ and neutral to basic media.

Stable with most metals and inorganic anions forming an insoluble carbonate, oxide, oxalate, and fluoride.

Avoid mixing with elements / solutions containing moderate amounts of fluoride.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

Y Containing Samples (Preparation and Solution) - Metal (Soluble in acids); Oxide (Dissolve by heating in H₂O / HNO₃); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Dry ash and dissolve in 1:1 H₂O / HCl or HNO₃).

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

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 89 amu	0.8 ppt	N/A	73Ge16O, 178Hf+2
ICP-OES 360.073 nm	0.005 / 0.000036 µg/mL	1	Ce, Th
ICP-OES 371.030 nm	0.004 / 0.00007 µg/mL	1	Ce
ICP-OES 377.433 nm	0.005 / 0.0009 µg/mL	1	Ta, Th

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 20, 2024

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- February 20, 2029

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Custom Processing Supervisor



Certificate Approved By:

Muzzammil Khan
Stock Laboratory Supervisor



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





CERTIFIED WEIGHT REPORT:

MS962 **R10614124**

Lot # **24002546** Solvent: **Nitric Acid**

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

2.0% 40.0 (mL) Nitric Acid

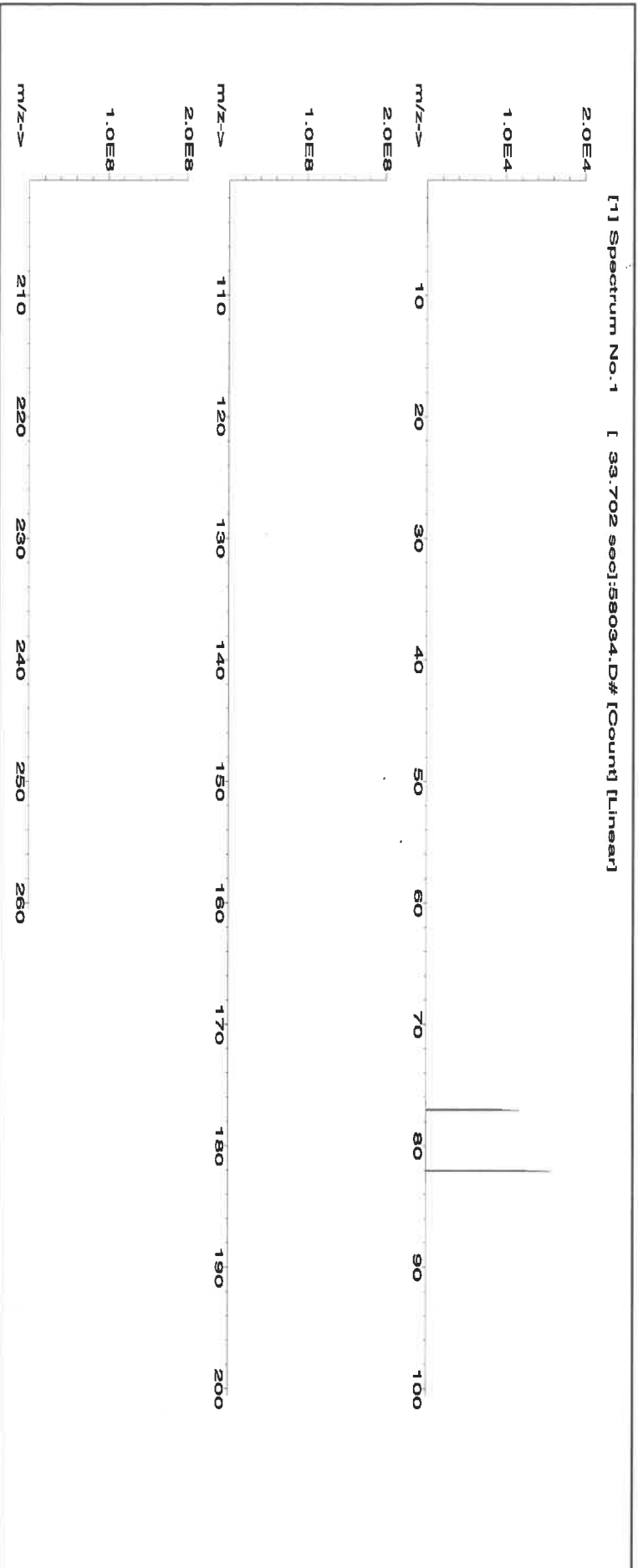
Expiration Date: **060627**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**
Volume shown below was diluted to (mL): **2000.07**
SE-05 Balance Uncertainty **0.100** Flask Uncertainty

Formulated By:	Benson Chan	060624
Reviewed By:	Pedro L. Rantas	060624

SDS Information

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Pipette (mL)	Nominal Conc. (µg/mL)	Initial Conc. (µg/mL)	Final Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	(Solvent Safety Info. On Attached pg.)	CAS#	OSHA PEL (TWA)	LDSO	NIST SRM
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1. Selenium (Se)	58134	071223	0.1000	200.0	0.084	1000	10002.5	1000.0	2.2	7782-49-2	0.2 mg/m3	or-tral 6700 mg/kg	3149
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Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.02	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Bu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Ru	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Sr	<0.02	S	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	Ta	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02			Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

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



Certified Reference Material CRM

M5970 M5971



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

CERTIFIED WEIGHT REPORT:

Part Number: **57003**
Lot Number: **062124**
Description: **Lithium (Li)**
Expiration Date: **06/12/27**
Recommended Storage: **Ambient (20 °C)**
Nominal Concentration (µg/mL): **1000**
NIST Test Number: **6UTB**
Volume shown below was diluted to (mL): **250.11**
SE-05 Balance Uncertainty
0.016 Flask Uncertainty

