

Cover Page

Order ID : Q3125

Project ID : Monthly 2025

Client : Aramark Uniforms

Lab Sample Number

Q3125-01
Q3125-02

Client Sample Number

Grab
Comp

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

Signature : _____

Date: 9/23/2025

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

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

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: Q3125

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication,airbill, sample management lab chronicle, login page)

✓

Check chain-of-custody for proper relinquish/return of samples

✓

Is the chain of custody signed and complete

✓

Check internal chain-of-custody for proper relinquish/return of samples /sample extracts

✓

Collect information for each project id from server. Were all requirements followed

✓

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody on login page

✓

Do lab numbers and client Ids on cover page agree with the Chain of Custody

✓

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results

✓

Do requested analyses on Chain of Custody agree with the log-in page

✓

Were the correct method log-in for analysis according to the Analytical Request and Chain of Castody

✓

Were the samples received within hold time

✓

Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle

✓

ANALYTICAL:

Was method requirement followed?

✓

Was client requirement followed?

✓

Does the case narrative summarize all QC failure?

✓

All runlogs and manual integration are reviewed for requirements

✓

All manual calculations and /or hand notations verified

✓

QA Review Signature: KETAN PATEL

Date: 09/23/2025

LAB CHRONICLE

OrderID: Q3125	OrderDate: 9/17/2025 11:19:00 AM
Client: Aramark Uniforms	Project: Monthly 2025
Contact: Jarrod Mills	Location: J21

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
Q3125-02	Comp	Water			09/17/25			09/17/25
			Mercury	245.1		09/23/25	09/23/25	
			Metals ICP-Group1	200.7		09/23/25	09/25/25	



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Hit Summary Sheet
SW-846

SDG No.: Q3125
Client: Aramark Uniforms

Order ID: Q3125
Project ID: Monthly 2025

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Client ID : Comp								
Q3125-02	Comp	Water	Cadmium	1.00	J	0.31	3.00	ug/L
Q3125-02	Comp	Water	Copper	88.4		1.89	10.0	ug/L
Q3125-02	Comp	Water	Lead	20.0		1.21	6.00	ug/L
Q3125-02	Comp	Water	Mercury	0.10	J	0.027	0.20	ug/L
Q3125-02	Comp	Water	Nickel	13.6	J	1.90	20.0	ug/L
Q3125-02	Comp	Water	Zinc	500		2.00	20.0	ug/L



SAMPLE DATA

Report of Analysis

Client:	Aramark Uniforms	Date Collected:	09/17/25
Project:	Monthly 2025	Date Received:	09/17/25
Client Sample ID:	Comp	SDG No.:	Q3125
Lab Sample ID:	Q3125-02	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	1.00	J	1	0.31	3.00	ug/L	09/23/25 11:20	09/25/25 13:40	EPA 200.7	
7440-50-8	Copper	88.4		1	1.89	10.0	ug/L	09/23/25 11:20	09/25/25 13:40	EPA 200.7	
7439-92-1	Lead	20.0		1	1.21	6.00	ug/L	09/23/25 11:20	09/25/25 13:40	EPA 200.7	
7439-97-6	Mercury	0.10	J	1	0.027	0.20	ug/L	09/23/25 08:40	09/23/25 15:06	E245.1	
7440-02-0	Nickel	13.6	J	1	1.90	20.0	ug/L	09/23/25 11:20	09/25/25 13:40	EPA 200.7	
7440-66-6	Zinc	500		1	2.00	20.0	ug/L	09/23/25 11:20	09/25/25 13:40	EPA 200.7	

Color Before:	Colorless	Clarity Before:	Clear	Texture:
Color After:	Colorless	Clarity After:	Clear	Artifacts:
Comments:	Metals Group1			

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

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV42	Mercury	4.08	4.0	102	95 - 105	CV	09/23/2025	14:45	LB137278

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

Initial Calibration Source: EPA

Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV28	Mercury	5.14	5.0	103	90 - 110	CV	09/23/2025	14:50	LB137278
CCV29	Mercury	5.11	5.0	102	90 - 110	CV	09/23/2025	15:20	LB137278
CCV30	Mercury	5.18	5.0	104	90 - 110	CV	09/23/2025	15:29	LB137278

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

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	1970	2000	98	95 - 105	P	09/25/2025	11:20	LB137314
	Copper	1010	1000	101	95 - 105	P	09/25/2025	11:20	LB137314
	Lead	3850	4000	96	95 - 105	P	09/25/2025	11:20	LB137314
	Nickel	1970	2000	99	95 - 105	P	09/25/2025	11:20	LB137314
	Zinc	2030	2000	101	95 - 105	P	09/25/2025	11:20	LB137314

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

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	5.96	6.0	99	80 - 120	P	09/25/2025	11:29	LB137314
	Copper	20.5	20.0	103	80 - 120	P	09/25/2025	11:29	LB137314
	Lead	10.2	12.0	85	80 - 120	P	09/25/2025	11:29	LB137314
	Nickel	40.1	40.0	100	80 - 120	P	09/25/2025	11:29	LB137314
	Zinc	42.4	40.0	106	80 - 120	P	09/25/2025	11:29	LB137314

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

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	2420	2500	97	90 - 110	P	09/25/2025	12:12	LB137314
	Copper	1230	1250	98	90 - 110	P	09/25/2025	12:12	LB137314
	Lead	4800	5000	96	90 - 110	P	09/25/2025	12:12	LB137314
	Nickel	2410	2500	96	90 - 110	P	09/25/2025	12:12	LB137314
	Zinc	2490	2500	100	90 - 110	P	09/25/2025	12:12	LB137314
CCV02	Cadmium	2460	2500	99	90 - 110	P	09/25/2025	13:23	LB137314
	Copper	1250	1250	100	90 - 110	P	09/25/2025	13:23	LB137314
	Lead	4880	5000	98	90 - 110	P	09/25/2025	13:23	LB137314
	Nickel	2460	2500	99	90 - 110	P	09/25/2025	13:23	LB137314
	Zinc	2630	2500	105	90 - 110	P	09/25/2025	13:23	LB137314
CCV03	Cadmium	2440	2500	98	90 - 110	P	09/25/2025	14:21	LB137314
	Copper	1240	1250	99	90 - 110	P	09/25/2025	14:21	LB137314
	Lead	4840	5000	97	90 - 110	P	09/25/2025	14:21	LB137314
	Nickel	2440	2500	98	90 - 110	P	09/25/2025	14:21	LB137314
	Zinc	2470	2500	99	90 - 110	P	09/25/2025	14:21	LB137314
CCV04	Cadmium	2440	2500	98	90 - 110	P	09/25/2025	15:16	LB137314
	Copper	1240	1250	99	90 - 110	P	09/25/2025	15:16	LB137314
	Lead	4830	5000	97	90 - 110	P	09/25/2025	15:16	LB137314
	Nickel	2440	2500	98	90 - 110	P	09/25/2025	15:16	LB137314
	Zinc	2510	2500	100	90 - 110	P	09/25/2025	15:16	LB137314
CCV05	Cadmium	2520	2500	101	90 - 110	P	09/25/2025	16:16	LB137314
	Copper	1290	1250	103	90 - 110	P	09/25/2025	16:16	LB137314
	Lead	4990	5000	100	90 - 110	P	09/25/2025	16:16	LB137314
	Nickel	2520	2500	101	90 - 110	P	09/25/2025	16:16	LB137314
	Zinc	2640	2500	106	90 - 110	P	09/25/2025	16:16	LB137314
CCV06	Cadmium	2470	2500	99	90 - 110	P	09/25/2025	17:27	LB137314
	Copper	1260	1250	101	90 - 110	P	09/25/2025	17:27	LB137314
	Lead	4880	5000	98	90 - 110	P	09/25/2025	17:27	LB137314
	Nickel	2460	2500	99	90 - 110	P	09/25/2025	17:27	LB137314
	Zinc	2520	2500	101	90 - 110	P	09/25/2025	17:27	LB137314
CCV07	Cadmium	2520	2500	101	90 - 110	P	09/25/2025	17:40	LB137314
	Copper	1280	1250	103	90 - 110	P	09/25/2025	17:40	LB137314
	Lead	4980	5000	100	90 - 110	P	09/25/2025	17:40	LB137314
	Nickel	2520	2500	101	90 - 110	P	09/25/2025	17:40	LB137314

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

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
CCV07	Zinc	2590	2500	104	90 - 110	P	09/25/2025	17:40	LB137314



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Metals

- 2b -

CRDL STANDARD FOR AA & ICP

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

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
CRA	Mercury	0.059	0.05	118	60 - 140	CV	09/23/2025	14:54	LB137278
CRI01	Cadmium	6.34	6.0	106	65 - 135	P	09/25/2025	11:38	LB137314
	Copper	22.6	20.0	113	65 - 135	P	09/25/2025	11:38	LB137314
	Lead	11.4	12.0	95	65 - 135	P	09/25/2025	11:38	LB137314
	Nickel	42.9	40.0	107	65 - 135	P	09/25/2025	11:38	LB137314
	Zinc	44.8	40.0	112	65 - 135	P	09/25/2025	11:38	LB137314



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Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB42	Mercury	0.027	+/-0.2	U	0.20	CV	09/23/2025	14:47	LB137278

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB28	Mercury	0.027	+/-0.2	U	0.20	CV	09/23/2025	14:52	LB137278
CCB29	Mercury	0.027	+/-0.2	U	0.20	CV	09/23/2025	15:23	LB137278
CCB30	Mercury	0.027	+/-0.2	U	0.20	CV	09/23/2025	15:32	LB137278

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Cadmium	0.50	+/-3	U	6.00	P	09/25/2025	11:33	LB137314
	Copper	4.60	+/-10	U	20.0	P	09/25/2025	11:33	LB137314
	Lead	2.30	+/-6	U	12.0	P	09/25/2025	11:33	LB137314
	Nickel	3.06	+/-20	U	40.0	P	09/25/2025	11:33	LB137314
	Zinc	16.7	+/-20	U	40.0	P	09/25/2025	11:33	LB137314

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Cadmium	0.50	+/-3	U	6.00	P	09/25/2025	12:17	LB137314
	Copper	4.60	+/-10	U	20.0	P	09/25/2025	12:17	LB137314
	Lead	2.30	+/-6	U	12.0	P	09/25/2025	12:17	LB137314
	Nickel	3.06	+/-20	U	40.0	P	09/25/2025	12:17	LB137314
	Zinc	16.7	+/-20	U	40.0	P	09/25/2025	12:17	LB137314
CCB02	Cadmium	0.50	+/-3	U	6.00	P	09/25/2025	13:27	LB137314
	Copper	4.60	+/-10	U	20.0	P	09/25/2025	13:27	LB137314
	Lead	2.30	+/-6	U	12.0	P	09/25/2025	13:27	LB137314
	Nickel	3.06	+/-20	U	40.0	P	09/25/2025	13:27	LB137314
	Zinc	16.7	+/-20	U	40.0	P	09/25/2025	13:27	LB137314
CCB03	Cadmium	0.50	+/-3	U	6.00	P	09/25/2025	14:30	LB137314
	Copper	4.60	+/-10	U	20.0	P	09/25/2025	14:30	LB137314
	Lead	2.30	+/-6	U	12.0	P	09/25/2025	14:30	LB137314
	Nickel	3.06	+/-20	U	40.0	P	09/25/2025	14:30	LB137314
	Zinc	16.7	+/-20	U	40.0	P	09/25/2025	14:30	LB137314
CCB04	Cadmium	0.50	+/-3	U	6.00	P	09/25/2025	15:20	LB137314
	Copper	4.60	+/-10	U	20.0	P	09/25/2025	15:20	LB137314
	Lead	2.30	+/-6	U	12.0	P	09/25/2025	15:20	LB137314
	Nickel	3.06	+/-20	U	40.0	P	09/25/2025	15:20	LB137314
	Zinc	16.7	+/-20	U	40.0	P	09/25/2025	15:20	LB137314
CCB05	Cadmium	0.50	+/-3	U	6.00	P	09/25/2025	16:20	LB137314
	Copper	4.60	+/-10	U	20.0	P	09/25/2025	16:20	LB137314
	Lead	2.30	+/-6	U	12.0	P	09/25/2025	16:20	LB137314
	Nickel	3.06	+/-20	U	40.0	P	09/25/2025	16:20	LB137314
	Zinc	16.7	+/-20	U	40.0	P	09/25/2025	16:20	LB137314
CCB06	Cadmium	0.50	+/-3	U	6.00	P	09/25/2025	17:31	LB137314
	Copper	4.60	+/-10	U	20.0	P	09/25/2025	17:31	LB137314
	Lead	2.30	+/-6	U	12.0	P	09/25/2025	17:31	LB137314
	Nickel	3.06	+/-20	U	40.0	P	09/25/2025	17:31	LB137314
	Zinc	16.7	+/-20	U	40.0	P	09/25/2025	17:31	LB137314
CCB07	Cadmium	0.50	+/-3	U	6.00	P	09/25/2025	17:44	LB137314
	Copper	4.60	+/-10	U	20.0	P	09/25/2025	17:44	LB137314
	Lead	2.30	+/-6	U	12.0	P	09/25/2025	17:44	LB137314
	Nickel	3.06	+/-20	U	40.0	P	09/25/2025	17:44	LB137314
	Zinc	16.7	+/-20	U	40.0	P	09/25/2025	17:44	LB137314

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Aramark Uniforms

SDG No.: Q3125

Instrument: CV1

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169802BL		WATER		Batch Number:	PB169802		Prep Date:	09/23/2025	
	Mercury	0.027	<0.2	U	0.20	CV	09/23/2025	15:01	LB137278

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Aramark Uniforms

SDG No.: Q3125

Instrument: P4

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB169800BL	WATER			Batch Number:	PB169800		Prep Date:	09/23/2025	
	Cadmium	0.31	<1.5	U	3.00	P	09/25/2025	12:54	LB137314
	Copper	1.89	<5	U	10.0	P	09/25/2025	12:54	LB137314
	Lead	1.21	<3	U	6.00	P	09/25/2025	12:54	LB137314
	Nickel	1.90	<10	U	20.0	P	09/25/2025	12:54	LB137314
	Zinc	2.00	<10	U	20.0	P	09/25/2025	12:54	LB137314

Metals
- 4 -
INTERFERENCE CHECK SAMPLE

Client: <u>Aramark Uniforms</u>	SDG No.: <u>Q3125</u>
Contract: <u>ARAM01</u>	Lab Code: <u>ACE</u>
ICS Source: <u>EPA</u>	Instrument ID: <u>P4</u>

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	1.36	1.0	136	-5	7	09/25/2025	11:42	LB137314
	Copper	13.1	2.0	655	-18	22	09/25/2025	11:42	LB137314
	Lead	-7.23			-12	12	09/25/2025	11:42	LB137314
	Nickel	3.09	2.0	154	-38	42	09/25/2025	11:42	LB137314
	Zinc	1.46			-40	40	09/25/2025	11:42	LB137314
ICSAB01	Cadmium	1030	972	106	826	1120	09/25/2025	11:46	LB137314
	Copper	511	511	100	434	588	09/25/2025	11:46	LB137314
	Lead	41.9	49.0	86	37	61	09/25/2025	11:46	LB137314
	Nickel	1030	954	108	810	1100	09/25/2025	11:46	LB137314
	Zinc	1090	952	114	809	1095	09/25/2025	11:46	LB137314
ICSA	Cadmium	-1.82	1.0	182	-5	7	09/25/2025	11:50	LB137314
	Copper	14.0	2.0	700	-18	22	09/25/2025	11:50	LB137314
	Lead	-20.1			-12	12	09/25/2025	11:50	LB137314
	Nickel	8.41	2.0	420	-38	42	09/25/2025	11:50	LB137314
	Zinc	147			-40	40	09/25/2025	11:50	LB137314
ICSAB	Cadmium	852	972	88	826	1120	09/25/2025	12:00	LB137314
	Copper	457	511	89	434	588	09/25/2025	12:00	LB137314
	Lead	21.8	49.0	44	37	61	09/25/2025	12:00	LB137314
	Nickel	858	954	90	810	1100	09/25/2025	12:00	LB137314
	Zinc	954	952	100	809	1095	09/25/2025	12:00	LB137314



METAL QC DATA

metals
- 5a -
MATRIX SPIKE SUMMARY

client: <u>Aramark Uniforms</u>	level: <u>low</u>	sdg no.: <u>Q3125</u>
contract: <u>ARAM01</u>		lab code: <u>ACE</u>
matrix: <u>Water</u>	sample id: <u>Q3125-02</u>	client id: <u>CompMS</u>
Percent Solids for Sample: <u>NA</u>	Spiked ID: <u>Q3125-02MS</u>	Percent Solids for Spike Sample: <u>NA</u>

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Cadmium	ug/L	75 - 125	96.8		1.00	J	100	96		P
Copper	ug/L	75 - 125	225		88.4		150	91		P
Lead	ug/L	75 - 125	476		20.0		500	91		P
Mercury	ug/L	75 - 125	3.82		0.10	J	4.0	93		CV
Nickel	ug/L	75 - 125	254		13.6	J	250	96		P
Zinc	ug/L	75 - 125	568		500		100	68		P

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: <u>Aramark Uniforms</u>	level: <u>low</u>	sdg no.: <u>Q3125</u>
contract: <u>ARAM01</u>		lab code: <u>ACE</u>
matrix: <u>Water</u>	sample id: <u>Q3125-02</u>	client id: <u>CompMSD</u>
Percent Solids for Sample: <u>NA</u>	Spiked ID: <u>Q3125-02MSD</u>	Percent Solids for Spike Sample: <u>NA</u>

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Cadmium	ug/L	75 - 125	97.0		1.00	J	100	96		P
Copper	ug/L	75 - 125	225		88.4		150	91		P
Lead	ug/L	75 - 125	479		20.0		500	92		P
Mercury	ug/L	75 - 125	3.88		0.10	J	4.0	94		CV
Nickel	ug/L	75 - 125	255		13.6	J	250	97		P
Zinc	ug/L	75 - 125	563		500		100	64		P

Metals
- 5b -

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

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

- 6 -

DUPLICATE SAMPLE SUMMARY

Client:	<u>Aramark Uniforms</u>	Level:	<u>LOW</u>	SDG No.:	<u>Q3125</u>
Contract:	<u>ARAM01</u>			Lab Code:	<u>ACE</u>
Matrix:	<u>Water</u>	Sample ID:	<u>Q3125-02</u>	Client ID:	<u>CompDUP</u>
Percent Solids for Sample:	NA	Duplicate ID	Q3125-02DUP	Percent Solids for Spike Sample:	NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Cadmium	ug/L	20	1.00	J	1.42	J	35		P
Copper	ug/L	20	88.4		88.6		0		P
Lead	ug/L	20	20.0		21.4		7		P
Mercury	ug/L	20	0.10	J	0.10	J	2		CV
Nickel	ug/L	20	13.6	J	14.5	J	6		P
Zinc	ug/L	20	500		493		1		P

Metals

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DUPLICATE SAMPLE SUMMARY

Client:	<u>Aramark Uniforms</u>	Level:	<u>LOW</u>	SDG No.:	<u>Q3125</u>
Contract:	<u>ARAM01</u>			Lab Code:	<u>ACE</u>
Matrix:	<u>Water</u>	Sample ID:	<u>Q3125-02MS</u>	Client ID:	<u>CompMSD</u>
Percent Solids for Sample:	NA	Duplicate ID	Q3125-02MSD	Percent Solids for Spike Sample:	NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Cadmium	ug/L	20	96.8		97.0		0		P
Copper	ug/L	20	225		225		0		P
Lead	ug/L	20	476		479		1		P
Mercury	ug/L	20	3.82		3.88		2		CV
Nickel	ug/L	20	254		255		0		P
Zinc	ug/L	20	568		563		1		P

Metals

- 7 -

LABORATORY CONTROL SAMPLE SUMMARY

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB169800BS							
Cadmium	ug/L	100	102		102	85 - 115	P
Copper	ug/L	150	161		107	85 - 115	P
Lead	ug/L	500	504		101	85 - 115	P
Nickel	ug/L	250	259		104	85 - 115	P
Zinc	ug/L	100	107		107	85 - 115	P

Metals

- 7 -

LABORATORY CONTROL SAMPLE SUMMARY

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB169802BS Mercury	ug/L	4.0	4.36		109	85 - 115	CV

Metals
-9 -
ICP SERIAL DILUTIONS

SAMPLE NO.