Lot # **24002546**
Solvent: **Nitric Acid**

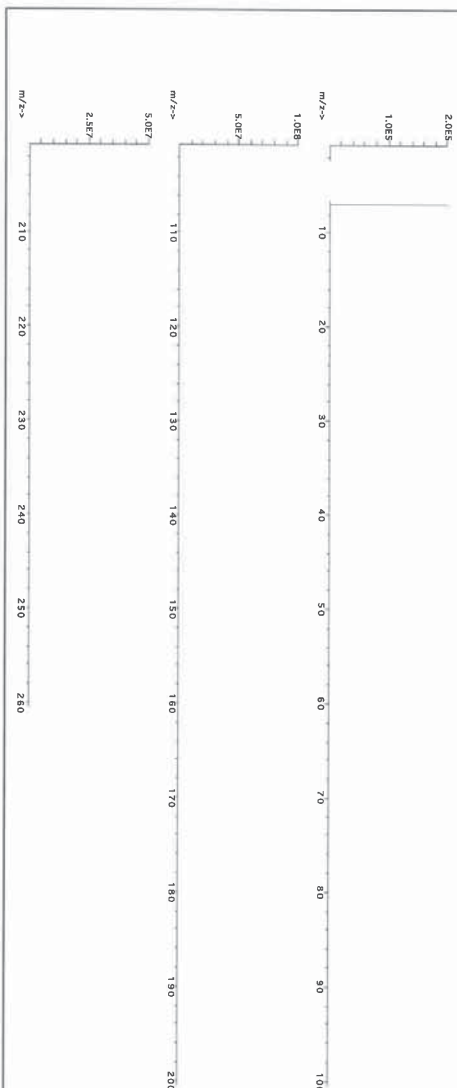
2.0% 5.0 (mL) Nitric Acid

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

Compound		Part		Lot		Dilution		Initial		Uncertainty		Nominal		Initial		Final		Expanded		SDS Information		NIST	
Number	Factor	Number	Factor	Number	Factor	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Vol. (mL)	Pipette (mL)	Conc. (µg/mL)	Conc. (µg/mL)	Uncertainty	± (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	SM

1. Lithium nitrate (Li)	58103	070622	0.1000	25.0	0.004	1000	10000.4	1000.0	2.0	7790-68-4	5 mg/m3	Oral: 1428 mg/kg	NA
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[1] Spectrum No. 1 [32.093 sec; 15000.0Hz Count [Lines]





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	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ce	<0.2	Er	<0.02	Hb	<0.02	Mg	<0.01	Nb	<0.02	Rb	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	La	Os	<0.02	Rh	<0.02	Ag	<0.02	Ti	<0.02	V	<0.02	
Ba	<0.02	Cr	<0.02	Gd	<0.02	Ir	<0.02	Mn	Pd	<0.02	Rb	<0.02	Na	<0.2	Ta	<0.02	Yb	<0.02	
Be	<0.01	Co	<0.02	Ga	<0.02	La	<0.2	Hg	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02	
Bi	<0.02	Cu	<0.02	Ge	<0.02	Mo	<0.02	Na	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02	
B	<0.02	Ca	<0.02	Au	<0.02	Pb	<0.02	Nd	K	<0.2	Sc	<0.02	Ta	<0.02	Tl	<0.02	Zr	<0.02	
(T) = Target analyte																			

(T) = Target analyte

Physical Characterization:

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

Certified by:

[Signature]

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST* (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

Certificate of Analysis

MS978, MS979



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



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).

1.0 ACCREDITATION / REGISTRATION

2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution

Catalog Number: CGT1

Lot Number: T2-T1719972

Matrix: 2% (v/v) HNO₃

Value / Analyte(s): tr. HF

Starting Material: 1 000 µg/mL ea.

Starting Material: Titanium

Starting Material Lot#: T1 Metal

Starting Material Purity: 2094

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 1002 ± 5 µg/mL

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

Assay Method #1

1002 ± 4 µg/mL

ICP Assay NIST SRM 3162a Lot Number: 130925

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

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

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

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

X_p = mean of Assay Method A with

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

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

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

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

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

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

M Ag	<	0.000536	M Eu	<	0.000268	O Na	<	0.032670	M Se	<	0.001204	O Zn	<	0.003267
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	<	0.000986			
O B	<	0.008929	M Ge	<	0.002146	M Os	<	0.000269	O Sr	<	0.000986			
M Ba	<	0.002683	M Hf	<	0.002161	O P	<	0.054450	M Ta	<	0.010560			
M Be	<	0.005366	M Hg	<	0.003231	M Pb	<	0.001073	M Tb	<	0.000268			
M Bi	<	0.001609	M Ho	<	0.000268	M Pd	<	0.000268	M Th	<	0.001341			
O Ca	<	0.000676	M In	<	0.002683	M Pr	<	0.000268	M Tl	<	0.053663			
M Cd	<	0.000268	M Ir	<	0.000269	M Pt	<	0.000536	S Tl	<				
M Co	<	0.000268	M K	<	0.001172	M Rb	<	0.000268	M Ti	<	0.000268			
M Cr	<	0.000752	O Li	<	0.000268	M Re	<	0.000268	M Tm	<	0.000268			
M Cs	<	0.000268	M Lu	<	0.000268	M Rh	<	0.000268	M U	<	0.000268			
O Cu	<	0.010890	O Mg	<	0.005445	I S	<	0.006976	M Y	<	0.002146			
M Dy	<	0.000268	O Mn	<	0.003267	M Sb	<	0.004900	M Yb	<	0.000536			
M Er	<	0.000268	M Mo	<	0.000774	O Sc	<							

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 47.87 ± 4.6 Ti(F)₆-2 media. Unstable at ppm levels with metals that would pull F- away (i.e. Do not mix with Alkaline or Rare Earths or high levels of transition elements unless they are fluorinated). Stable with most inorganic anions with a tendency to hydrolyze forming the hydrated oxide in all dilute acids except HF.

Stability - 2-100 ppb levels stable (Alone or mixed with all other metals) as the Ti(F)₆-2 for months in 1% HNO₃ / LDPE container. 1-10,000 ppm single element solutions as the Ti(F)₆-2 chemically stable for years in 2-5% HNO₃ / trace HF in an LDPE container.

TI Containing Samples (Preparation and Solution) - Metal (Soluble in H₂O / HF caution - powder reacts violently). Oxide - low temperature history anatase or rutile (Dissolved by heating in 1:1:1 H₂O / HF / H₂SO₄); K₂SiO₇ - no KF if silica not present); Organic Matrices (Dry ash at 450EC in P10 and dissolve by heating with 1:1:1 H₂O / HF / H₂SO₄ or fuse ash with pyrosulfate if oxide is as plastic pigment and likely in brookite crystaline form).

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

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 48 amu	14 ppt	N/A	32S16O, 32S14N,
ICP-OES 323.452 nm	0.0054 / 0.00092 µg/mL	1	14N17N ₂ , 36Ar12C,
ICP-OES 334.941 nm	0.0038 / 0.00028 µg/mL	1	48Ca, 196X=2
ICP-OES 336.121 nm	0.0053 / 0.00034 µg/mL	1	W, Mo, Co
			Nb, Ta, Cr, U
			Ce, Ar, Ni
			Ru
			(where X = Zr, Mo,

HAZARDOUS INFORMATION

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

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.

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: 800.868.6786; 540.565.3030; Fax: 540.565.3030; Email: 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 Kozlikowski
Manager, Quality Control

Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director

Paul Gaines

809782



Certified Reference Material CRM



45982 R: 6/11/24

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57038
031524
Strontium (Sr)

Solvent: 24002546 Nitric Acid

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

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

Weight shown below was diluted to (mL): 2000.07

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

SDS Information

Expanded

Uncertainty

(Solvent Safety Info. On Attached pg.)

+/- (µg/mL)

LD50

CAS#

OSHA PEL (TWA)

Actual

Conc. (µg/mL)

Actual

Weight (g)

Target

Weight (g)

Assay

(%)

Purity

(%)

Nominal

Conc. (µg/mL)

Lot

Number

RM#

1000

89.997

0.10

41.2

4.85470

4.85502

1000.1

2.0

10042-76-9

NA

orl-rat >2000mg/kg 3153a

Compound	1. Strontium nitrate (Sr)	IN017	SR2022018A1	1000	89.997	0.10	41.2	4.85470	4.85502	1000.1	2.0	10042-76-9	NA	orl-rat >2000mg/kg 3153a
----------	---------------------------	-------	-------------	------	--------	------	------	---------	---------	--------	-----	------------	----	--------------------------

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





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)																	
Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.02	Os	<0.01	Rh	<0.02	Ag	<0.02	Ti	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	T	Tm	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02
																W	<0.02
																U	<0.02
																V	<0.02
																Yb	<0.02
																Y	<0.02
																Zn	<0.02
																Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).

2024 JUN 7 10:01 AM



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

M5985
R: 6/14/24

1.0 ACCREDITATION / REGISTRATION

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



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Custom Grade Solution
Catalog Number: CGIN10
Lot Number: U2-IN729349
Matrix: 5% (v/v) HNO₃
Value / Analyte(s): 10 000 µg/mL ea:
Indium
Starting Material: Indium Metal
Starting Material Lot#: 2511
Starting Material Purity: 99.9995%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10022 ± 30 µg/mL
Density: 1.044 g/mL (measured at 20 ± 4 °C)

Assay Information:

Assay Method #1	10021 ± 56 µg/mL ICP Assay NIST SRM 3124a Lot Number: 110516
Assay Method #2	10035 ± 25 µg/mL EDTA NIST SRM 928 Lot Number: 928
Assay Method #3	10001 ± 33 µg/mL Calculated NIST SRM Lot Number: See Sec. 4.2

- The Calculated Value is a value calculated from the weight of a starting material that has been certified directly vs. a National Institute of Standards and Technology (NIST) SRM/RM. See Sec 4.2 for balance traceability.

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

$u_{char} = [\sum (w_i)^2 (u_{char i}^2)]^{1/2}$ where $u_{char i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

M	Ag	<	0.000760	M	Eu	<	0.000760	O	Na	0.012771	M	Se	<	0.023000	M	Zn	<	0.006100
M	Al	0.003385	O	Fe	0.004462	M	Nb	<	0.000760	O	Si	0.024619	M	Zr	<	0.000760		
M	As	<	0.004600	M	Ga	<	0.000760	M	Nd	<	0.000760	M	Sm	<	0.000760			
M	Au	<	0.002300	M	Gd	<	0.000760	O	Ni	<	0.005100	M	Sn	<	0.000760			
O	B	0.003692	M	Ge	<	0.001600	M	Os	<	0.000760	O	Sr	<	0.000610				
M	Ba	<	0.001600	M	Hf	<	0.000760	n	P	<		M	Ta	<	0.000760			
O	Be	<	0.000130	M	Hg	<	0.003100	M	Pb	0.001400	M	Tb	<	0.000760				
M	Bi	<	0.000760	M	Ho	<	0.000760	M	Pd	<	0.001600	M	Te	<	0.000760			
O	Ca	0.004616	s	In	<			M	Pr	<	0.000760	M	Th	<	0.000760			
M	Cd	<	0.000760	M	Ir	<	0.000760	M	Pt	<	0.000760	O	Ti	<	0.001100			
M	Ce	<	0.000760	O	K	0.007078	M	Rb	<	0.000760	M	Tl	<	0.000760				
M	Co	<	0.000760	M	La	<	0.000760	M	Re	<	0.000760	M	Tm	<	0.000760			
O	Cr	<	0.001300	O	Li	<	0.000130	M	Rh	<	0.000760	M	U	<	0.000760			
M	Cs	<	0.000760	M	Lu	<	0.000760	M	Ru	<	0.000760	M	V	<	0.001600			
M	Cu	<	0.003800	O	Mg	0.000707	n	S	<		M	W	<	0.001600				
M	Dy	<	0.000760	O	Mn	0.000149	M	Sb	<	0.000760	M	Y	<	0.000760				
M	Er	<	0.000760	M	Mo	<	0.002300	M	Sc	<	0.000760	M	Yb	<	0.000760			

M - Checked by ICP-MS

O - Checked by ICP-OES

i - Spectral Interference

n - Not Checked For

s - Solution Standard Element

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale. <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.
- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.
- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Atomic Weight; Valence; Coordination Number; Chemical Form In Solution - 114.82 +3 6 In(H₂O)₆+3

Chemical Compatibility -Soluble in HCl, HNO₃, and H₂SO₄. Avoid neutral and basic media. Stable with most metals and inorganic anions. The oxalate, sulfide, carbonate, hydroxide and phosphate are insoluble in water.

Stability - 2-100 ppb levels stable for months in 1% HNO₃ / LDPE container. 1-10,000 ppm solutions chemically stable for years in 2-5% HNO₃ / LDPE container.