CompL

Lab Name: Alliance **Contract:** ARAM01
Lab Code: ACE **Lb No.:** lb137314 **Lab Sample ID :** Q3125-02L **SDG No.:** Q3125
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	1.00	J	15.0	U	100.0			P
Copper	88.4		90.1		2			P
Lead	20.0		17.7	J	12			P
Mercury	0.10	J	0.17	J	67			CV
Nickel	13.6	J	12.7	J	6			P
Zinc	500		484		3			P



METAL PREPARATION & INSTRUMENT DATA

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

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
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
Zinc	213.800	0.0000000	0.0000000	0.0001050	0.0000000	0.0000000

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

Instrument ID: _____

Date: _____

Interement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interement Correction Factors For:				
		As	Ba	Be	Cd	Co
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0002870
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
Zinc	213.800	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

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
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
Zinc	213.800	0.0000000	0.0009010	0.0000000	0.0000000	0.0000000

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

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
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
Zinc	213.800	0.0000000	0.0067600	0.0000000	0.0000000	0.0000000

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

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
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
Zinc	213.800	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000



METAL PREPARATION & ANALYICAL SUMMARY

Metals

- 13 -

SAMPLE PREPARATION SUMMARY

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

Method:

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB169800							
PB169800BL	PB169800BL	MB	WATER	09/23/2025	50.0	25.0	
PB169800BS	PB169800BS	LCS	WATER	09/23/2025	50.0	25.0	
Q3125-02	Comp	SAM	WATER	09/23/2025	50.0	25.0	
Q3125-02DUP	CompDUP	DUP	WATER	09/23/2025	50.0	25.0	
Q3125-02MS	CompMS	MS	WATER	09/23/2025	50.0	25.0	
Q3125-02MSD	CompMSD	MSD	WATER	09/23/2025	50.0	25.0	

Metals

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SAMPLE PREPARATION SUMMARY

Client: Aramark Uniforms

SDG No.: Q3125

Contract: ARAM01

Lab Code: ACE

Method:

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB169802							
PB169802BL	PB169802BL	MB	WATER	09/23/2025	30.0	30.0	
PB169802BS	PB169802BS	LCS	WATER	09/23/2025	30.0	30.0	
Q3125-02	Comp	SAM	WATER	09/23/2025	30.0	30.0	
Q3125-02DUP	CompDUP	DUP	WATER	09/23/2025	30.0	30.0	
Q3125-02MS	CompMS	MS	WATER	09/23/2025	30.0	30.0	
Q3125-02MSD	CompMSD	MSD	WATER	09/23/2025	30.0	30.0	

metals
- 14 -
ANALYSIS RUN LOG

Client: Aramark Uniforms

Contract: ARAM01

Lab code: ACE

Sdg no.: Q3125

Instrument id number: _____

Method: _____

Run number: LB137278

Start date: 09/23/2025

End date: 09/23/2025

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1351	HG
S0.05	S0.05	1	1359	HG
S0.2	S0.2	1	1401	HG
S2.5	S2.5	1	1404	HG
S5	S5	1	1411	HG
S7.5	S7.5	1	1420	HG
S10	S10	1	1439	HG
ICV42	ICV42	1	1445	HG
ICB42	ICB42	1	1447	HG
CCV28	CCV28	1	1450	HG
CCB28	CCB28	1	1452	HG
CRA	CRA	1	1454	HG
PB169802BL	PB169802BL	1	1501	HG
PB169802BS	PB169802BS	1	1503	HG
Q3125-02	Comp	1	1506	HG
Q3125-02DUP	CompDUP	1	1508	HG
Q3125-02MS	CompMS	1	1510	HG
Q3125-02MSD	CompMSD	1	1516	HG
CCV29	CCV29	1	1520	HG
CCB29	CCB29	1	1523	HG
CCV30	CCV30	1	1529	HG
CCB30	CCB30	1	1532	HG

metals
- 14 -
ANALYSIS RUN LOG

Client: Aramark Uniforms

Contract: ARAM01

Lab code: ACE

Sdg no.: Q3125

Instrument id number: _____

Method: _____

Run number: LB137314

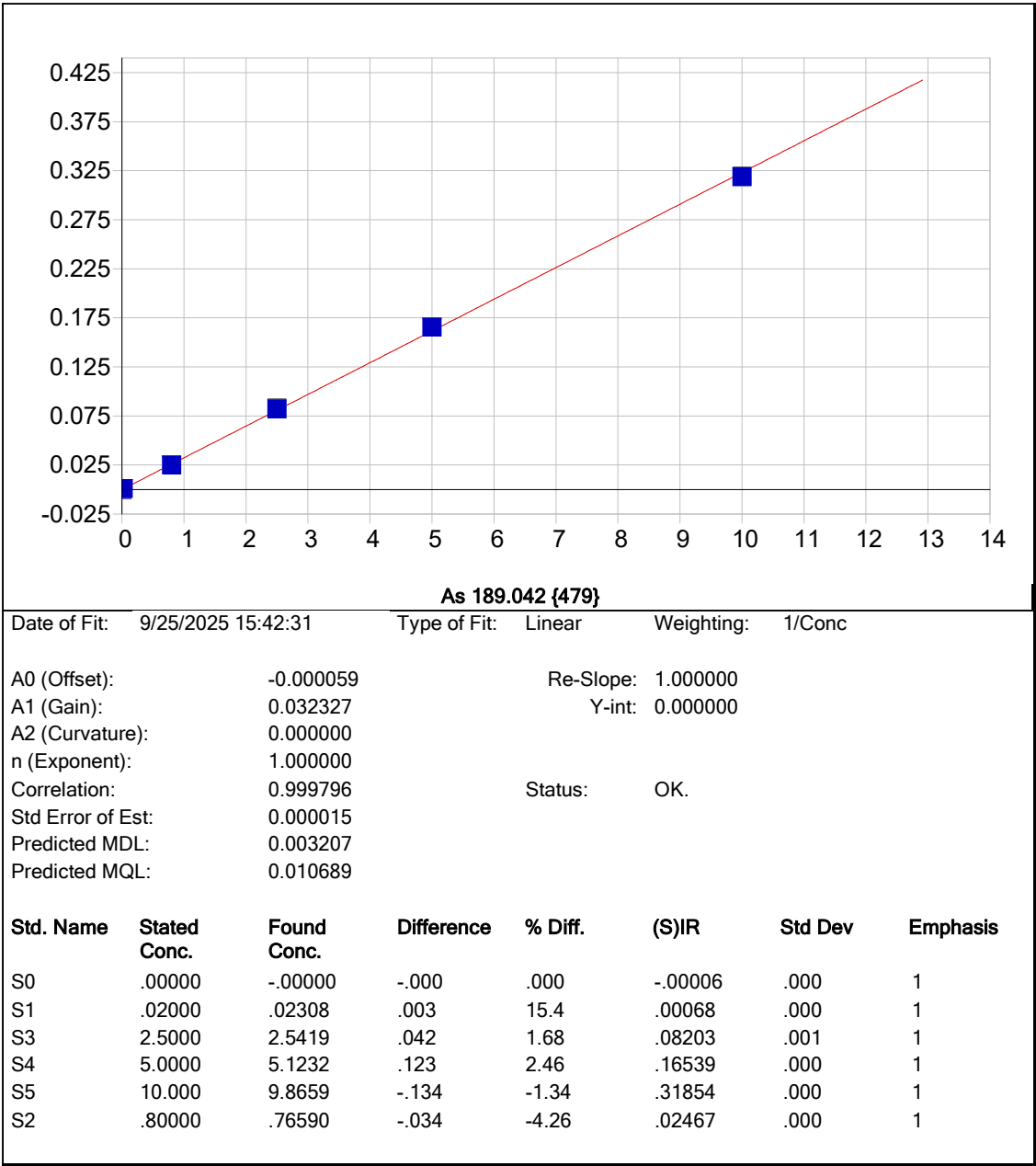
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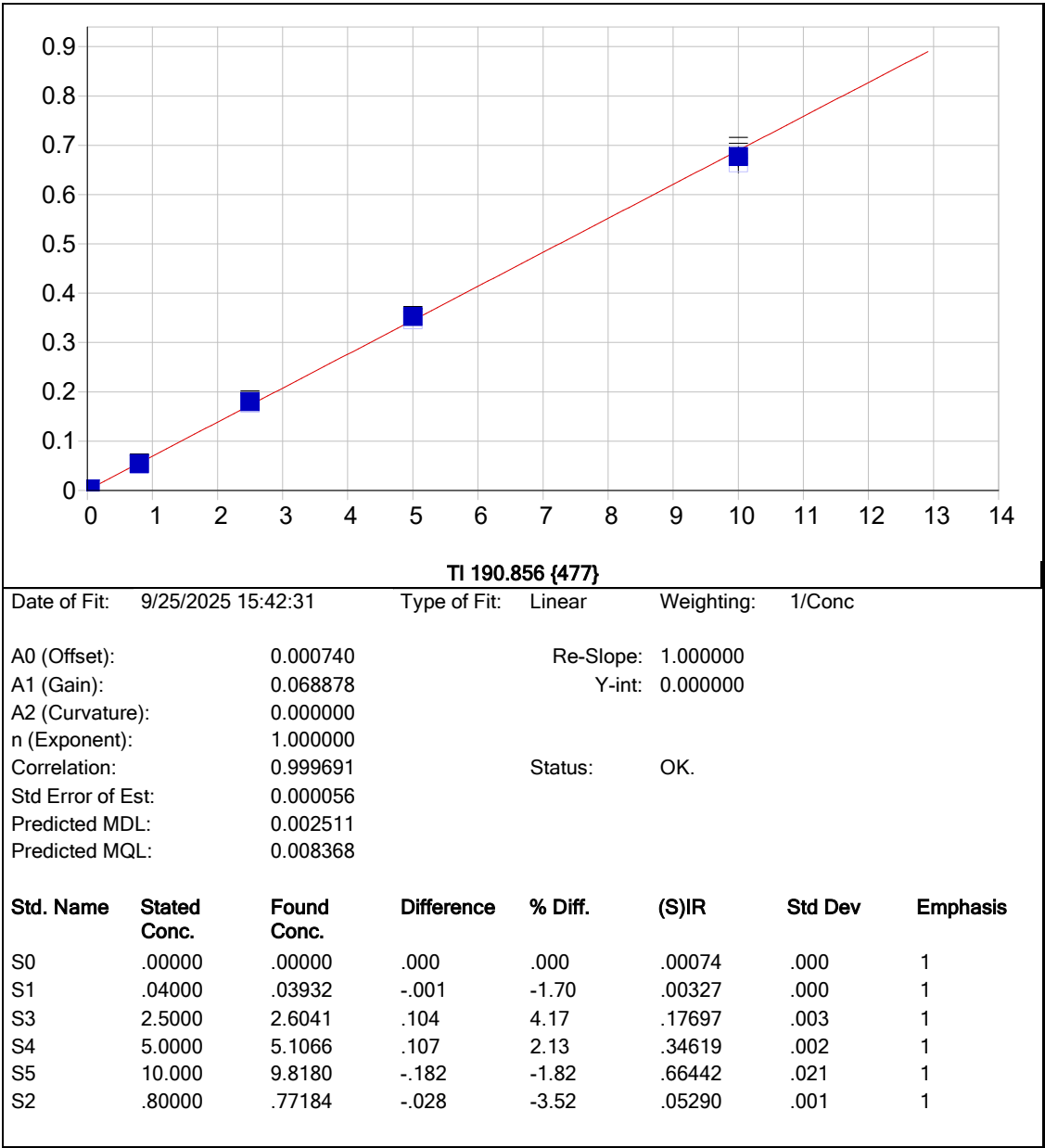
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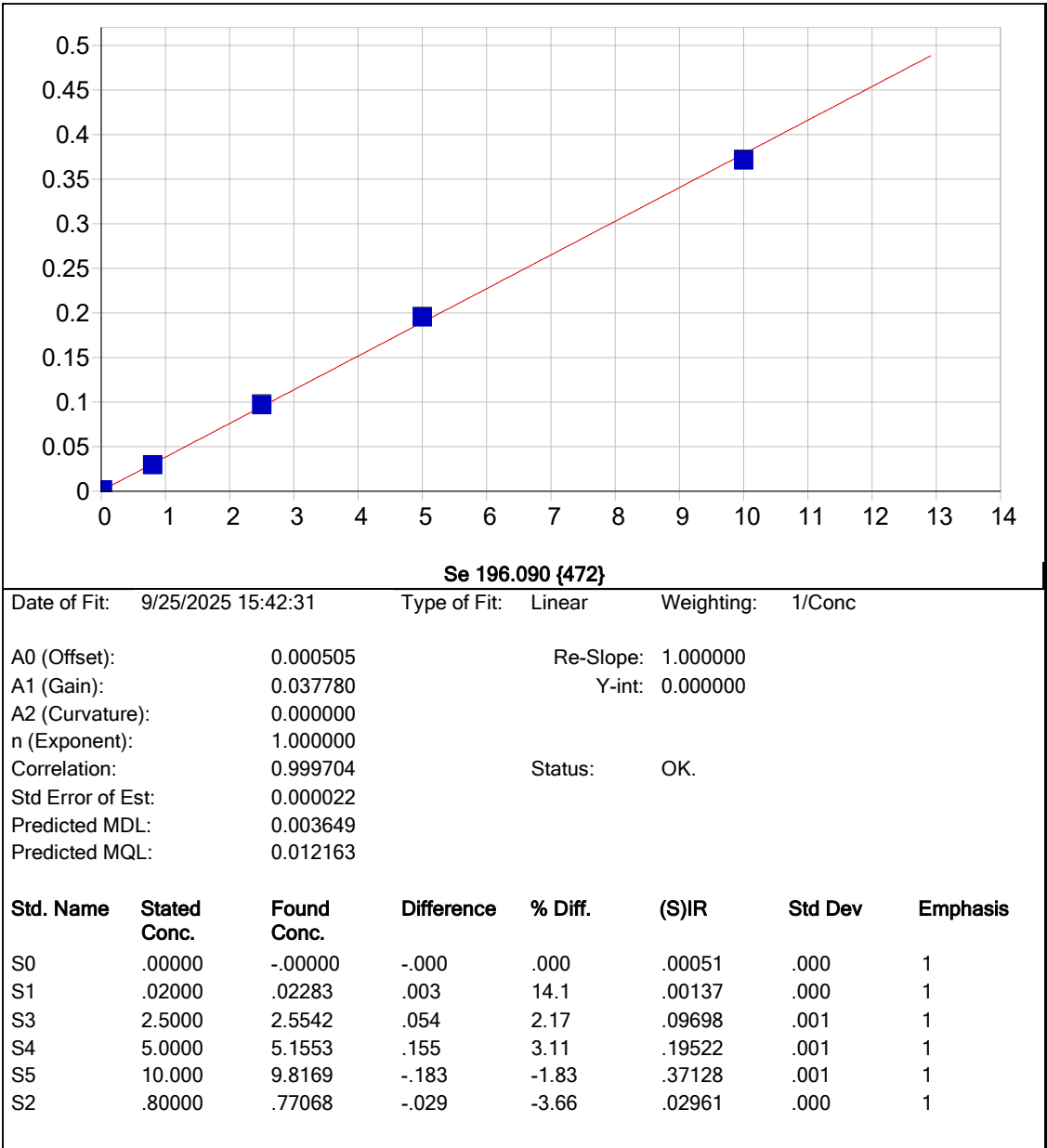
Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1055	Cd,Cu,Ni,Pb,Zn
S1	S1	1	1100	Cd,Cu,Ni,Pb,Zn
S2	S2	1	1104	Cd,Cu,Ni,Pb,Zn
S3	S3	1	1108	Cd,Cu,Ni,Pb,Zn
S4	S4	1	1112	Cd,Cu,Ni,Pb,Zn
S5	S5	1	1116	Cd,Cu,Ni,Pb,Zn
ICV01	ICV01	1	1120	Cd,Cu,Ni,Pb,Zn
LLICV01	LLICV01	1	1129	Cd,Cu,Ni,Pb,Zn
ICB01	ICB01	1	1133	Cd,Cu,Ni,Pb,Zn
CRI01	CRI01	1	1138	Cd,Cu,Ni,Pb,Zn
ICSA01	ICSA01	1	1142	Cd,Cu,Ni,Pb,Zn
ICSAB01	ICSAB01	1	1146	Cd,Cu,Ni,Pb,Zn
ICSA	ICSA	20	1150	Cd,Cu,Ni,Pb,Zn
ICSAB	ICSAB	20	1200	Cd,Cu,Ni,Pb,Zn
CCV01	CCV01	1	1212	Cd,Cu,Ni,Pb,Zn
CCB01	CCB01	1	1217	Cd,Cu,Ni,Pb,Zn
PB169800BL	PB169800BL	1	1254	Cd,Cu,Ni,Pb,Zn
PB169800BS	PB169800BS	1	1258	Cd,Cu,Ni,Pb,Zn
CCV02	CCV02	1	1323	Cd,Cu,Ni,Pb,Zn
CCB02	CCB02	1	1327	Cd,Cu,Ni,Pb,Zn
Q3125-02	Comp	1	1340	Cd,Cu,Ni,Pb,Zn
Q3125-02DUP	CompDUP	1	1344	Cd,Cu,Ni,Pb,Zn
Q3125-02MS	CompMS	1	1353	Cd,Cu,Ni,Pb,Zn
Q3125-02MSD	CompMSD	1	1357	Cd,Cu,Ni,Pb,Zn
CCV03	CCV03	1	1421	Cd,Cu,Ni,Pb,Zn
CCB03	CCB03	1	1430	Cd,Cu,Ni,Pb,Zn
CCV04	CCV04	1	1516	Cd,Cu,Ni,Pb,Zn
CCB04	CCB04	1	1520	Cd,Cu,Ni,Pb,Zn
CCV05	CCV05	1	1616	Cd,Cu,Ni,Pb,Zn
CCB05	CCB05	1	1620	Cd,Cu,Ni,Pb,Zn
CCV06	CCV06	1	1727	Cd,Cu,Ni,Pb,Zn
CCB06	CCB06	1	1731	Cd,Cu,Ni,Pb,Zn
CCV07	CCV07	1	1740	Cd,Cu,Ni,Pb,Zn
CCB07	CCB07	1	1744	Cd,Cu,Ni,Pb,Zn