In Containing Samples (Preparation and Solution) -Metal (Best dissolved in HCl / HNO₃); Oxide (Soluble in mineral acids); Ores (Carbonate fusion in PtO followed by HCl dissolution); Organic Matrices (Sulfuric/peroxide digestion or dry ash and dissolution in dilute HCl).

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

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 115 amu	1 ppt	n/a	115Sn, 99Ru16O
ICP-OES 158.583 nm	0.05 / 0.002 µg/mL	1	
ICP-OES 230.606 nm	0.1 / 0.03 µg/mL	1	Ni, Os
ICP-OES 325.609 nm	0.2 / 0.05 µg/mL	1	Mn, Mo, Th

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; Info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

February 21, 2023

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- February 21, 2028

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Certified Reference Material CRM
R: 01/03/24 M6033



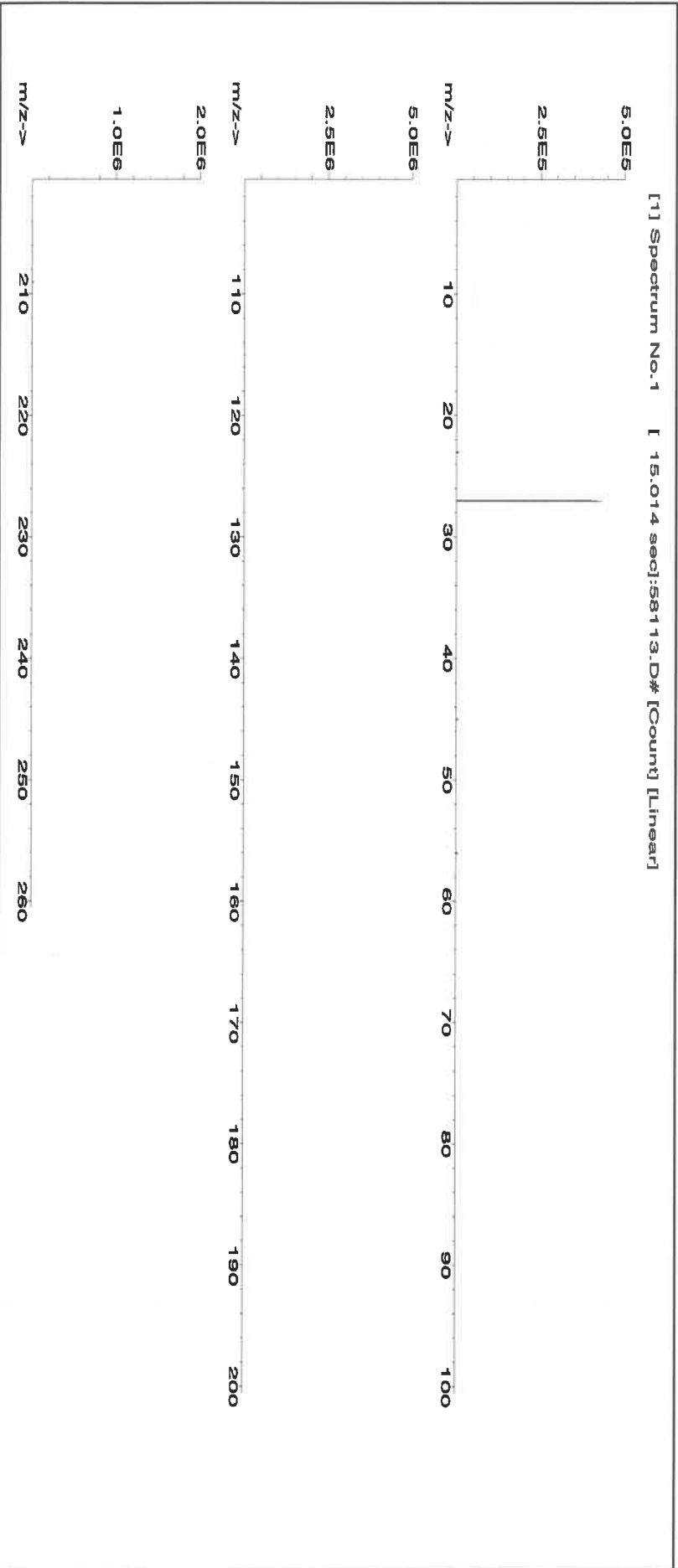
CERTIFIED WEIGHT REPORT:

Part Number: 58113
Lot Number: 011623
Description: Aluminum (Al)
Expiration Date: 011626
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6LUTB
Weight shown below was diluted to (mL): 2000.02
Solvent: 20510011 Nitric Acid
Lot #
2% 40.0 (mL) Nitric Acid
5E-05 Balance Uncertainty
0.058 Flask Uncertainty

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

Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Aluminum nitrate nonahydrate (Al) IN022 ALUM12021A1 10000 99.999 0.10 7.30 273.9779 274.0078 10001.1 20.0 7784-27-2 2 mg/m³ or rat 3671 mg/kg 3101a



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



R → 16/13/24
Met dig

M 6121

Material No.: 9530-33
Batch No.: 0000275677
Manufactured Date: 2020/12/16
Retest Date: 2025/12/15
Revision No: 1

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.190
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	1
ACS - Free Chlorine (as Cl ₂)	<= 0.5 ppm	< 0.5
Phosphate (PO ₄)	<= 0.05 ppm	< 0.03
Sulfate (SO ₄)	<= 0.5 ppm	< 0.3
Sulfite (SO ₃)	<= 0.8 ppm	0.3
Ammonium (NH ₄)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	29.7
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

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

Avantor Performance Materials, LLC

100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

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

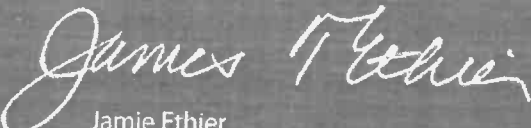
Product Information (not specifications):

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

Nitric Acid 69%
CMOS



R → 11/12/24

M6126

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

Certificate of Analysis

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

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

 **avantor**TM



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

Test	Specification	Result
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For Microelectronic Use

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



Jamie Croak
Director Quality Operations, Bioscience Production



CERTIFIED WEIGHT REPORT:

Part Number: 58111
Lot Number: 122223
Description: Sodium (Na)