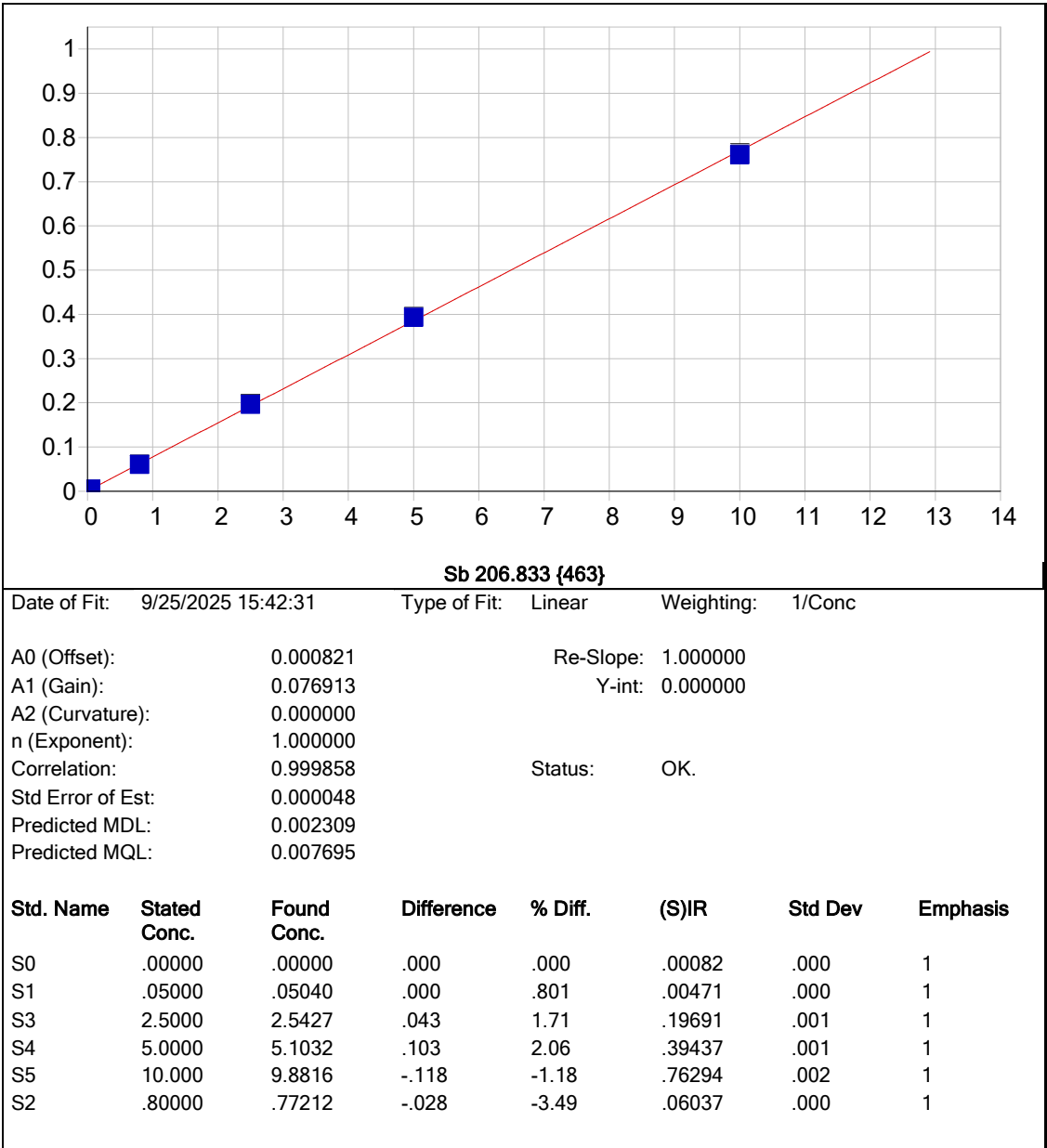


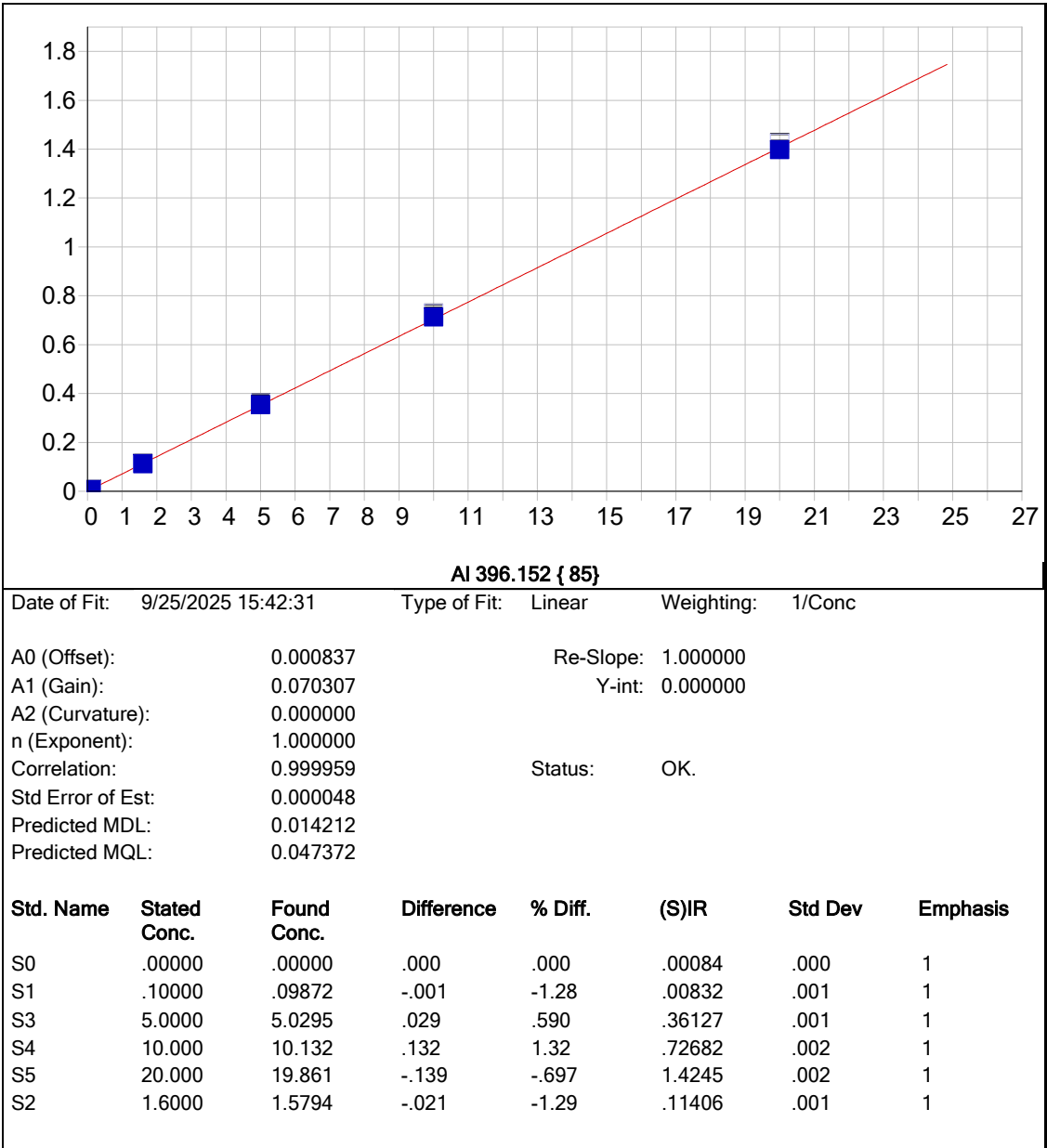
METAL RAW DATA

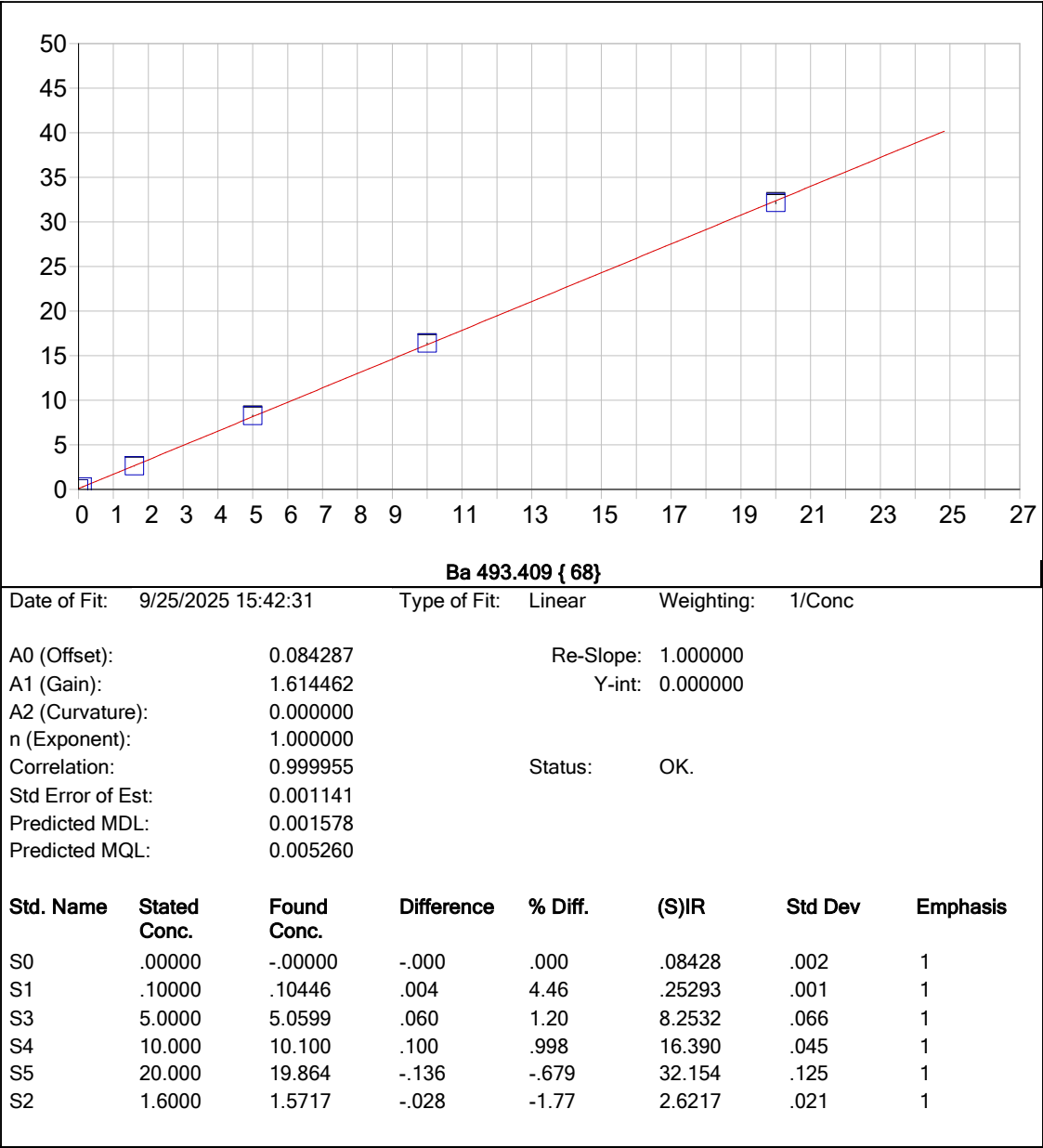


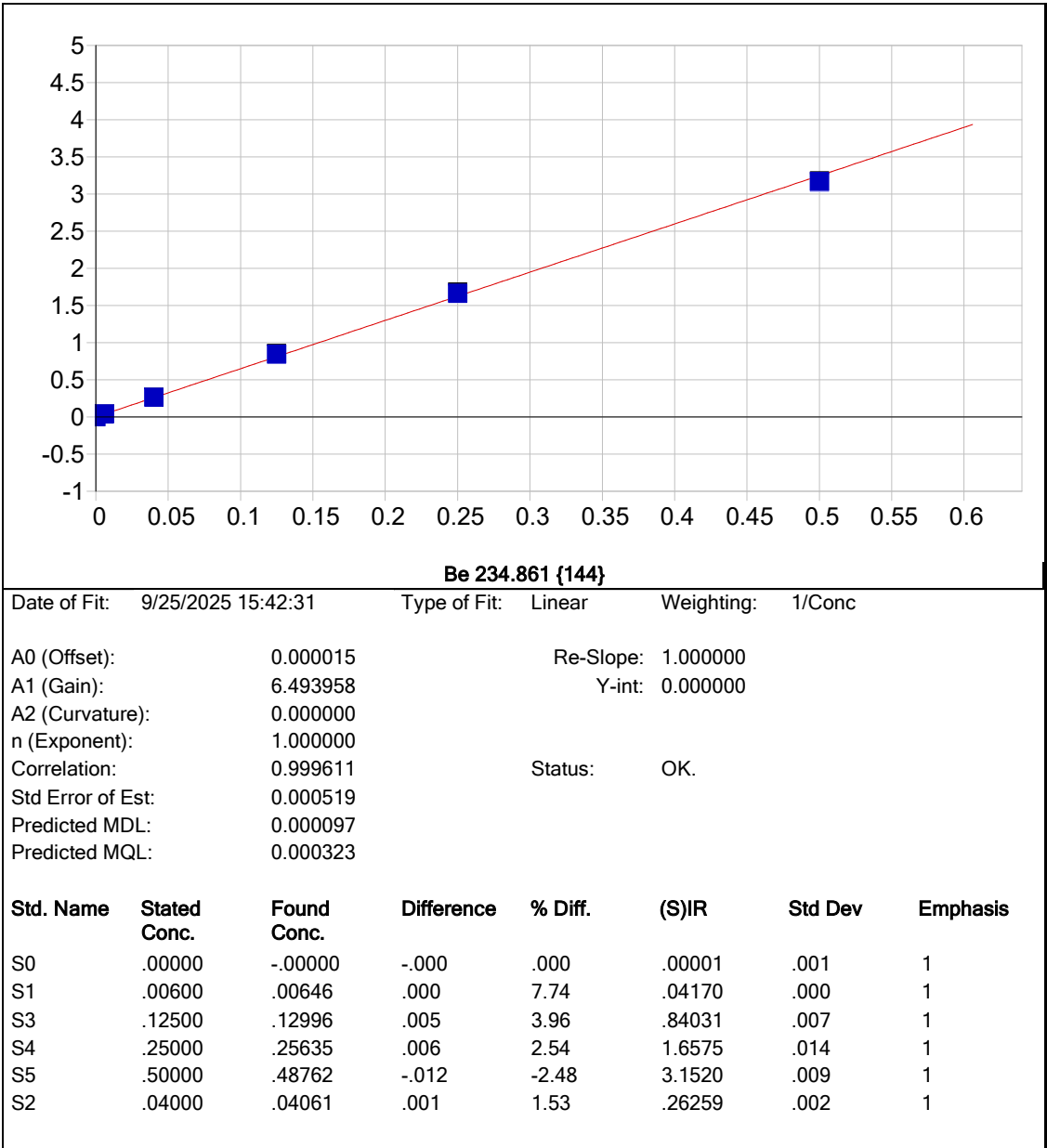


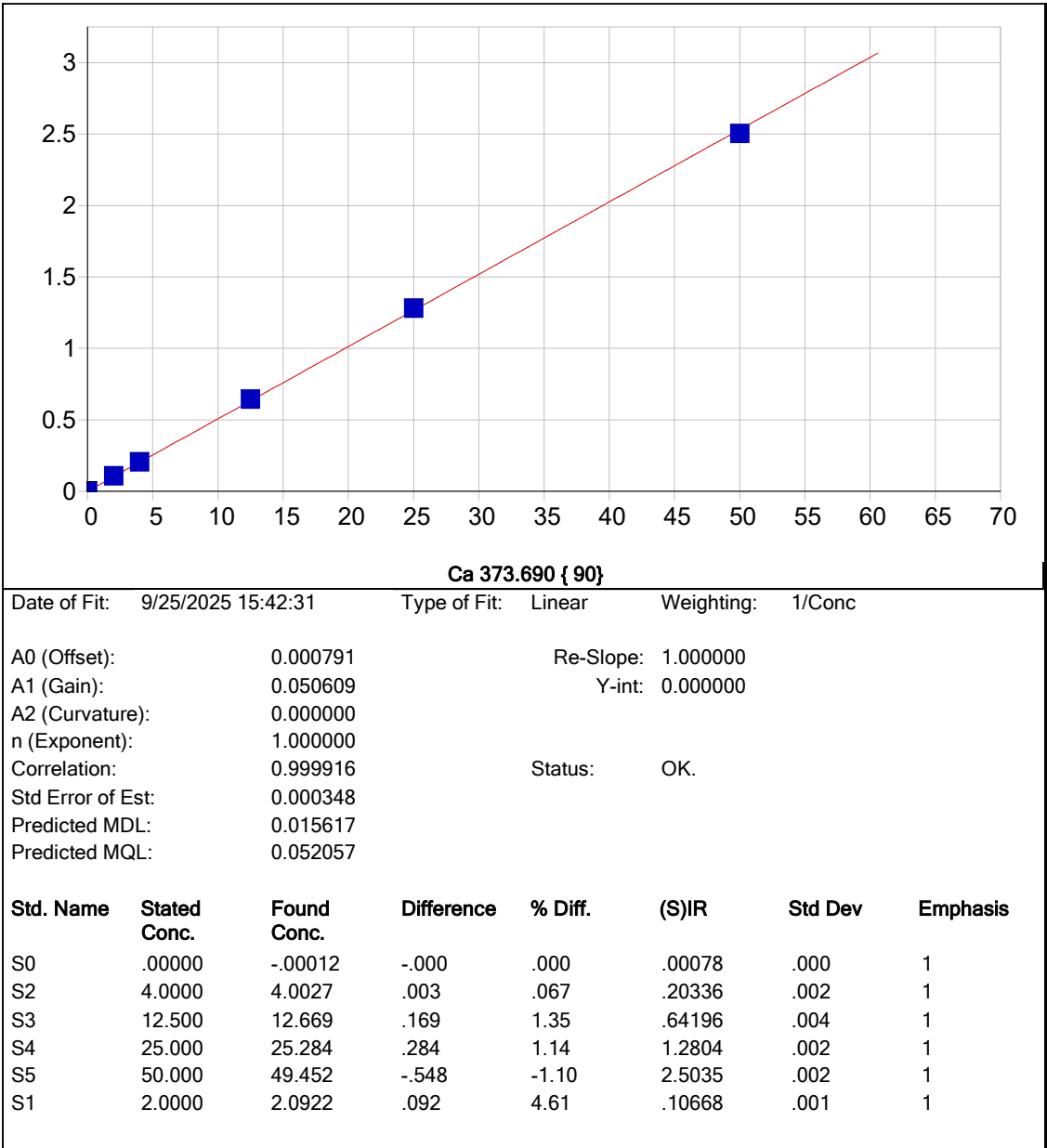


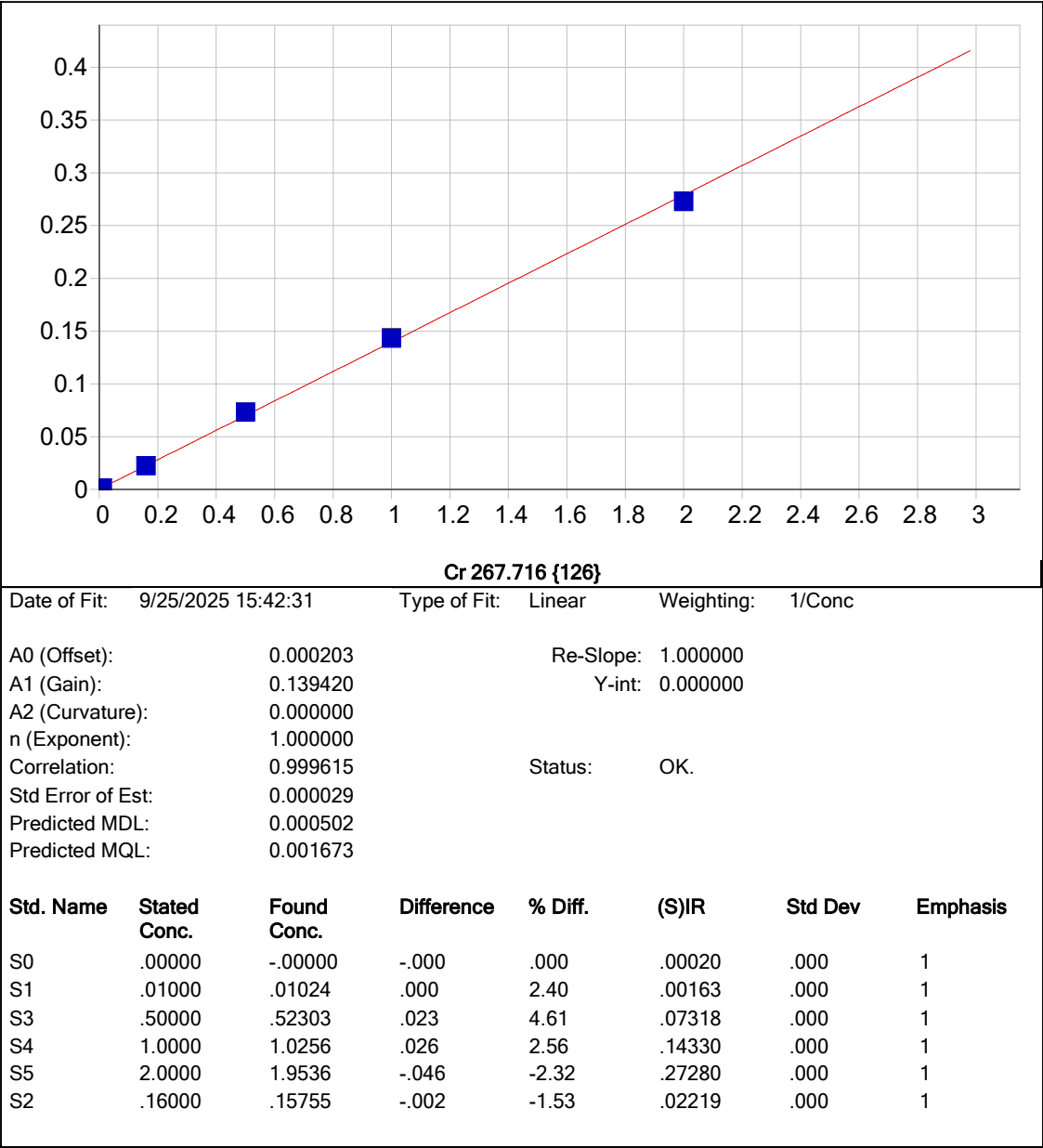


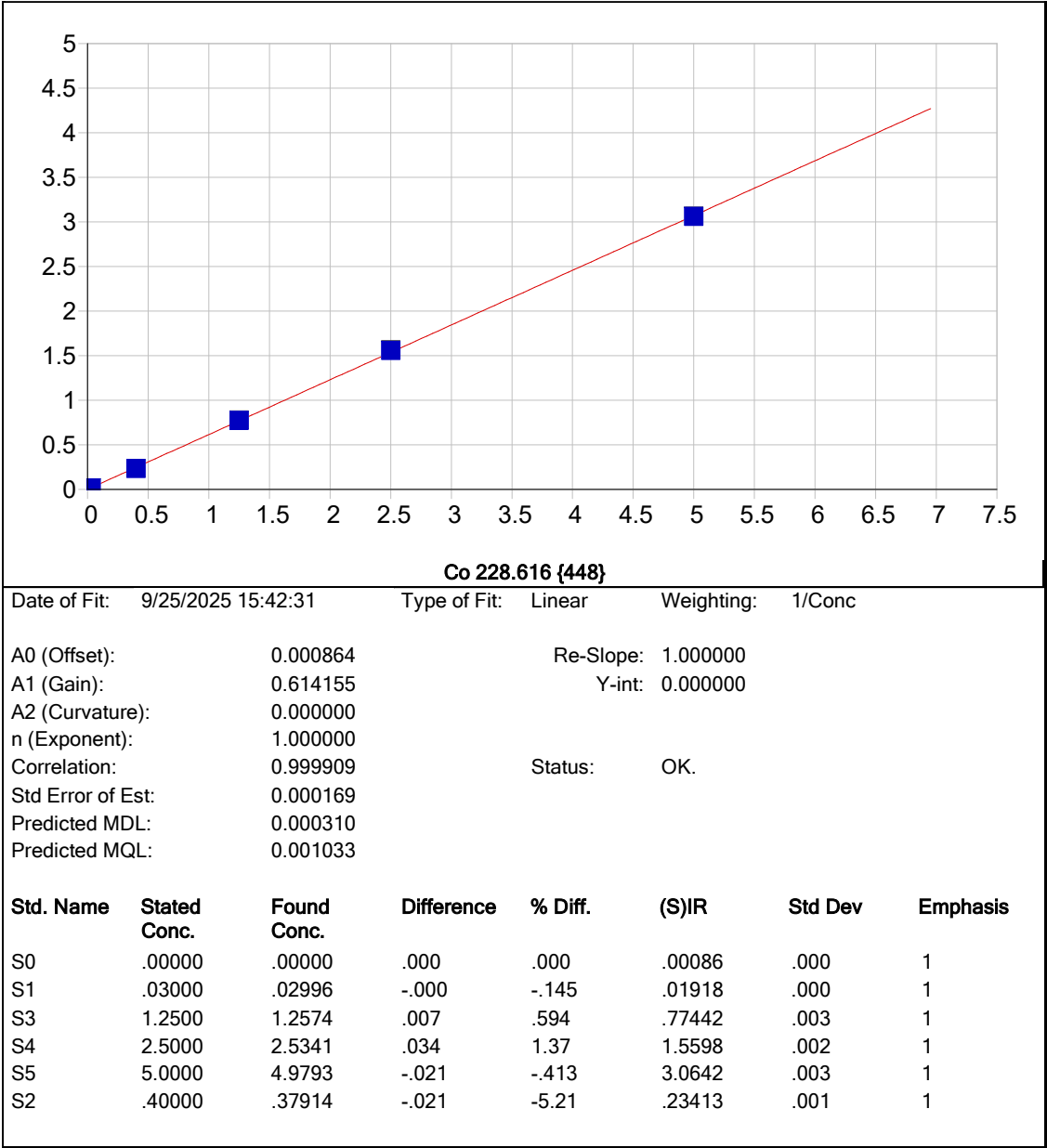


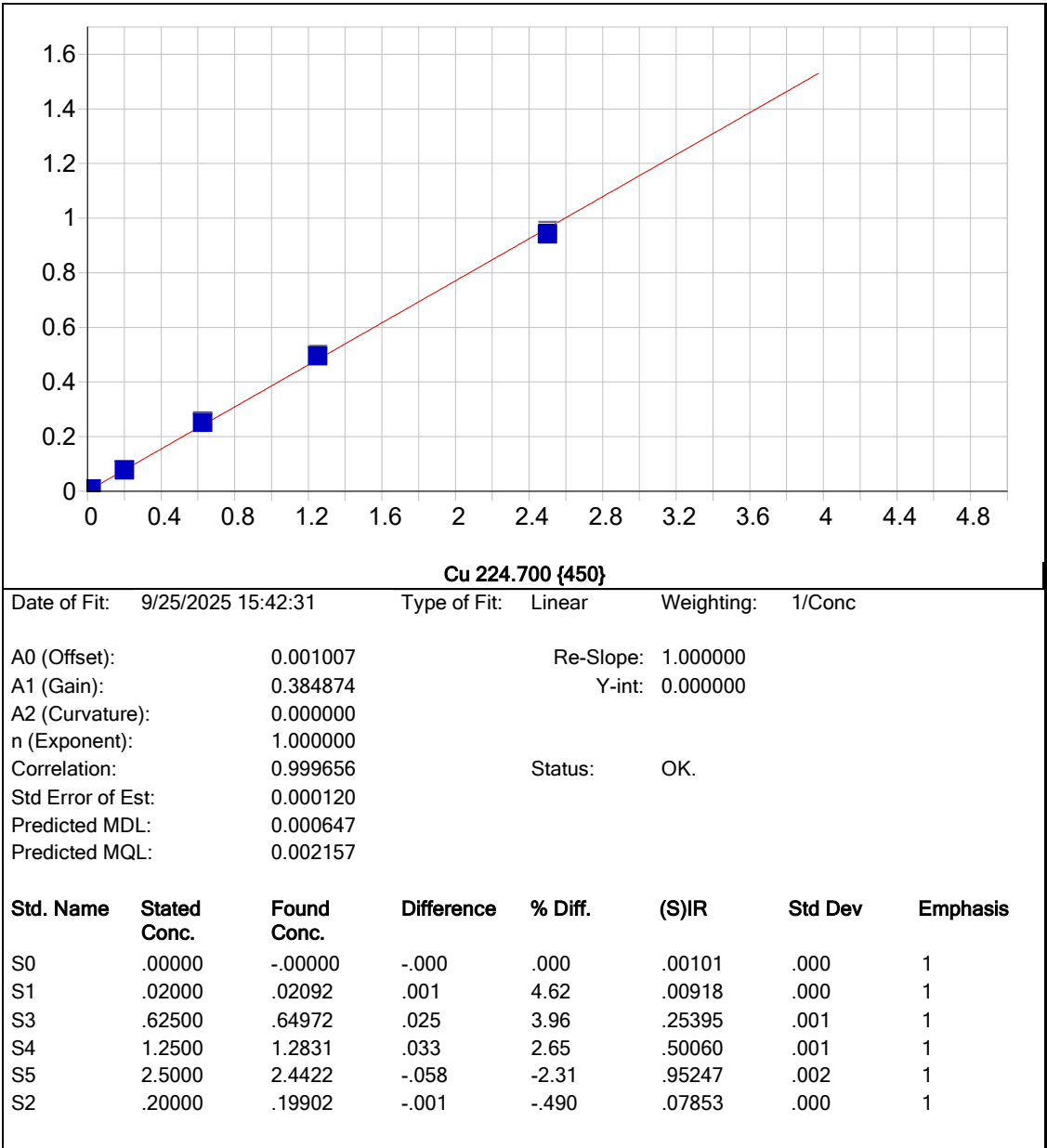






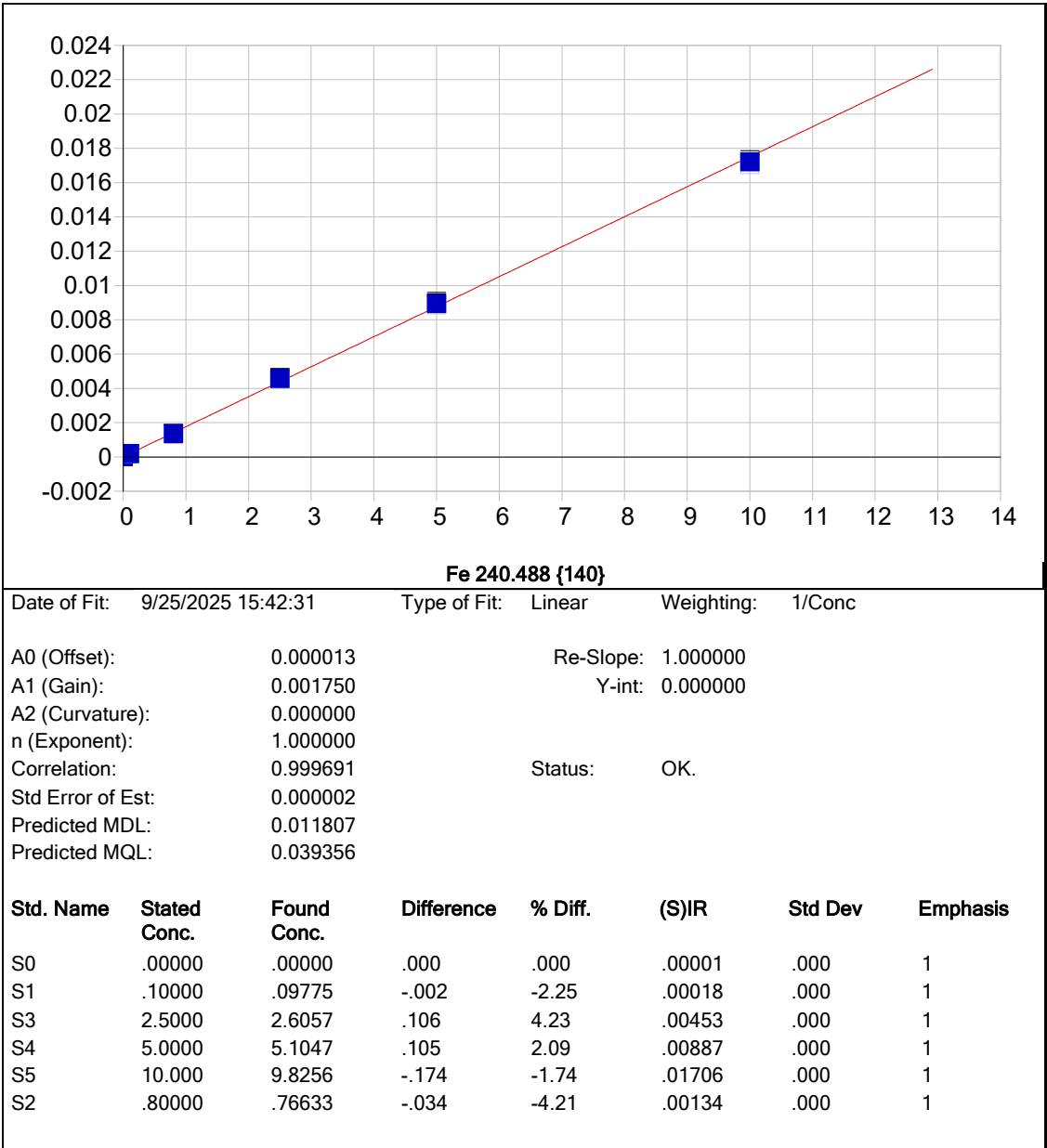


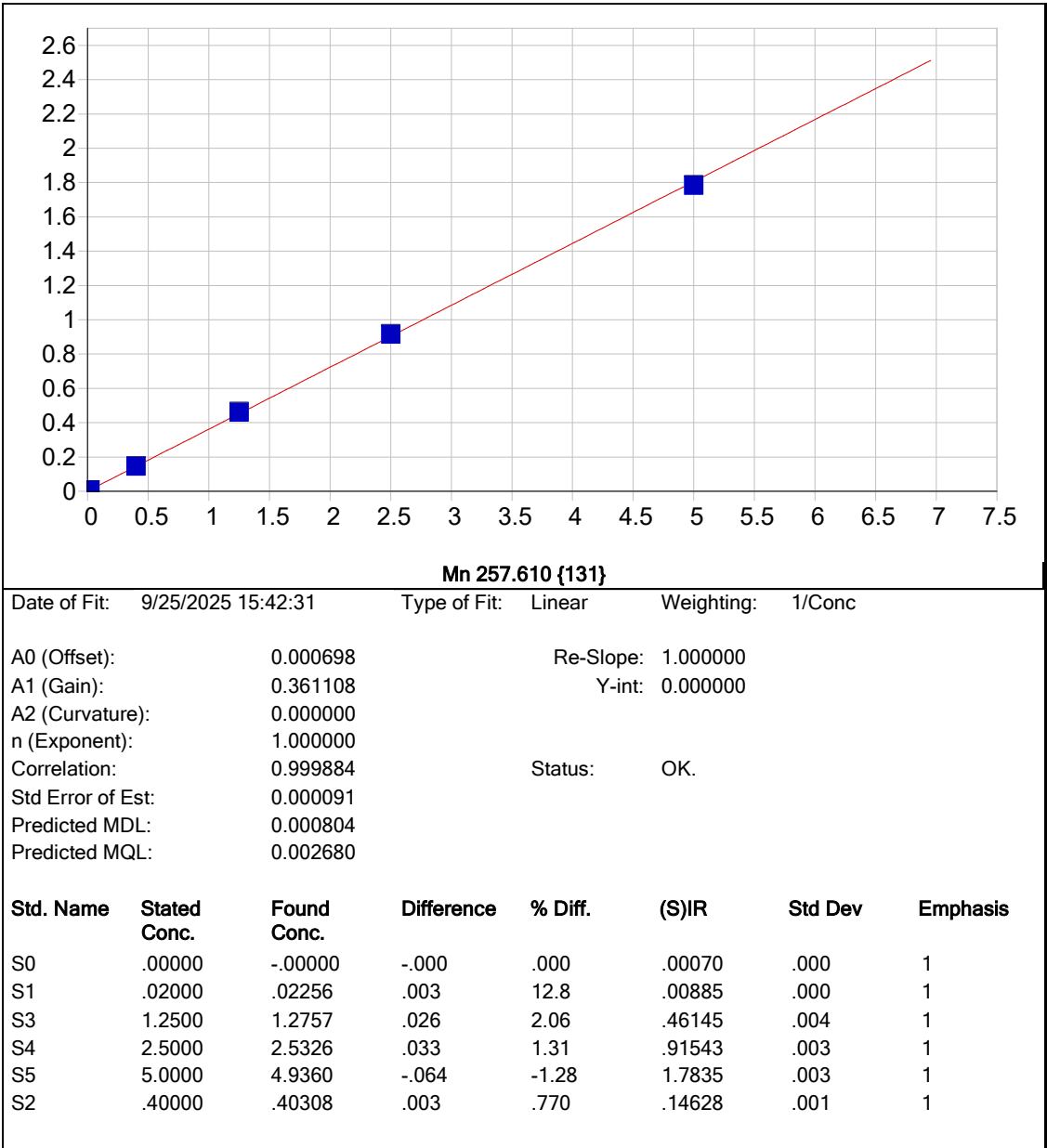