Solvent: 24002546 Nitric Acid

Lot #

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

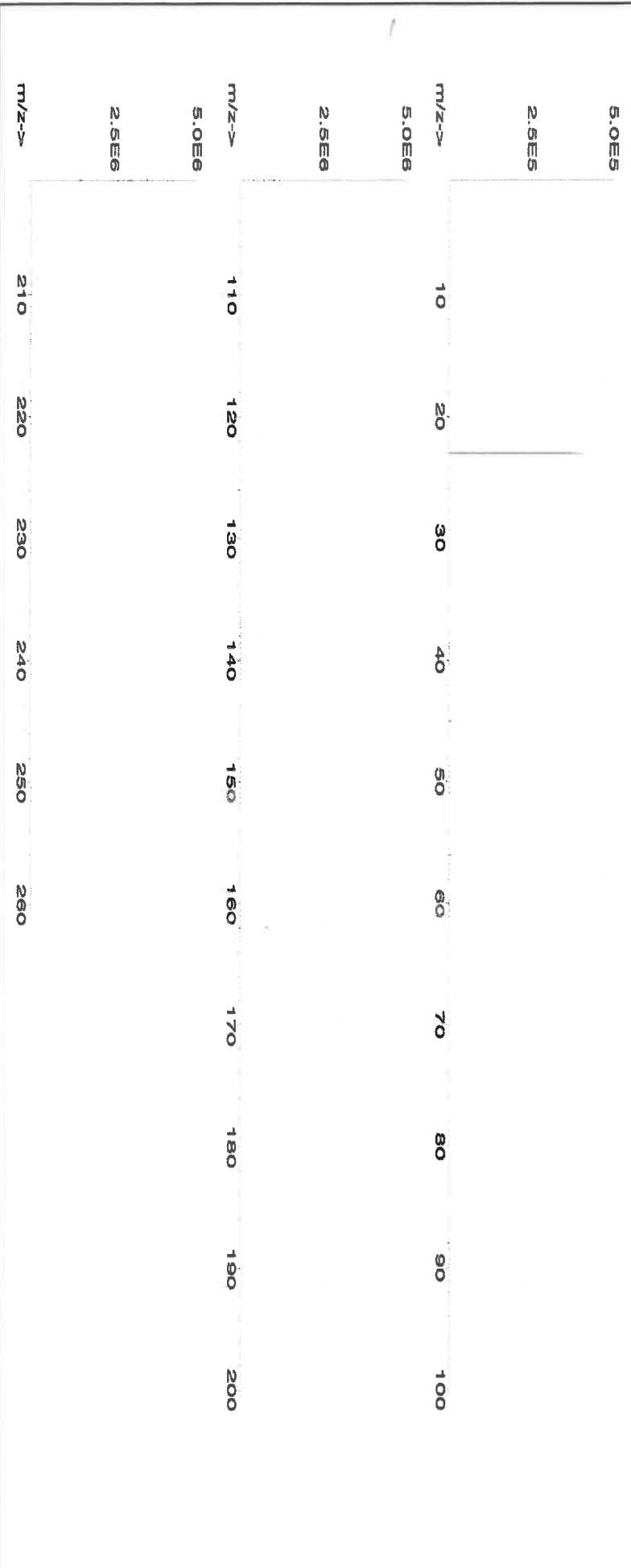
Expiration Date: 122226
Recommended Storage: Ambient (20 °C)
Nominal Concentration (µg/mL): 10000
NIST Test Number: 6UTB
Weight shown below was diluted to (mL): 3000.4
5E-05 Balance Uncertainty
0.06 Flask Uncertainty

SDS Information

Compound	Lot	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Sodium nitrate (Na)	IND36 NAV01201511	10000	99.999	0.10	26.9	111.5406	111.5479	10000.7	20.0	7631-99-4	5 mg/m3	or-tat 3430 mg/kg	3152a
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[1] Spectrum No.1 [8.935 sec]:58111.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.02	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57051
120523
Antimony (Sb)

Lot #
Solvent:

24002546
Nitric Acid

2.0%
60.0
Nitric Acid

(mL)

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

120526
Ambient (20 °C)
1000

NIST Test Number:

6U7B

Volume shown below was diluted to (mL):

3000.41
5E-05
Balance Uncertainty
0.058
Flask Uncertainty

Formulated By:	Lawrence Barry	120523
Reviewed By:	Pedro L. Rientas	120523

Compound

Part
Number

Lot
Number

Dilution
Factor

Initial
Vol. (mL)

Uncertainty
Pipette (mL)

Nominal
Conc. (µg/mL)

Initial
Conc. (µg/mL)

Final
Conc. (µg/mL)

Expanded
Uncertainty
+/- (µg/mL)

CAS#

OSHA PEL (TWA)