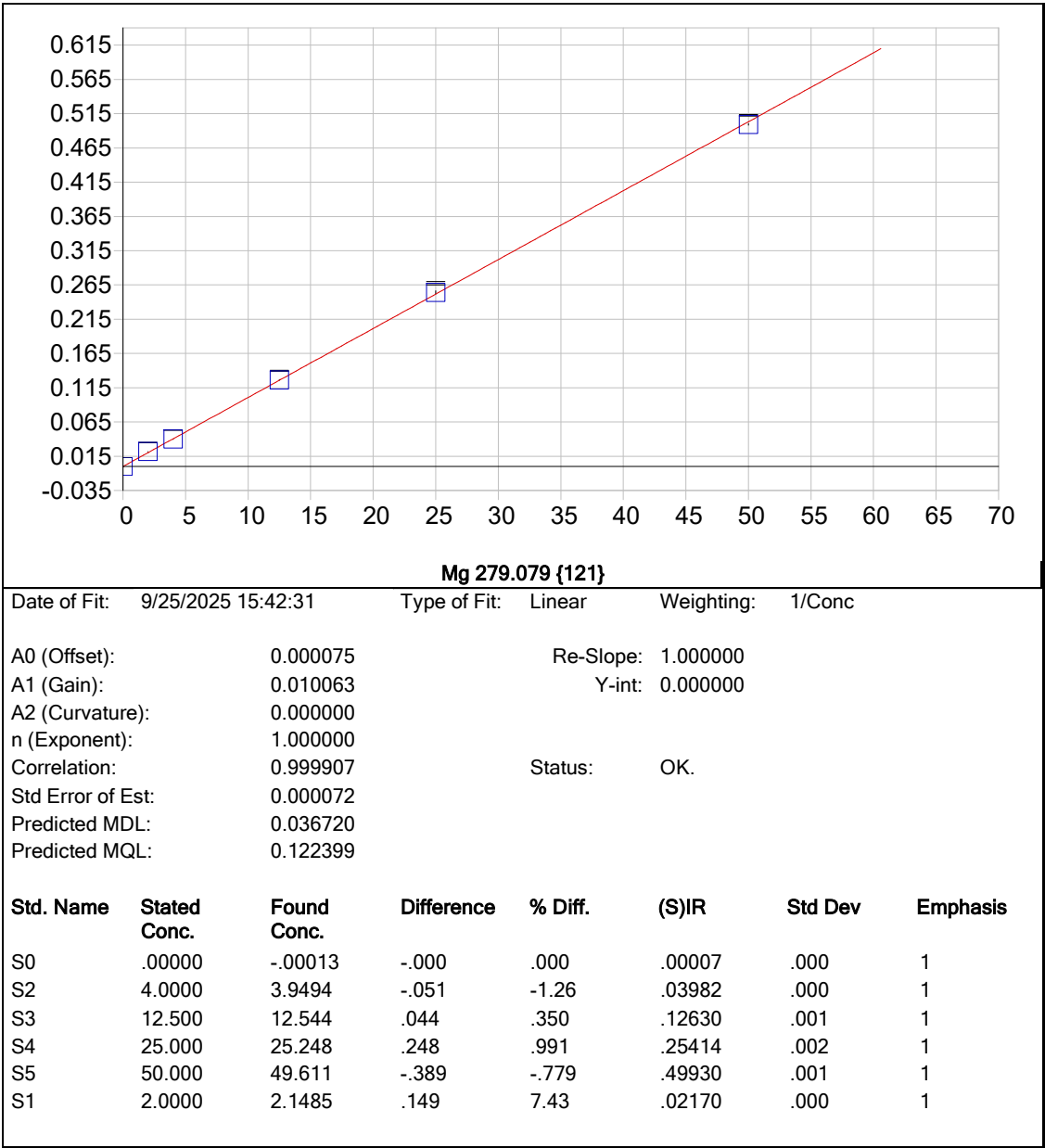


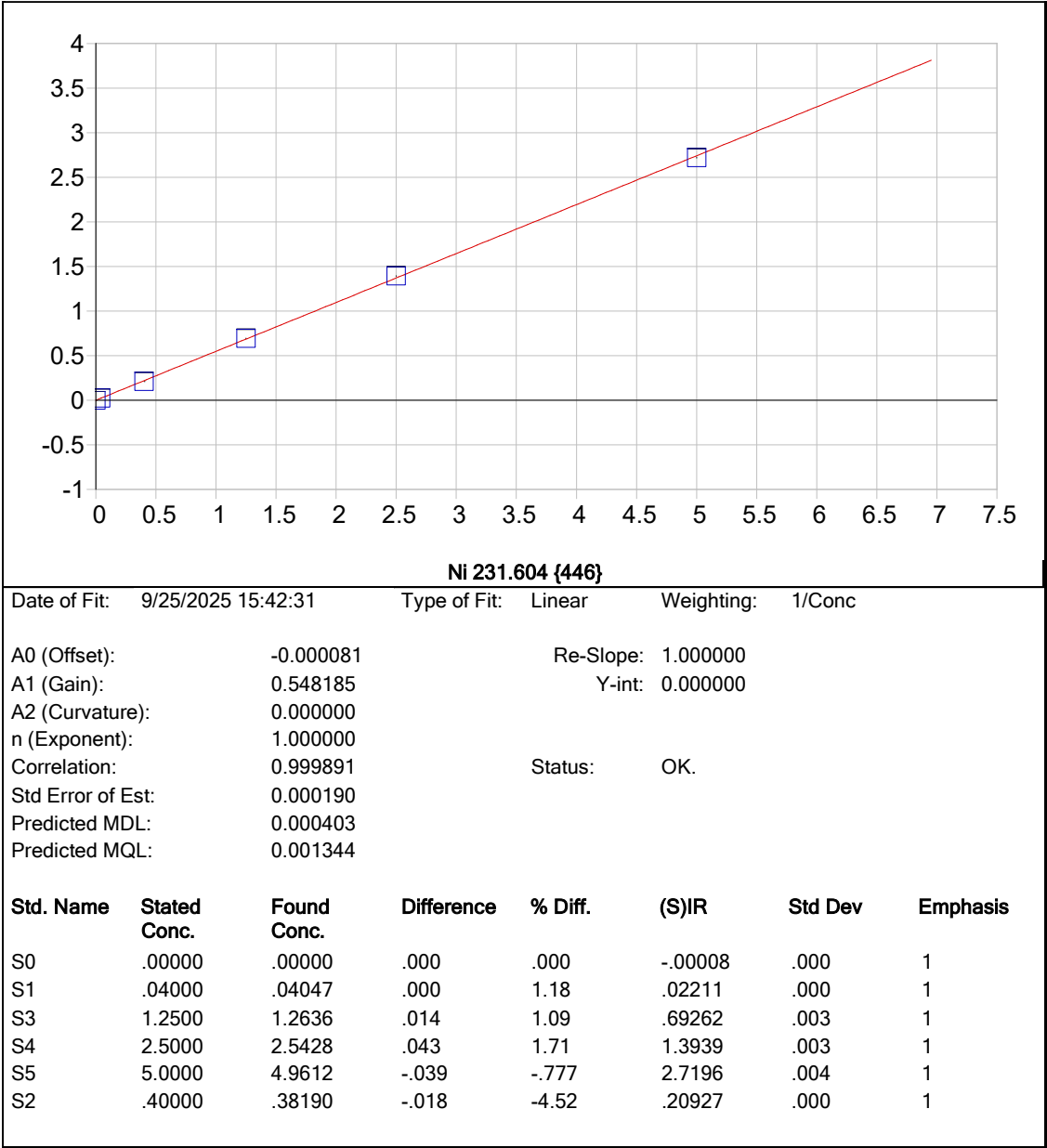
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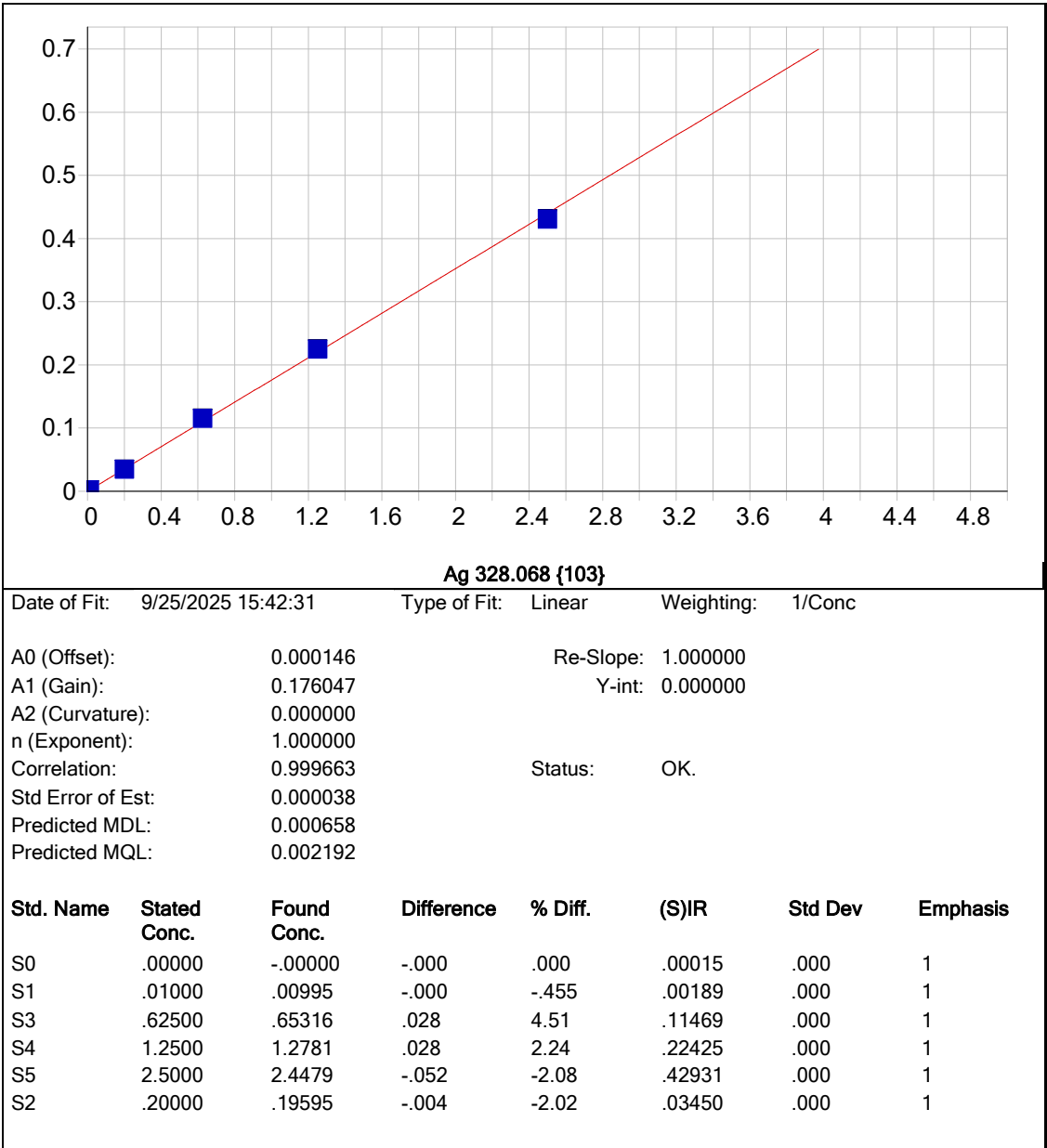
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A1 (Gain): 0.384874 Y-int: 0.000000
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Predicted MDL: 0.000647
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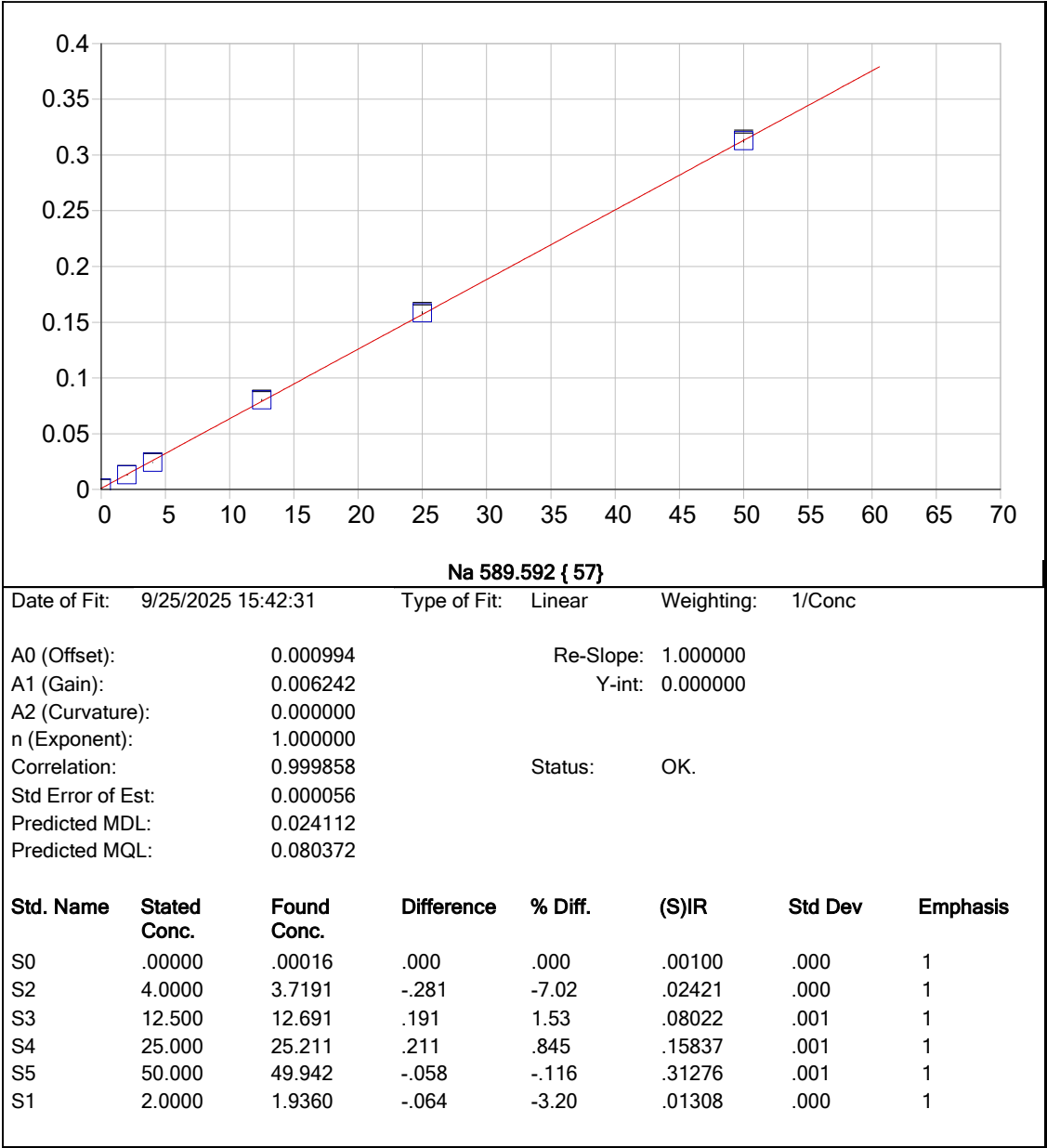


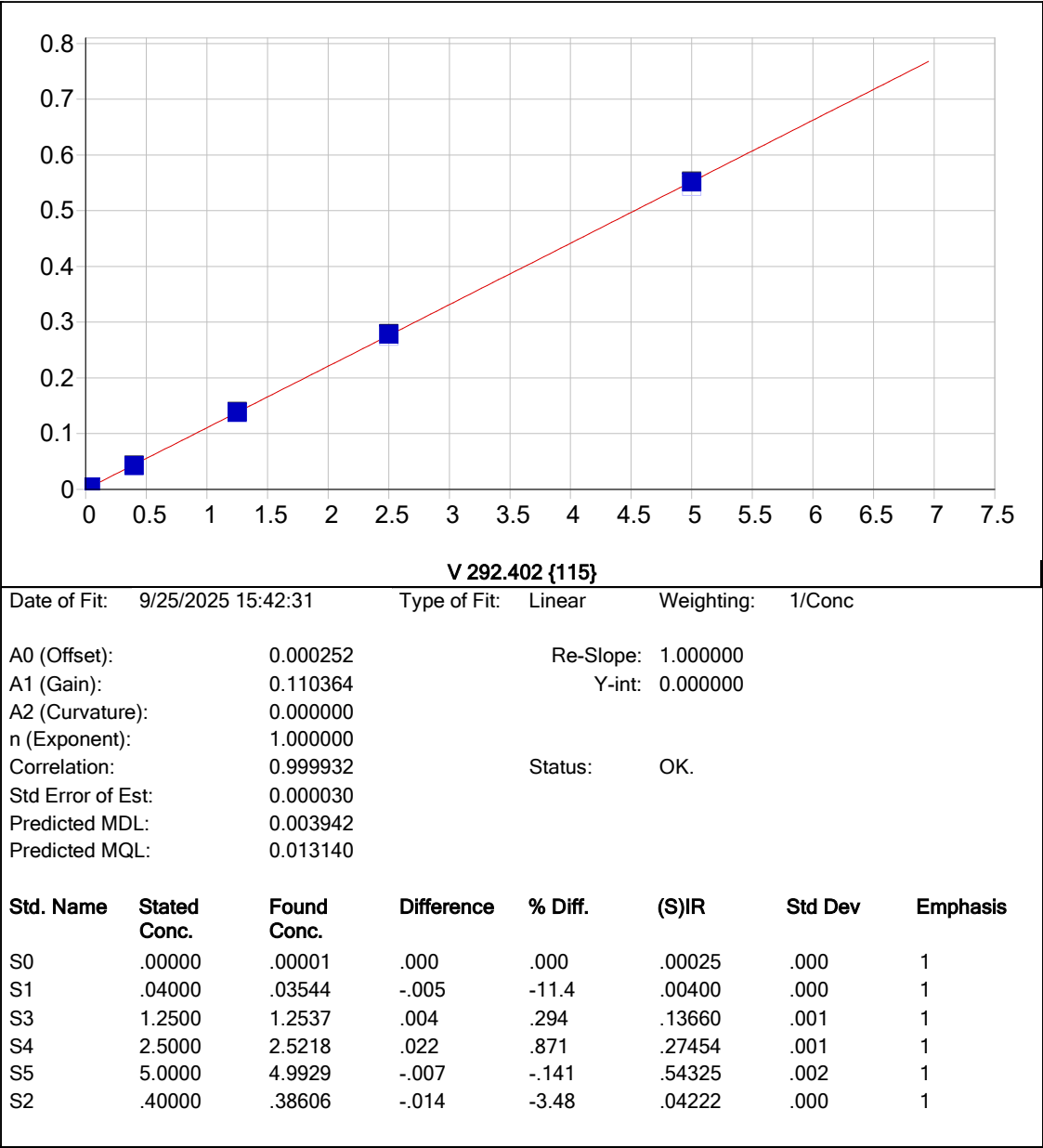


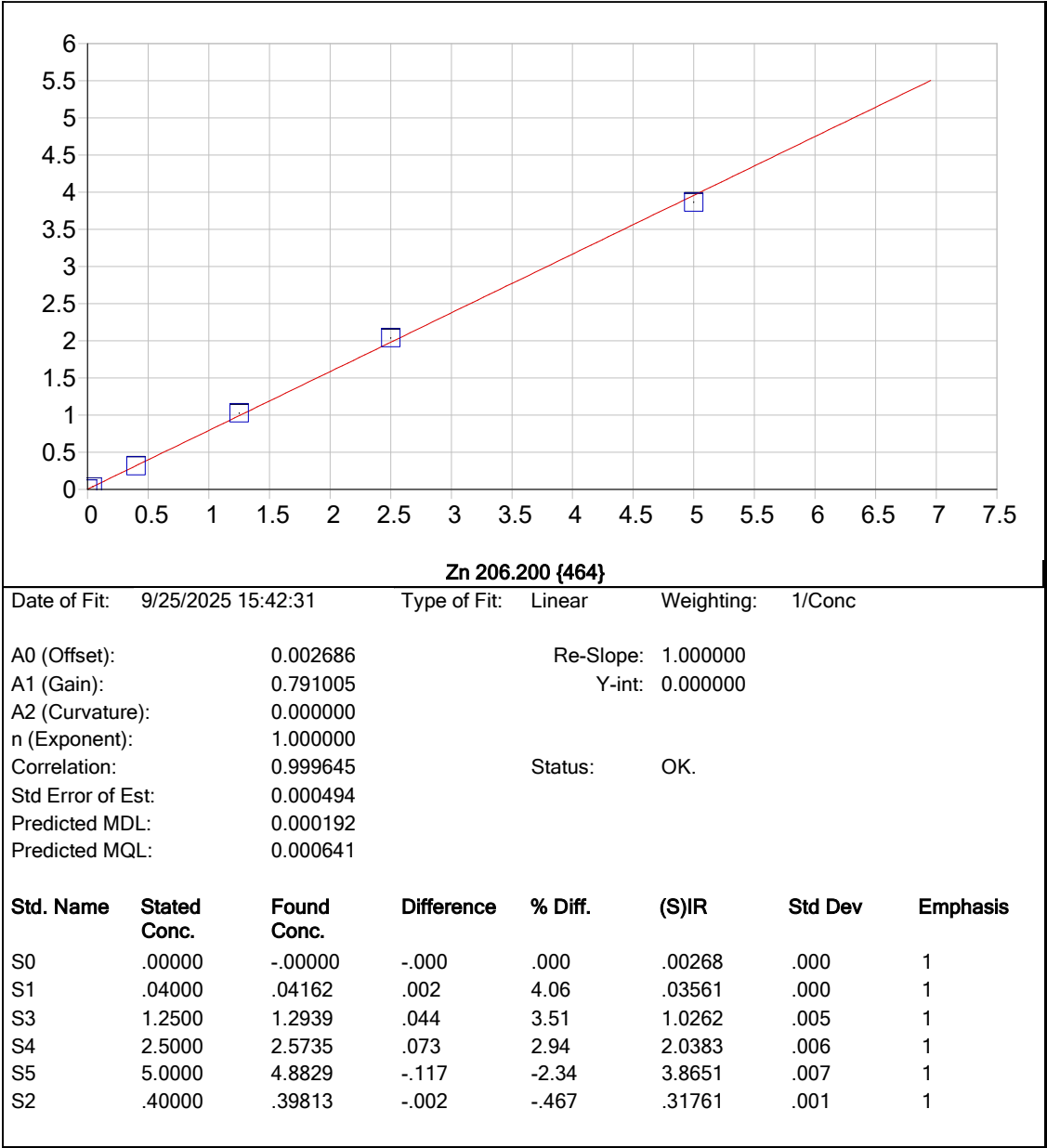


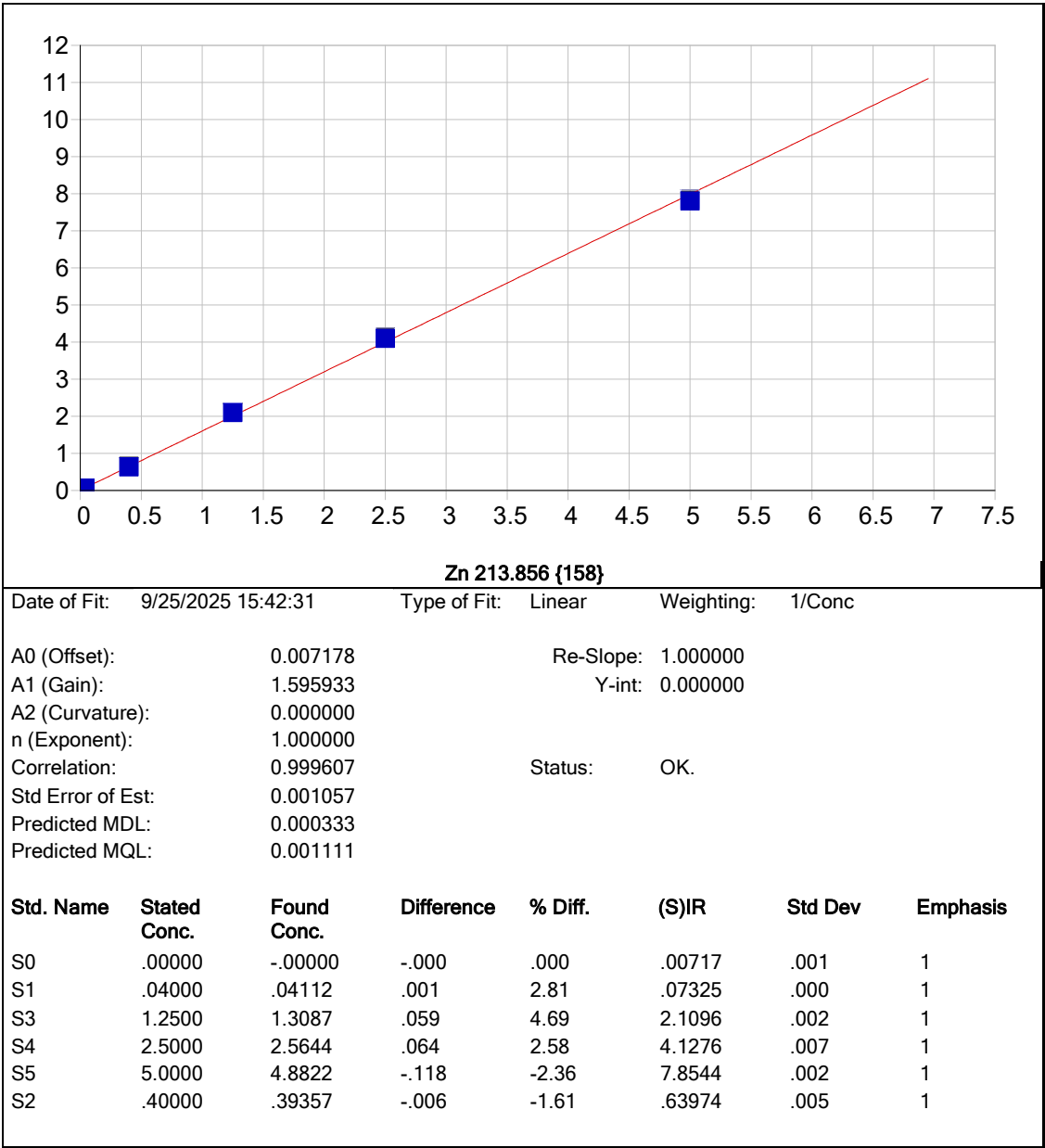


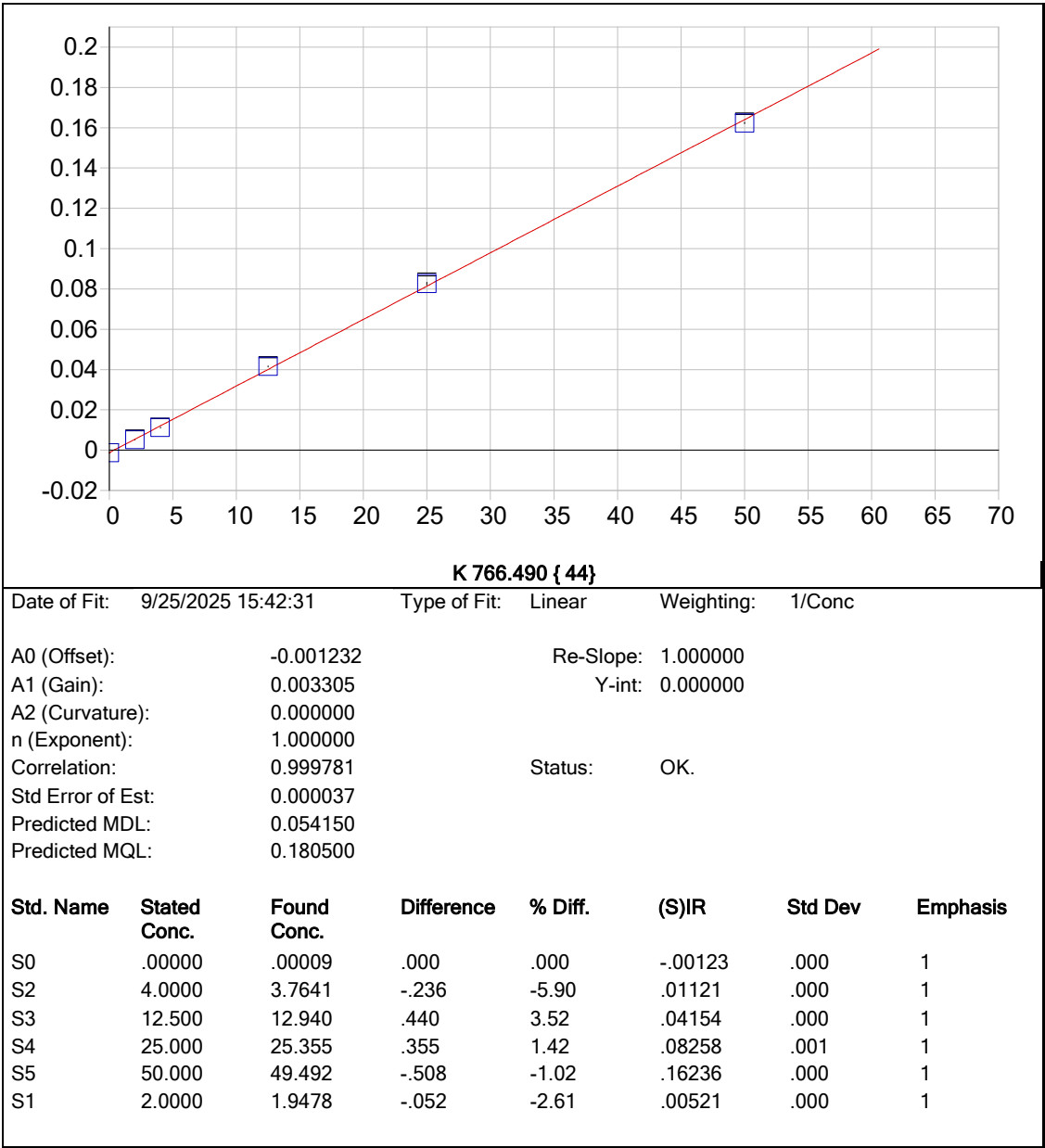


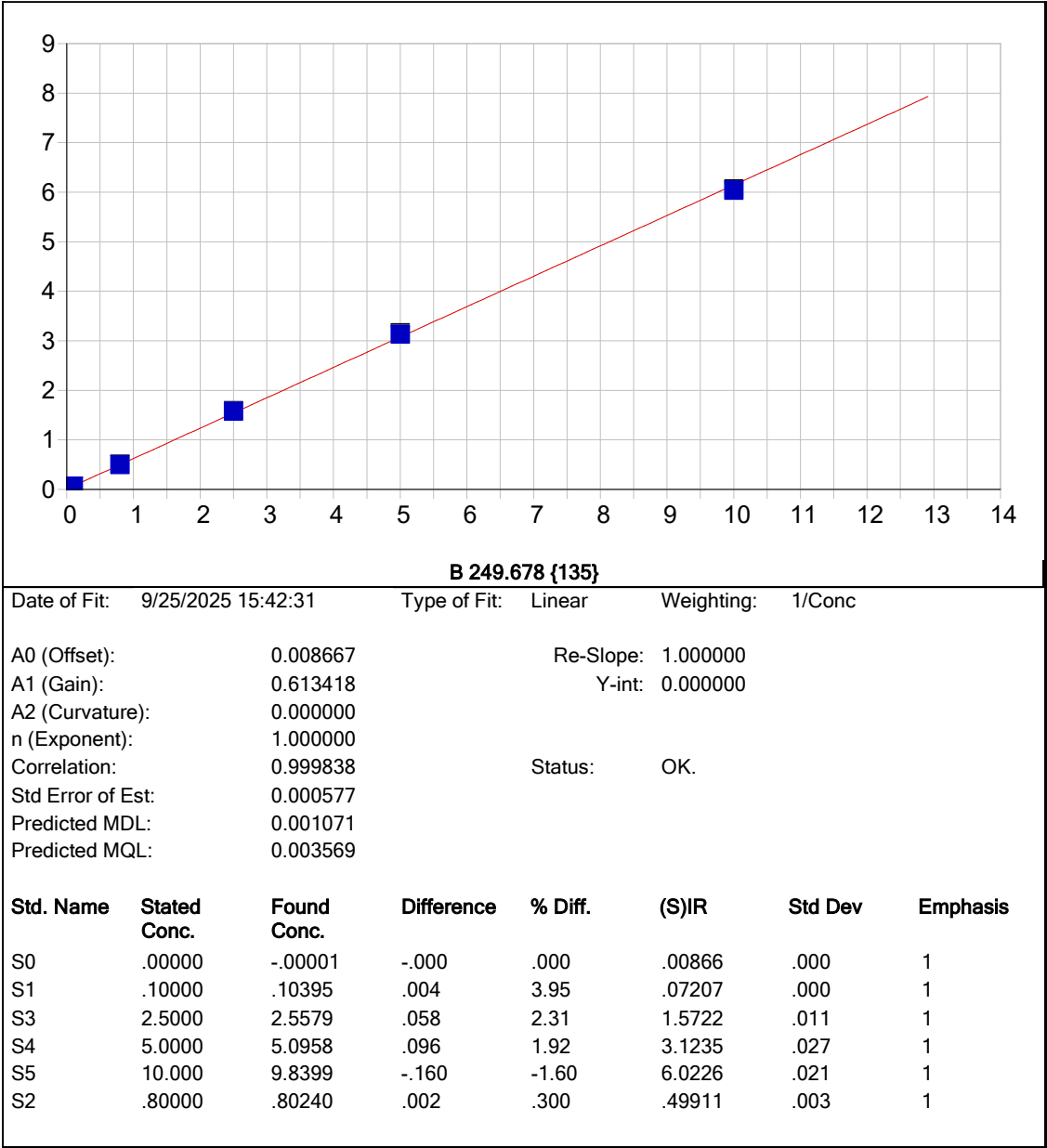


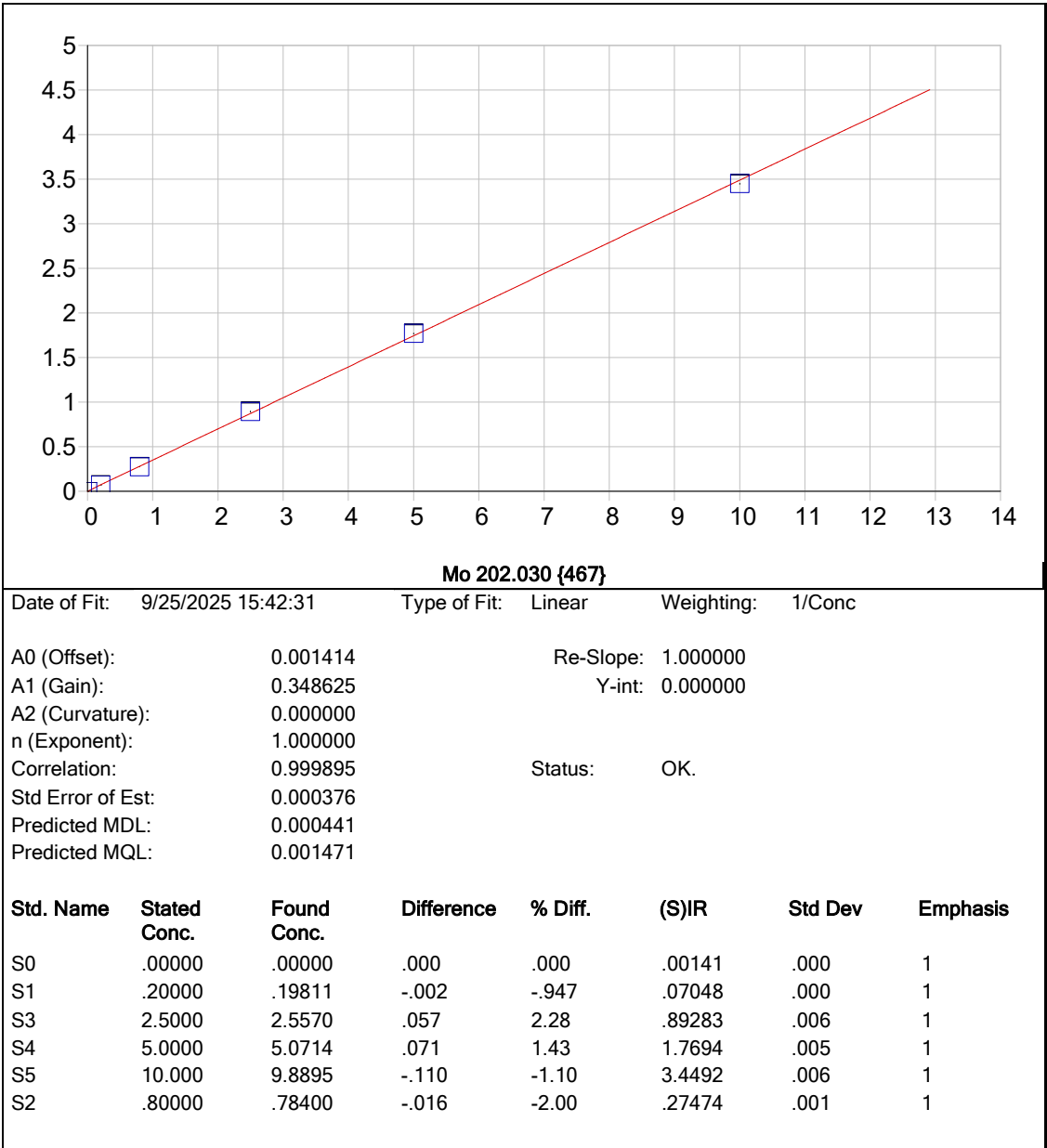


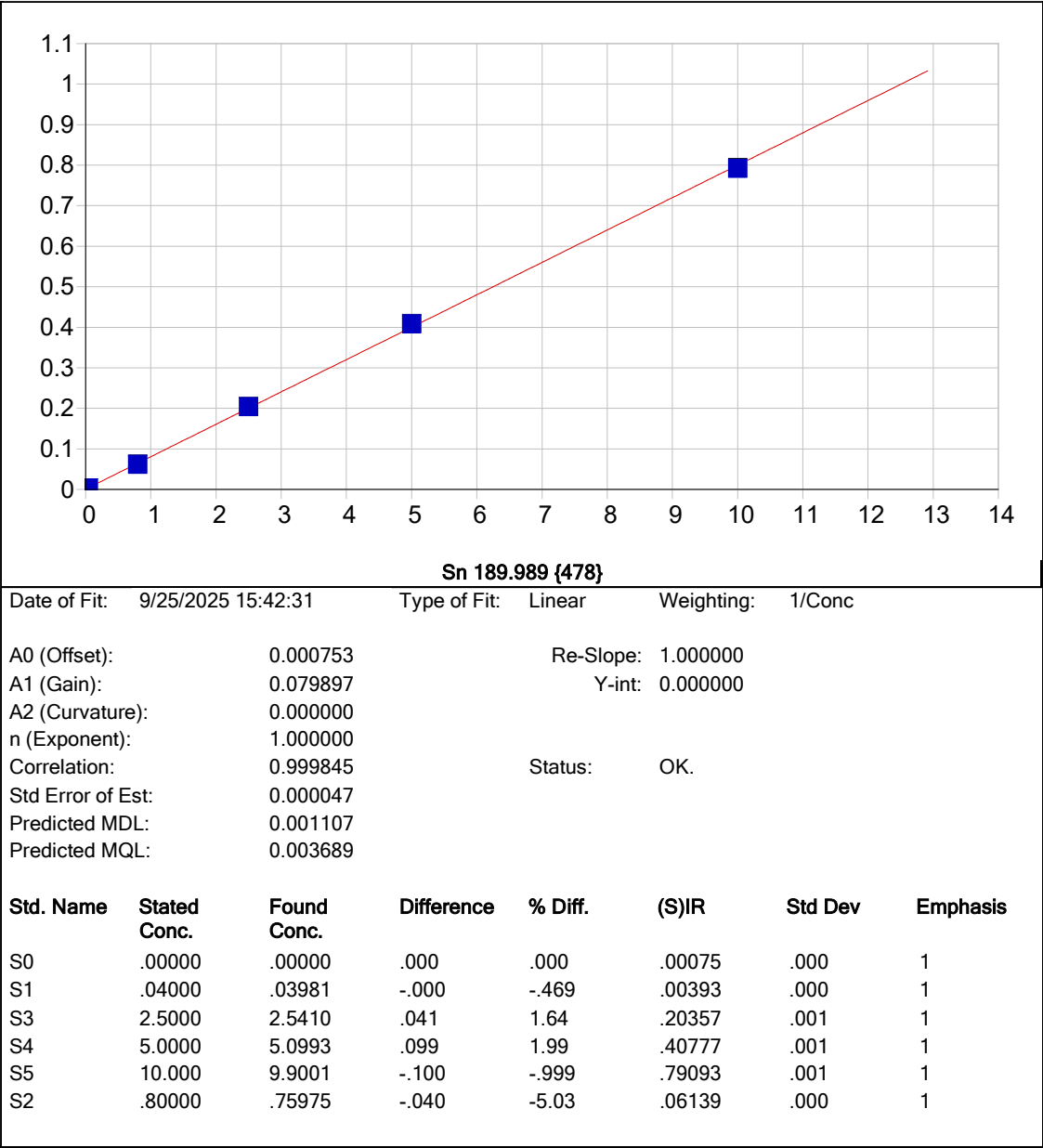