LD50

NIST
SRM

1. Antimony (Sb)

58151

100923

0.1000

300.0

0.084

1000

10001.4

1000.0

2.1

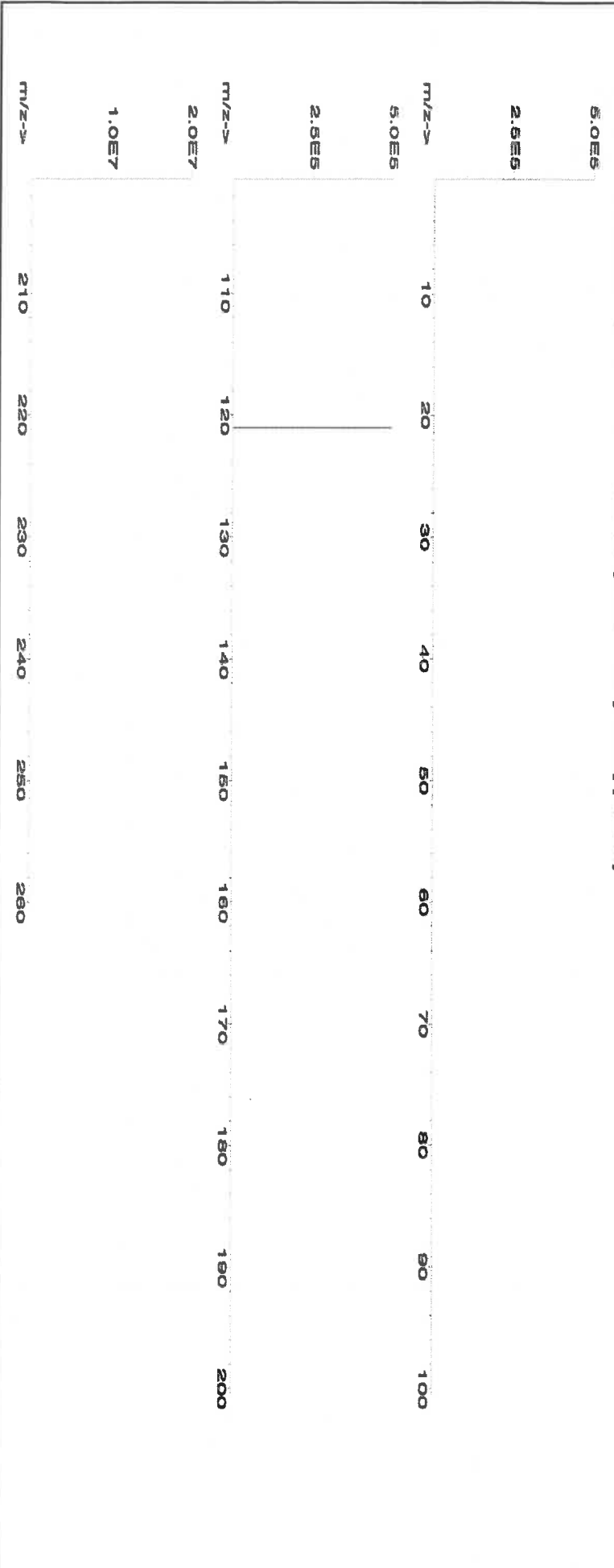
7440-36-0

0.5 mg/m3

or-rel 7000 mg/kg

3102a

[1] Spectrum No.1 [17.964 sec]:58051.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	T	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T) = Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



M6030



CERTIFIED WEIGHT REPORT:

Part Number: 57047
Lot Number: 122823
Description: Silver (Ag)

Lot #

Solvent: 24002546 Nitric Acid

2% 80.0 (mL) Nitric Acid

Expiration Date: 122826

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL): 1000

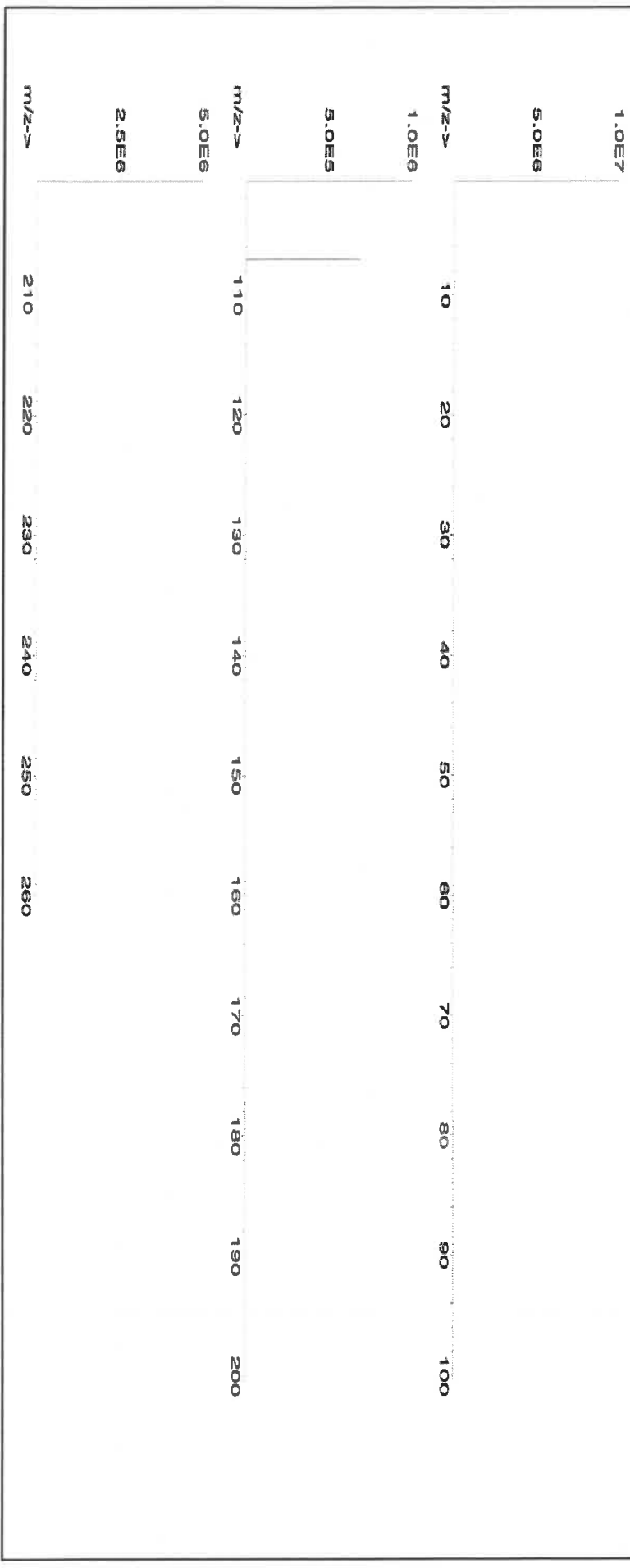
NIST Test Number: 6UTB

Weight shown below was diluted to (mL): 4000.30 0.058 Balance Uncertainty
Flask Uncertainty

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

SDS Information									
Expanded					(Solvent Safety Info. On Attached pg.)				
Compound	RM#	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty Purity (%)	Assay	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)
1. Silver nitrate (Ag)	IN035	J0612AGA1	1000.0	99.9996	0.10	63.7	6.27992	6.27998	1000.0
							2.0	7761-88-8	10 µg/mL
									NA
									3151

[1] Spectrum No. 1 [14.044 sec]:58147.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Se	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	T	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

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

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 meghom deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
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- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All Standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).