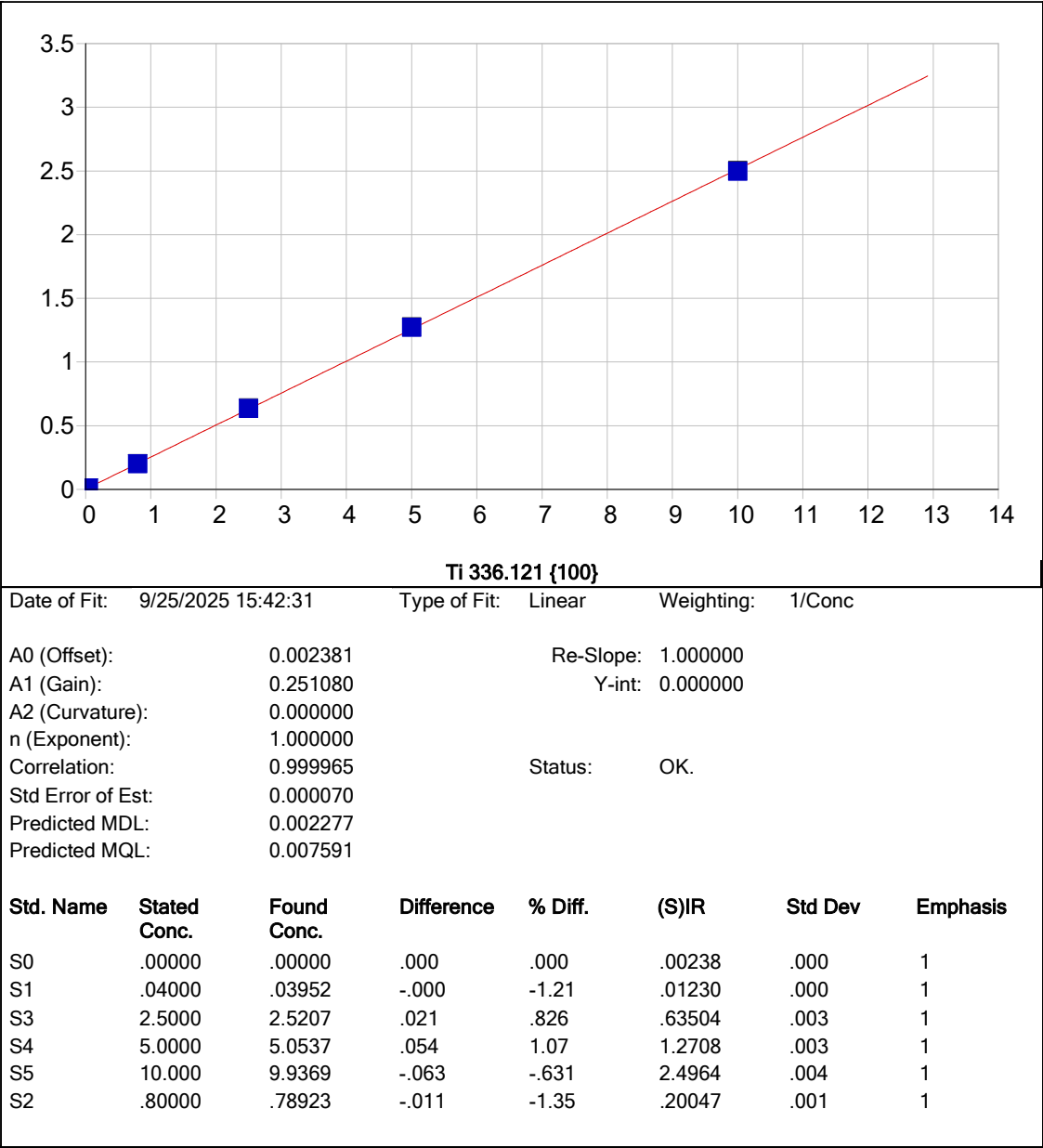


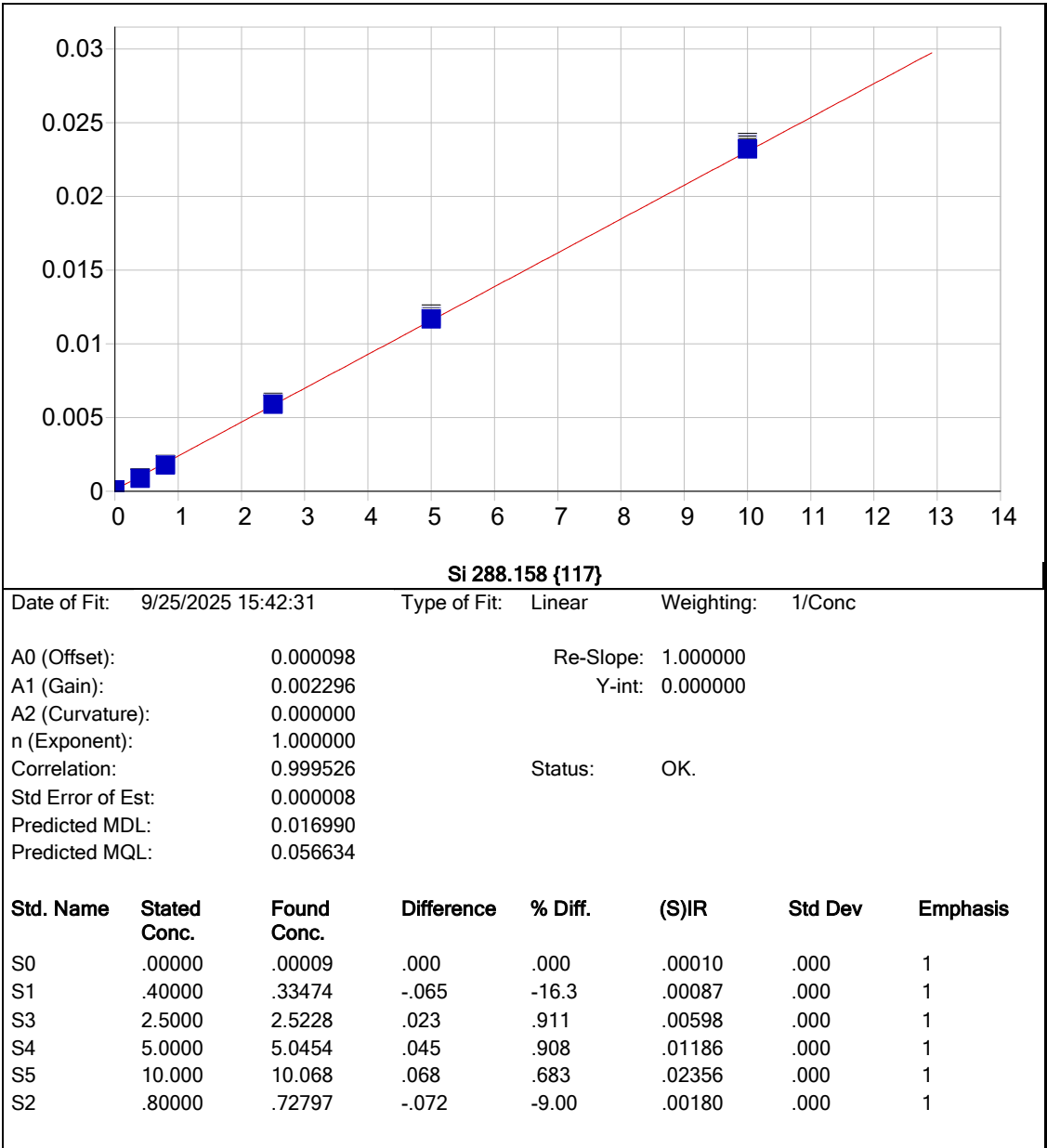


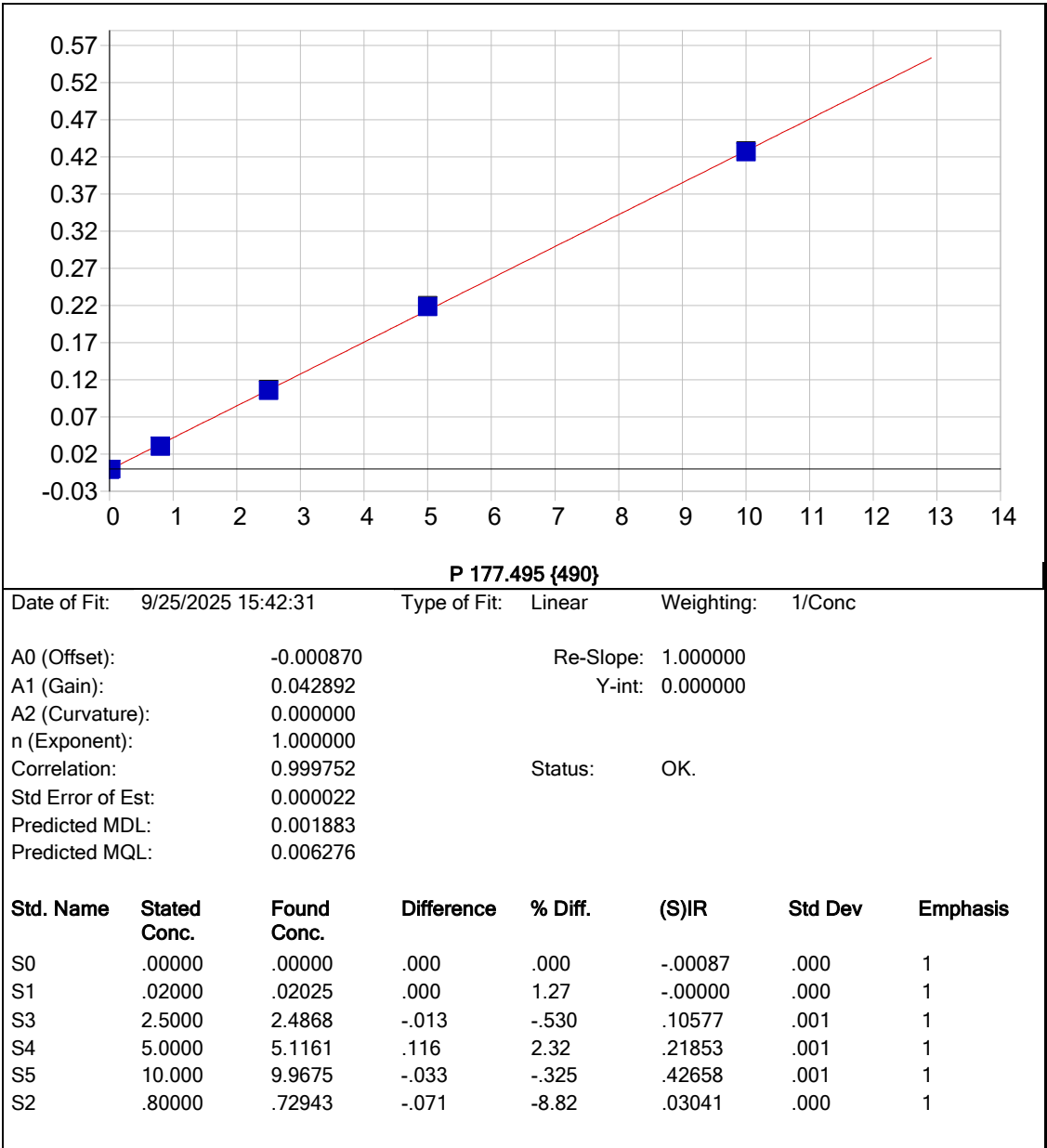


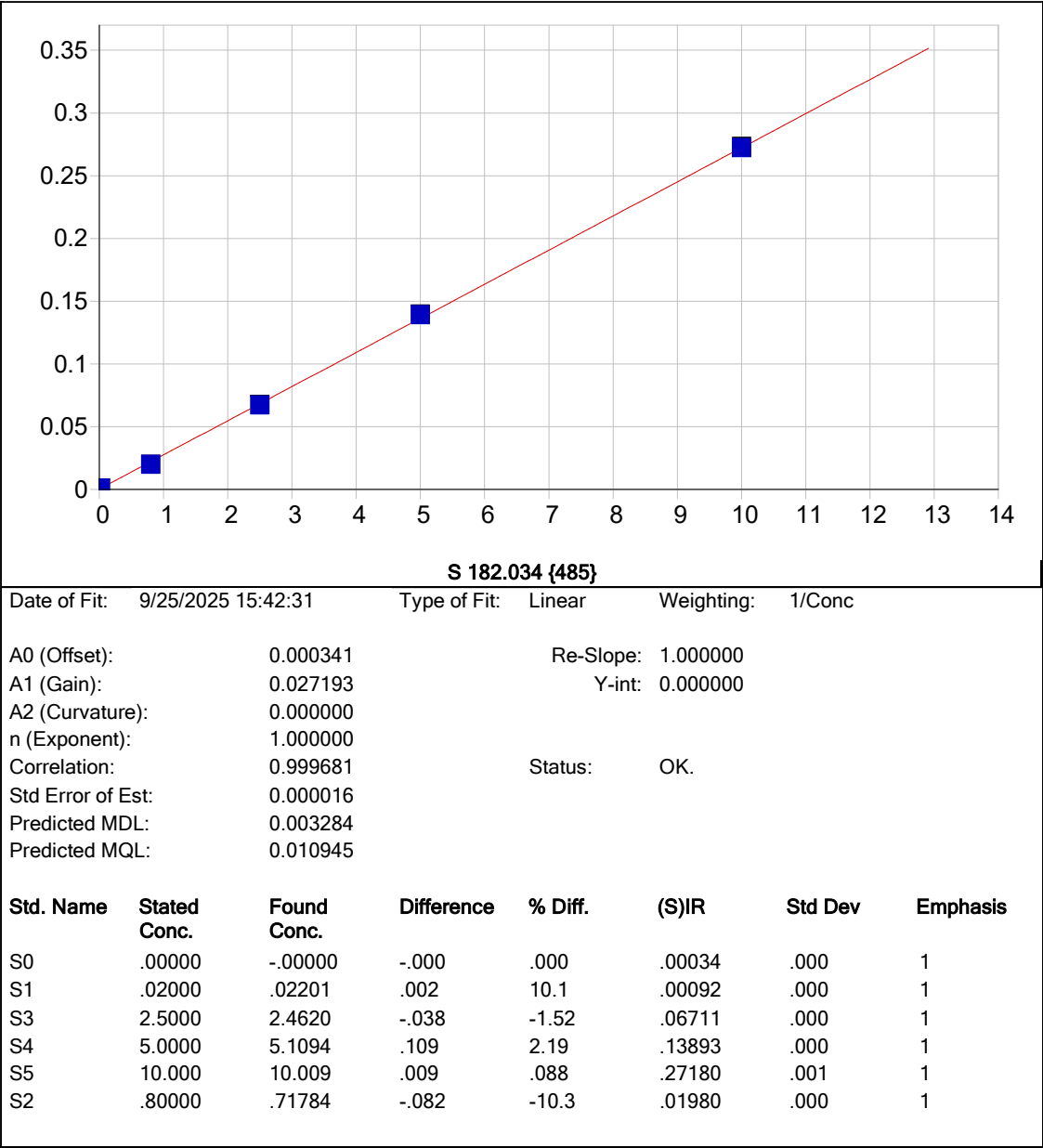


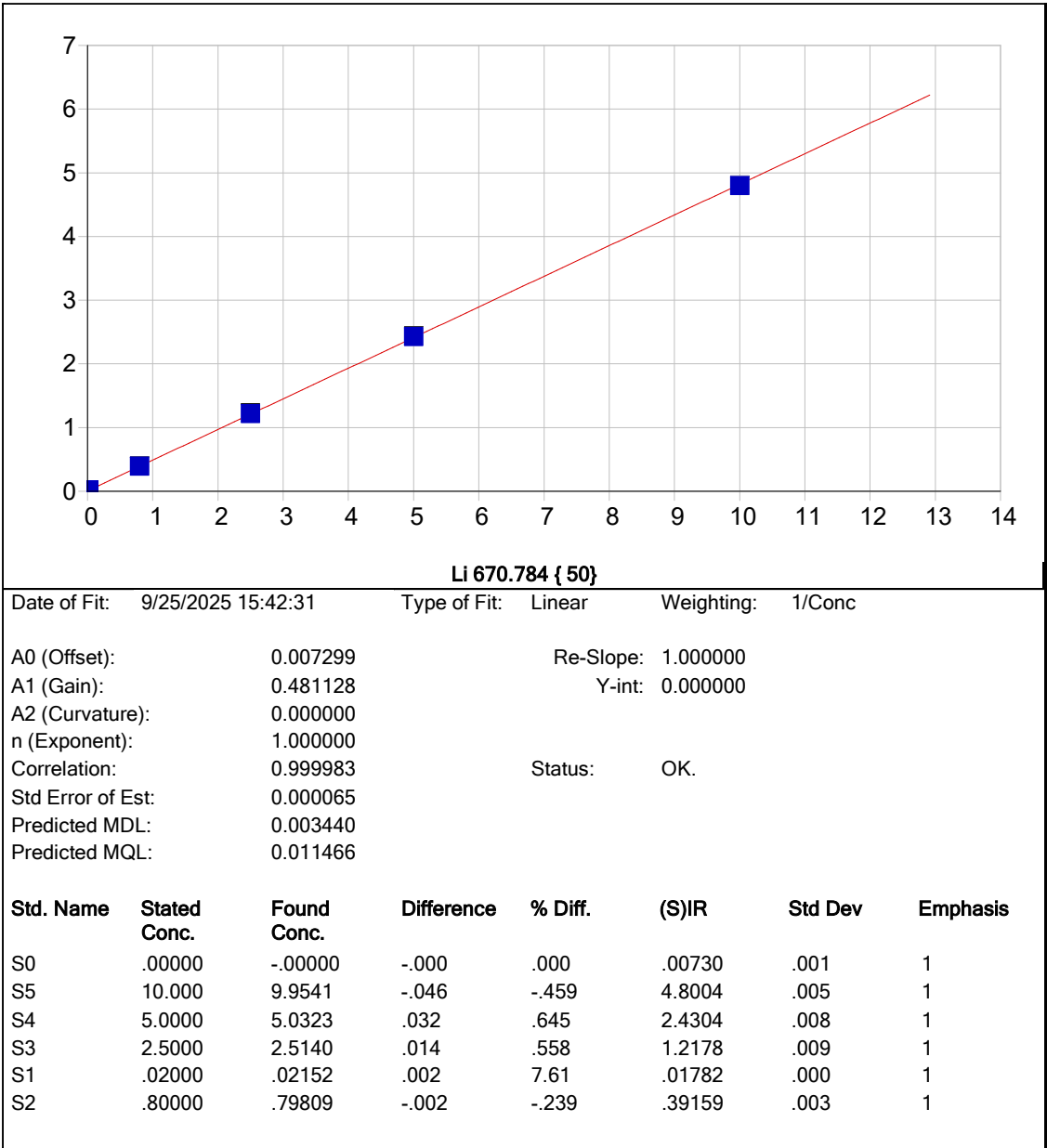


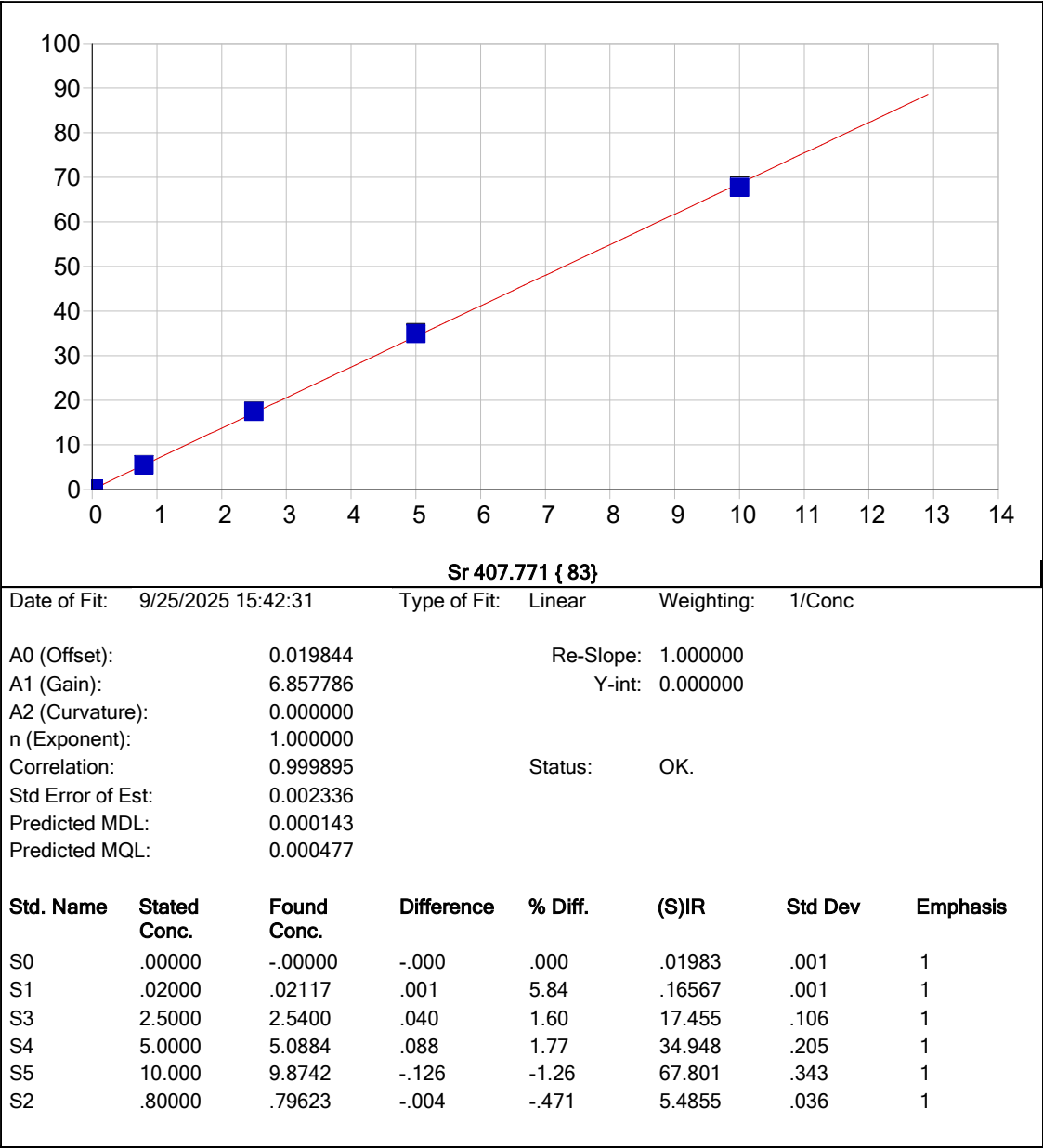






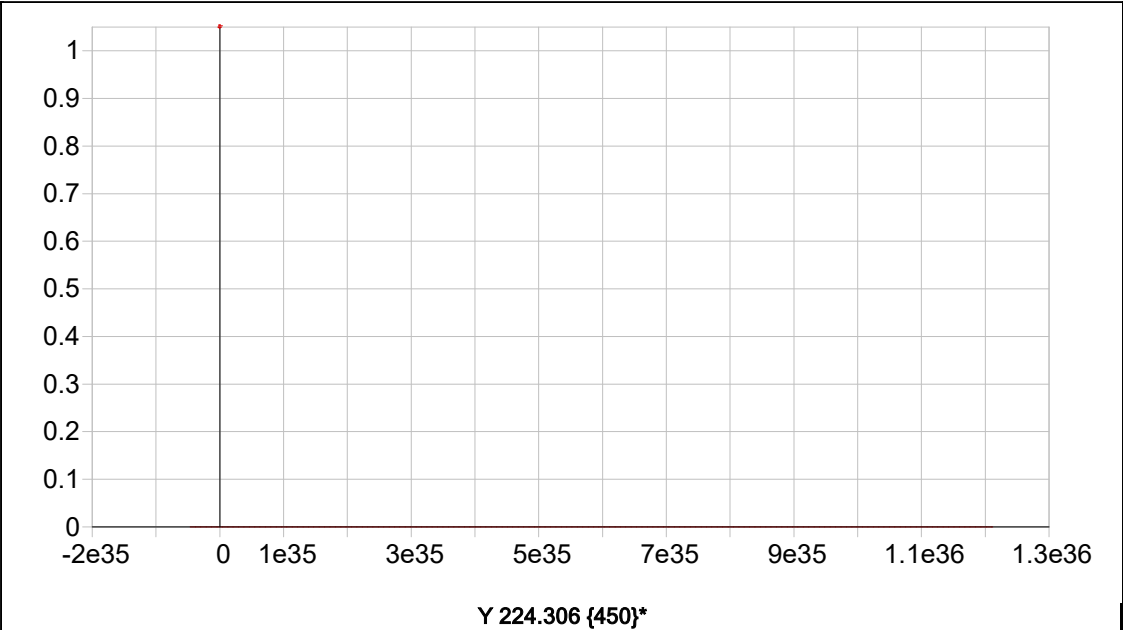