CERTIFIED WEIGHT REPORT:

Part Number: 57081
Lot Number: 062724
Description: Thallium (TI)

Lot #

Solvent: 24002546 Nitric Acid

2% 40.0 Nitric Acid (mL)

Expiration Date:

062727

Recommended Storage: Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Weight shown below was diluted to (mL): 2000.1

5E-05 Balance Uncertainty
0.10 Flask Uncertainty

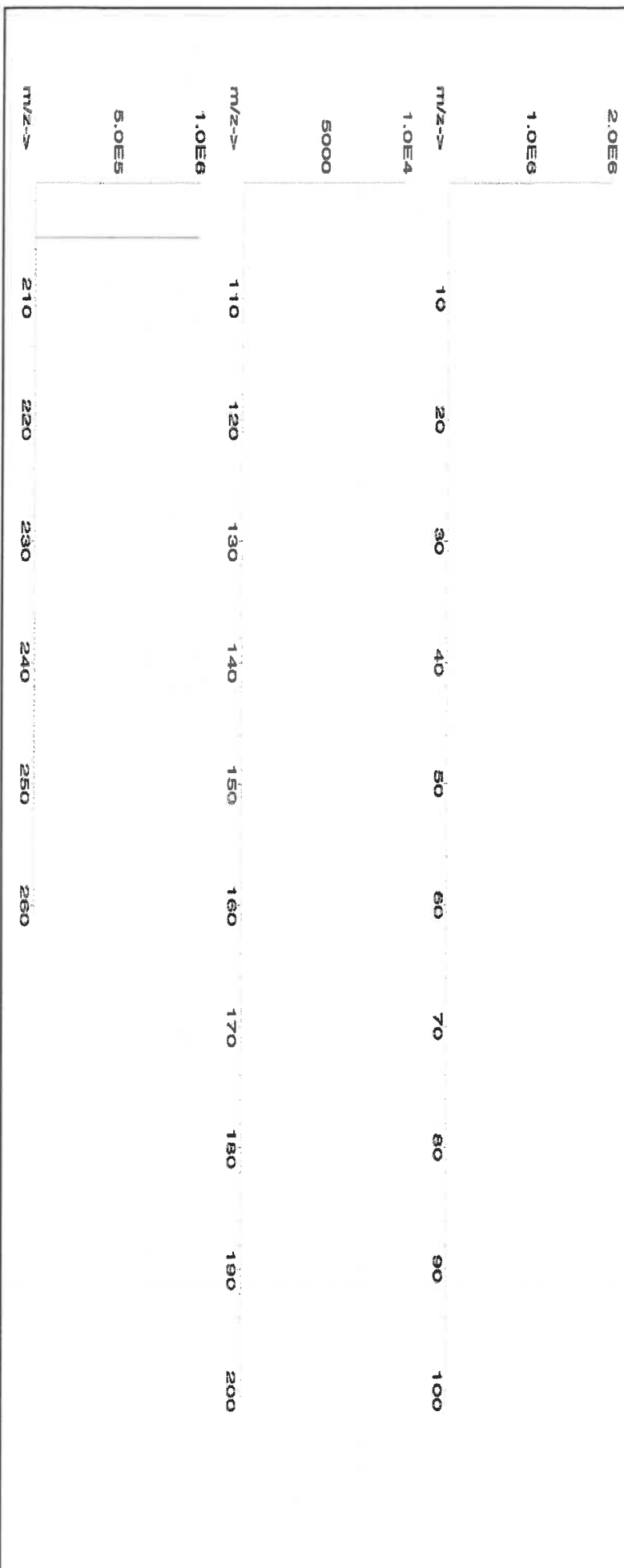
<i>Aleah O'Brady</i>	
Formulated By:	Aleah O'Brady
	062724
Reviewed By:	<i>Pedro L. Renteria</i>
	Pedro L. Renteria
	062724

SDS Information

Compound	Lot Number	Nominal Conc. (µg/mL)	Purity (%)	Uncertainty (%)	Assay (%)	Target Weight (g)	Actual Weight (g)	Actual Conc. (µg/mL)	Expanded Uncertainty +/- (µg/mL)	CAS#	OSHA PEL (TWA)	LD50	NIST SRM
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1. Thallium nitrate (TI) IN037 BCCF4399 1000 99.999 0.10 77.0 2.5975 2.5977 1000.1 2.0 10102-45-1 0.1 mg/m3 orl-mus 15mg/kg 3158

[1] Spectrum No.1 [14.044 sec]:57081.D# [Count] [Linear]





Instrumental Analysis by Inductively Coupled Plasma Mass Spectrometry (ICP-MS):

Trace Metals Verification by ICP-MS (µg/mL)

Al	<0.02	Cd	<0.02	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pt	<0.02	Sc	<0.2	Tb	<0.02	W	<0.02
Sb	<0.02	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	<0.2	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	T	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	<0.02	Pd	<0.02	Rb	<0.02	Na	<0.2	Tm	<0.02	Yb	<0.02
Be	<0.01	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Sn	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Ti	<0.02	Zn	<0.02
B	<0.02	Cu	<0.02	Au	<0.02	Pb	<0.02	Nd	<0.02	K	<0.2	Se	<0.02	Ta	<0.02			Zr	<0.02

(T) = Target analyte

Physical Characterization:

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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Certified Reference Material CRM

M6021



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

CERTIFIED WEIGHT REPORT:

Part Number:
Lot Number:
Description:

57023
062424
Vanadium (V)

Lot #
Solvent:

24002546

Nitric Acid

2.0%

40.0
(mL)

Nitric Acid

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

Expiration Date:

062427

Recommended Storage:

Ambient (20 °C)

Nominal Concentration (µg/mL):

1000

NIST Test Number:

6UTB

Volume shown below was diluted to (mL):

2000.3

5E-05 Balance Uncertainty
0.06 Flask Uncertainty

Expanded

(Solvent Safety Info. On Attached pg.)

Compound

Part
Number

Lot
Number

Dilution
Factor

Initial
Vol. (mL)

Uncertainty
Pipette (mL)

Nominal
Conc. (µg/mL)

Initial
Conc. (µg/mL)

Final
Conc. (µg/mL)

Expanded
Uncertainty
+/- (µg/mL)

CAS#

OSHA PEL (TWA)

LD50

NIST

SRM

1. Ammonium metavanadate (V)

58123

021224

0.1000

200.0

0.084

1000

10000.3

1000.0

2.2

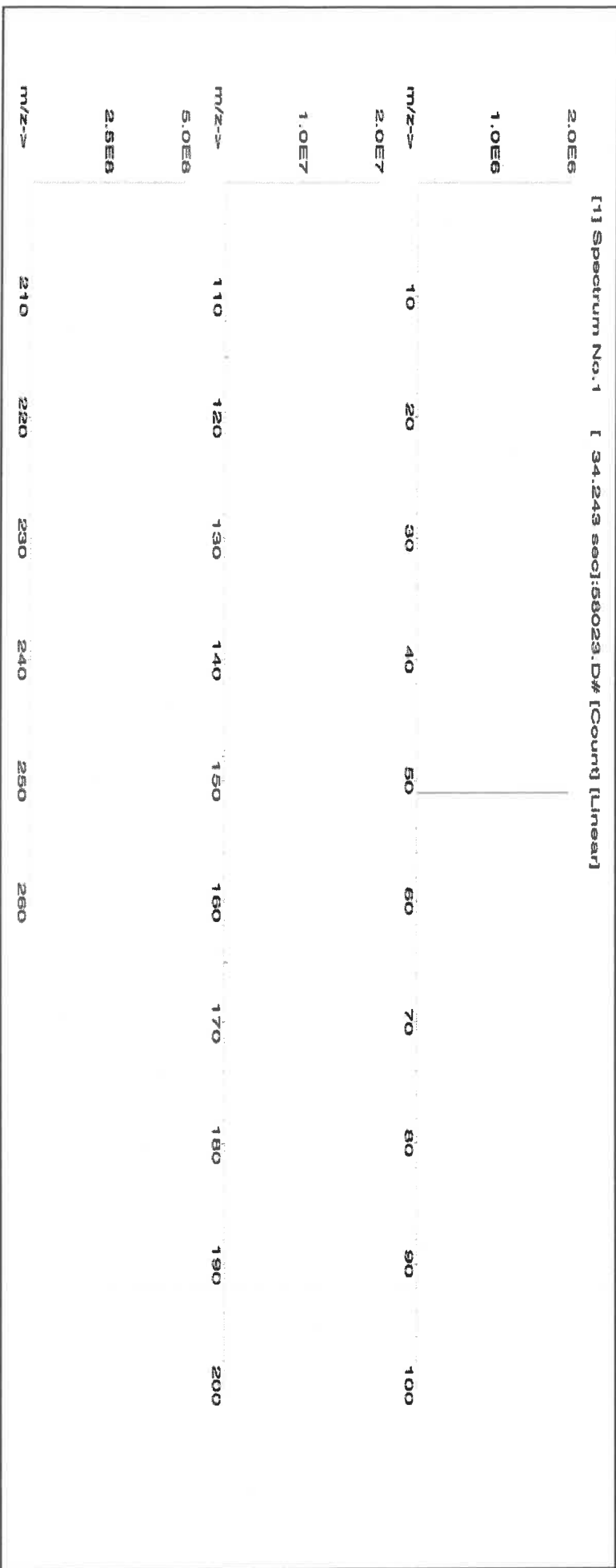
7803-55-6

0.05 mg/m3

or-at 58.1mg/kg

3165

[1] Spectrum No.1 [34.243 sec]:58023.D# [Count] [Linear]





SHIPPING DOCUMENTS

CLIENT INFORMATION

REPORT TO BE SENT TO:

COMPANY: Verina Consulting Group

ADDRESS: 1011 US-22, Suite 302

CITY: Bridgewater STATE: NJ ZIP: 08807

ATTENTION: Michael Valenzi

PHONE: 908-864-4400 FAX: 908-864-4401

CLIENT PROJECT INFORMATION

PROJECT NAME: Rotary Club

PROJECT NO.: 5183.0001

LOCATION: NJ

PROJECT MANAGER: Michael Valenzi

e-mail: mvalenzi@vcg-llc.com

PHONE: 908-864-4400 FAX: 908-864-4401

CLIENT BILLING INFORMATION

BILL TO: SEE LEFT

PO#: 5183.0001

ADDRESS:

CITY:

STATE:

ZIP:

ATTENTION:

PHONE:

ANALYSIS

DATA TURNAROUND INFORMATION

FAX (RUSH) 5 DAYS*

HARDCOPY (DATA PACKAGE): 5 DAYS*

EDD: 5 DAYS*

*TO BE APPROVED BY CHEMTECH

STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ Level 1 (Results Only) ☐ Level 4 (QC + Full Raw Data)☒ Level 2 (Results + QC) ☒ NJ Reduced ☐ US EPA CLP☐ Level 3 (Results + QC) ☐ NYS ASP A ☐ NYS ASP B+ Raw Data) ☐ Other☐ EDD FORMAT

1 2 3 4 5 6 7 8 9

2n, Cu, Ni, Cr, Cd, Pb, Ag
TSS
BOD
COD
Chlorine Demand
Ammonia
SGT-HEU
Total Cyanide

PRESERVATIVES

COMMENTS

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE		SAMPLE COLLECTION		# OF BOTTLES	PRESERVATIVES									COMMENTS
			COMP	GRAB	DATE	TIME		B	E	E	C	E	C	C	D		
1.	Water Treatment Discharge	WW	X		12/5/24	10:40	6	X	X	X	X	X	X				
2.	Water Treatment Discharge	WW		X	12/5/24	10:43	4								X	X	
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:	Conditions of bottles or coolers at receipt: ☐ COMPLIANT ☐ NON COMPLIANT ☐ COOLER TEMP
1. <i>Lincoln</i>	12/5/24 11:28	<i>[Signature]</i> 12-5-24	Comments: PH = 9.67 Flow Rate = 52 Temperature = 71.6 Semi annual metals = Zn, Cu, Ni, Cr, Cd, Pb, Ag (Group 5)
RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:	
2. <i>[Signature]</i>			
RELINQUISHED BY SAMPLER:	DATE/TIME:	RECEIVED BY:	
3. <i>[Signature]</i>	12-5-24		

Page 1 of 1

CLIENT: ☐ Hand Delivered ☐ Other
CHEMTECH: ☐ Picked Up ☐ Field SamplingShipment Complete
☐ YES ☐ NO



284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Laboratory Certification

Certified By	License No.
CAS EPA CLP Contract	68HERH20D0011
Connecticut	PH-0830
DOD ELAP (ANAB)	L2219
Maine	2024021
Maryland	296
New Hampshire	255424 Rev 1
New Jersey	20012
New York	11376
Pennsylvania	68-00548
Soil Permit	525-24-234-08441
Texas	T104704488