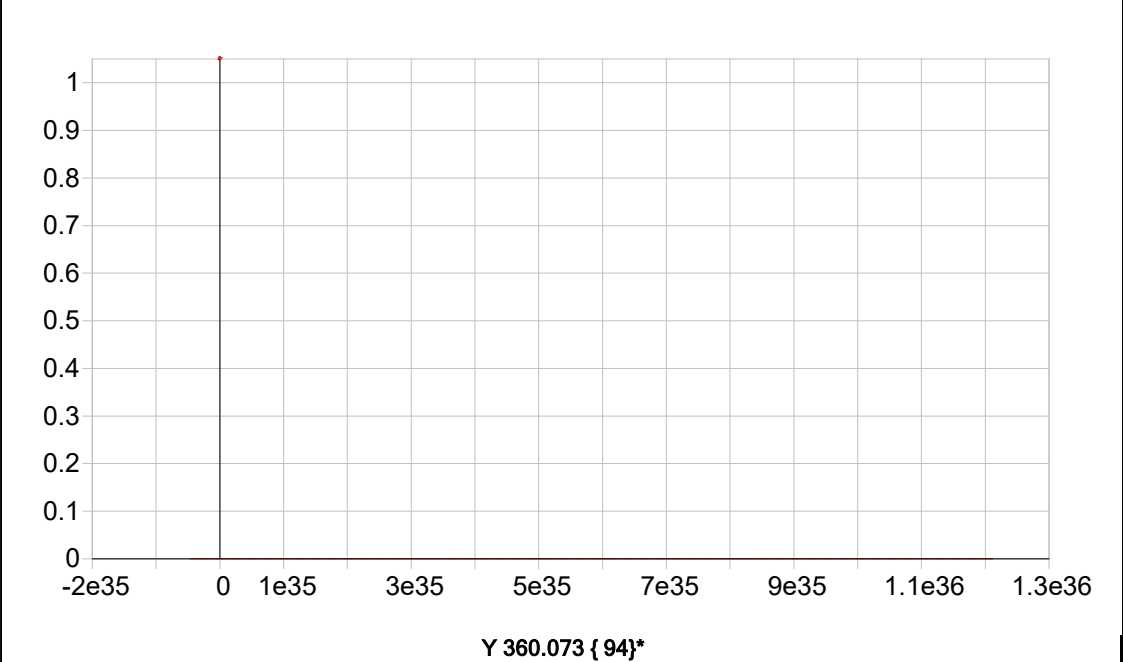
Date of Fit: 9/25/2025 15:42:31 Type of Fit: Linear Weighting: 1/Conc

A0 (Offset): 0.019844 Re-Slope: 1.000000
A1 (Gain): 6.857786 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.999895 Status: OK.
Std Error of Est: 0.002336
Predicted MDL: 0.000143
Predicted MQL: 0.000477

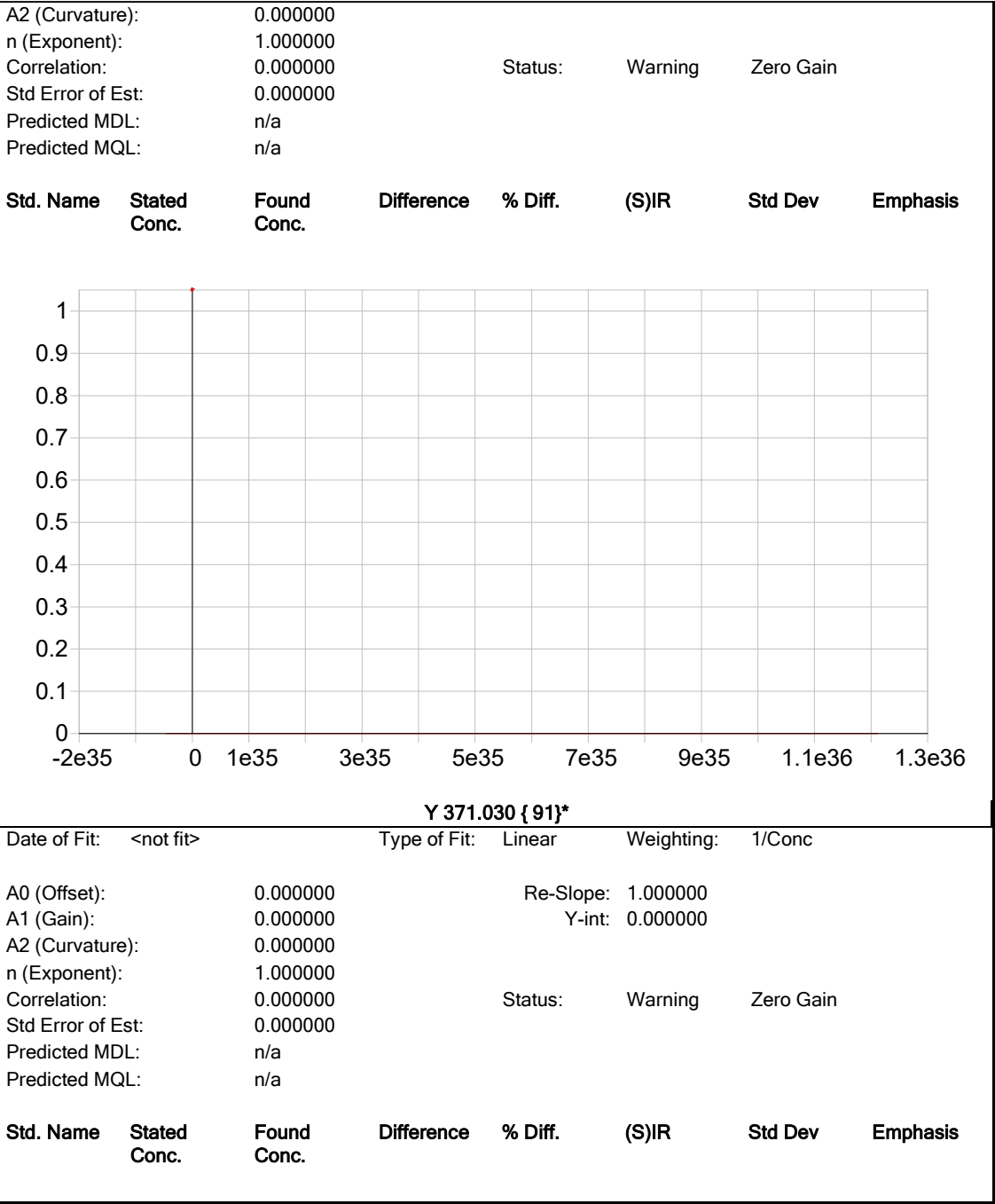


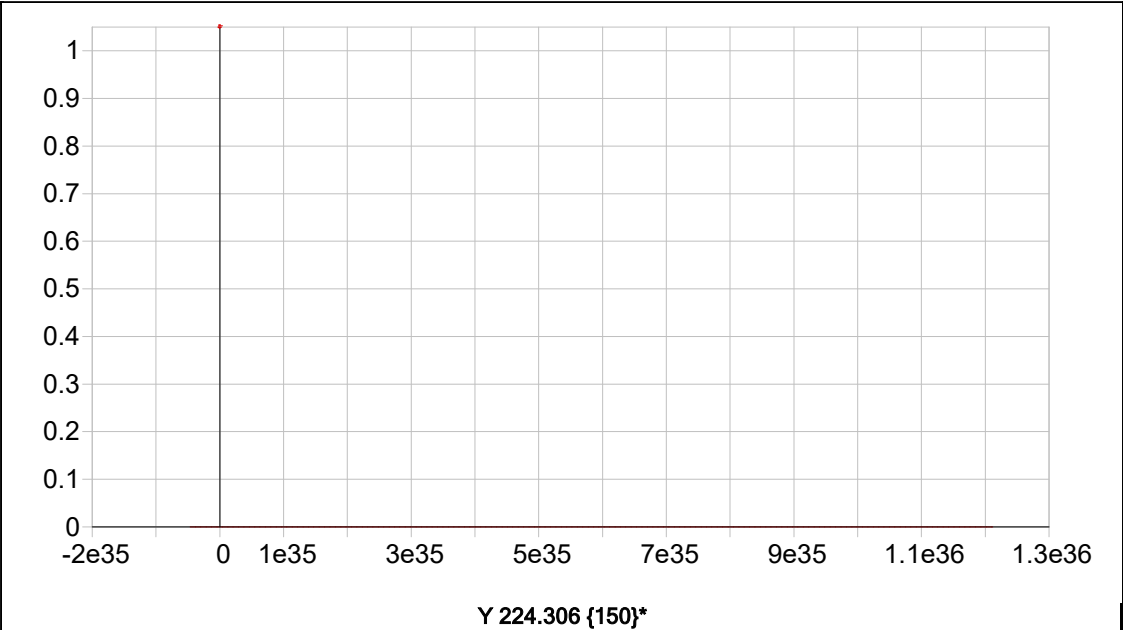
Date of Fit:	9/25/2025 15:42:31	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		
A2 (Curvature):	0.000000				
n (Exponent):	1.000000				
Correlation:	0.000000	Status:	Warning	Zero Gain	
Std Error of Est:	0.000000				
Predicted MDL:	n/a				
Predicted MQL:	n/a				

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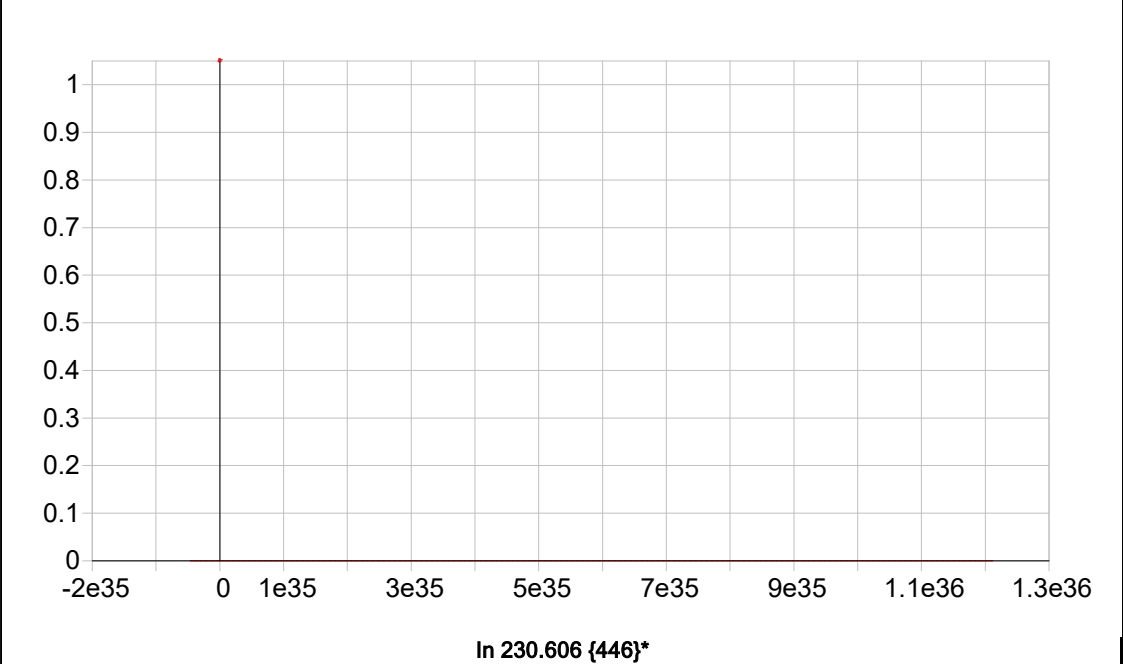
Date of Fit:	<not fit>	Type of Fit:	Linear	Weighting:	1/Conc
A0 (Offset):	0.000000	Re-Slope:	1.000000		
A1 (Gain):	0.000000	Y-int:	0.000000		





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

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



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

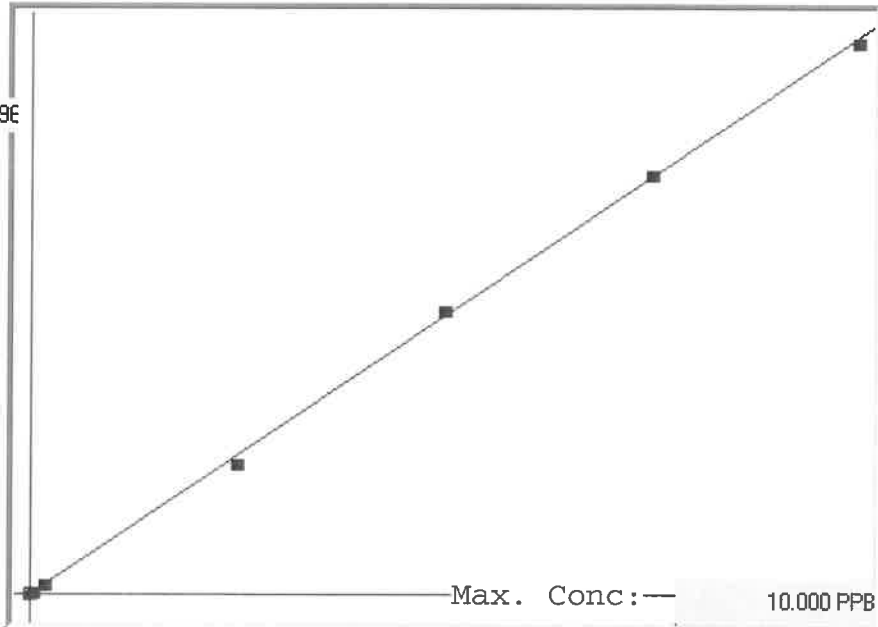
LB137278

245.1

INSTRUMENT ID: CV1

μ Abs.:

30296



Linear

A= 0.0000e+000

B= 3.2767e-004

C= 1.3821e-002

Rho= 0.9998441

Accept=Accepted

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	%D
0.0	0.000	0.012	0.012	-7	0.000	-7					1
0.05	0.050	0.063	0.013	149	0.0 %	149					16
0.2	0.200	0.206	0.006	588	0.0 %	588					3
2.5	2.500	2.381	-0.119	7225	0.0 %	7225					5
5.0	5.000	5.099	0.099	15520	0.0 %	15520					2
7.5	7.500	7.548	0.048	22993	0.0 %	22993					1
10.0	10.000	9.941	-0.059	30296	0.0 %	30296					1

LB137278 INSTRUMENT ID:CV1

Method: 245.1 Operator: Admin Date of Analysis: 23 Sep 2025 13:07:14

Type	Sample ID	Extended ID	Conc.	μ Abs.	Units	Type	Std Conc	Method	Date
S	0.0 - 1	5.005	-	-7	PPB	Std	0.0000	245.1	23 Sep 2025 13:51:36
S	0.05 - 1	50.2	-	149	PPB	Std	0.0500	245.1	23 Sep 2025 13:59:35
S	0.2 - 1	52.5	-	588	PPB	Std	0.2000	245.1	23 Sep 2025 14:01:51
S	2.5 - 1	55	-	7225	PPB	Std	2.5000	245.1	23 Sep 2025 14:04:09
S	5.0 - 1	57.5	-	15520	PPB	Std	5.0000	245.1	23 Sep 2025 14:11:56
S	7.5 - 1	59.5	-	22993	PPB	Std	7.5000	245.1	23 Sep 2025 14:20:13
S	10.0 - 1	59.5	-	30296	PPB	Std	10.0000	245.1	23 Sep 2025 14:39:44
U	ICV42 - 1	ICV42	4.0750	12394	PPB	SMPL	-245.1		23 Sep 2025 14:45:30
U	ICB42 - 1	ICB42	-0.0527	-203	PPB	SMPL	-245.1		23 Sep 2025 14:47:46
U	CCV28 - 1	CCV28	5.1402	15645	PPB	SMPL	-245.1		23 Sep 2025 14:50:03
U	CCB28 - 1	CCB28	-0.0573	-217	PPB	SMPL	-245.1		23 Sep 2025 14:52:18
U	CRA - 1	CRA	0.0590	138	PPB	SMPL	-245.1		23 Sep 2025 14:54:37
U	HighStd - 1	HighStd	9.9170	30223	PPB	SMPL	-245.1		23 Sep 2025 14:56:52
U	ChkStd - 1	ChkStd	7.0895	21594	PPB	SMPL	-245.1		23 Sep 2025 14:59:07
U	PB169802BL - 1	PBW	-0.0756	-273	PPB	SMPL	-245.1		23 Sep 2025 15:01:30
U	PB169802BS - 1	LCSW	4.3600	13264	PPB	SMPL	-245.1		23 Sep 2025 15:03:52
U	Q3125-02 - 1	Comp	0.1020	269	PPB	SMPL	-245.1		23 Sep 2025 15:06:08
U	Q3125-02DUP - 1	CompDUP	0.1000	263	PPB	SMPL	-245.1		23 Sep 2025 15:08:27
U	Q3125-02MS - 1	CompMS	3.8236	11627	PPB	SMPL	-245.1		23 Sep 2025 15:10:43
U	Q3125-02MSD - 1	CompMSD	3.8784	11794	PPB	SMPL	-245.1		23 Sep 2025 15:16:13
U	Q3158-01 - 1	EFFLUENT-DAY-1-METALS	0.0528	119	PPB	SMPL	-245.1		23 Sep 2025 15:18:28
U	CCV29 - 1	CCV29	5.1114	15557	PPB	SMPL	-245.1		23 Sep 2025 15:20:46
U	CCB29 - 1	CCB29	-0.0570	-216	PPB	SMPL	-245.1		23 Sep 2025 15:23:02
U	Q3125-02LX5 - 1		0.0341	62	PPB	SMPL	-245.1		23 Sep 2025 15:25:20
U	Q3125-02A - 1		3.8073	11577	PPB	SMPL	-245.1		23 Sep 2025 15:27:35
U	CCV30 - 1	CCV30	5.1769	15757	PPB	SMPL	-245.1		23 Sep 2025 15:29:51
U	CCB30 - 1	CCB30	-0.0596	-224	PPB	SMPL	-245.1		23 Sep 2025 15:32:09

SOP ID : M200.7-Trace Elements-22

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: 09/23/2025 Time : 11:20 Temp : 96 °C

End Digest Date: 09/23/2025 Time : 14:25 Temp : 96 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. #1

Dig Technician Signature: S/KS

Supervisor Signature: [Signature]

Temp : 1. 96°C 2. N/A

Standard Name	MLS USED	STD REF. # FROM LOG
LFS-1	0.25	M6180
LFS-2	0.25	M6181
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	M6158
1:1 HCL	5.00	MP87148
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 96C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
09/23/25 15:25	S/KS met dig	[Signature] (metlab)
	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
PB169800BL	PBW800	<2	50	25	Colorless	Colorless	Clear	Clear	N/A	1
PB169800BS	LCS800	<2	50	25	Colorless	Colorless	Clear	Clear	M6180,M6181	2
Q3125-02MS	COMPMS	<2	50	25	Colorless	Colorless	Clear	Clear	M6180,M6181	5
Q3125-02MSD	COMPMSD	<2	50	25	Colorless	Colorless	Clear	Clear	M6180,M6181	6
Q3125-02DUP	COMPDUP	<2	50	25	Colorless	Colorless	Clear	Clear	N/A	4
Q3125-02	COMP	<2	50	25	Colorless	Colorless	Clear	Clear	N/A	3

WORKLIST(Hardcopy Internal Chain)

WorkList Name : PB169800 WorkList ID : 192022 Department : Digestion Date : 09-23-2025 10:44:54

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3125-02	Comp	Water	Metals ICP-Group1	1:1 HNO3 to pH < 2	ARAM01	J21	09/17/2025	200.7

Date/Time 09/23/25 11:10
 Raw Sample Received by: SPS met dig
 Raw Sample Relinquished by: CPSSM

Date/Time 09/23/25 12:10
 Raw Sample Received by: CPSSM
 Raw Sample Relinquished by: SPS met dig

SOP ID : M245.1-Mercury-20

SDG No : N/A

Matrix : WATER

Pipette ID: HG A

Balance ID : N/A

Filter paper ID : N/A

pH Strip ID : M6069

Hood ID : #1

Block ID: 1. HG HOT BLOCK#3 2. N/A

Start Digest Date: 09/23/2025 Time : 08:40 Temp : 95 °C

End Digest Date: 09/23/2025 Time : 10:41 Temp : 95 °C

Digestion tube ID: M5595

Block thermometer ID: HG-DIG#3

Dig Technician Signature: *[Signature]*

Supervisor Signature: *[Signature]*

Temp : 1. 95°C 2. N/A

Standardized Name	MLS USED	STD REF. # FROM LOG
ICV	30mL	MP87311
CCV	30mL	MP87314
CRA	30mL	MP87315
Blank Spike	0.48mL	MP87303
Matrix Spike	0.48mL	MP87303

Chemical Used	ML/SAMPLE USED	Lot Number
HNO3/H2SO4(1:2)	1.5MI	MP85892
KMnO4 (5%)	4.5mL	MP85893
K2S2O8 (5%)	2.4mL	MP85894
Hydroxylamine HCL (12%)	1.8mL	MP85895
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

LAB SAMPLE ID	CLIENT SAMPLE ID	Wt(g)/Vol(ml)	Comment
0.0 ppb	S0	30MI	MP87304
0.05 ppb	S0.05	30MI	MP87305
0.2 ppb	S0.2	30MI	MP87306
2.5 ppb	S2.5	30MI	MP87307
5.0 ppb	S5.0	30MI	MP87308
7.5 ppb	S7.5	30MI	MP87309
10.0 ppb	S10.0	30MI	MP87310
ICV	ICV	30MI	MP87311
ICB	ICB	30MI	MP87312
CCV	CCV	30MI	MP87314
CCB	CCB	30MI	MP87313
CRI	CRI	30MI	MP87315
CHK STD	CHK STD	30MI	MP87316

Extraction Conformance/Non-Conformance Comments:

N/A		
Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
9/23/25 @ 11:25	<i>[Signature]</i>	<i>[Signature]</i>
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	Initial Vol (ml)	Final Vol (ml)	pH	Comment	Prep Pos
PB169802BL	PBW802	30	30	<2	N/A	3-1
PB169802BS	LCS802	30	30	<2	MP87303	2
Q3125-02DUP	COMPDUP	30	30	<2	N/A	4
Q3125-02MS	COMPMS	30	30	<2	MP87303	5
Q3125-02MSD	COMPMSD	30	30	<2	MP87303	6
Q3125-02	COMP	30	30	<2	N/A	3
Q3158-01	EFFLUENT-DAY-1-METALS	30	30	<2	N/A	7

WORKLIST(Hardcopy Internal Chain)

WorkList Name : 092225_245.1 WorkList ID : 192004 Department : Digestion Date : 09-22-2025 12:02:37

Sample	Customer Sample	Matrix	Test	Preservative	Customer	Raw Sample Storage Location	Collect Date	Method
Q3125-02	Comp	Water	Mercury	1:1 HNO3 to pH < 2	ARAM01	J21	09/17/2025	245.1
Q3158-01	EFFLUENT-DAY-1-METALS	Water	Mercury	1:1 HNO3 to pH < 2	TANA01	D31	09/22/2025	245.1

Date/Time 9/23/25 8:10
 Raw Sample Received by: 003-1219 'LX
 Raw Sample Relinquished by: 003-1219 'LX

Date/Time 9/23/25 8:10
 Raw Sample Received by: 003-1219 'LX
 Raw Sample Relinquished by: 003-1219 'LX

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB137278

Review By	mohan	Review On	9/24/2025 10:25:09 AM
Supervise By	jaswal	Supervise On	9/24/2025 10:55:19 AM
STD. NAME	STD REF.#		
ICAL Standard	MP87304,MP87305,MP87306,MP87307,MP87308,MP87309,MP87310		
ICV Standard	MP87311		
CCV Standard	MP87314		
ICSA Standard			
CRI Standard	MP87315		
LCS Standard			
Chk Standard	MP87312,MP87313,MP87316,MP87301		

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	09/23/25 13:51		mohan	OK
2	S0.05	S0.05	CAL2	09/23/25 13:59		mohan	OK
3	S0.2	S0.2	CAL3	09/23/25 14:01		mohan	OK
4	S2.5	S2.5	CAL4	09/23/25 14:04		mohan	OK
5	S5	S5	CAL5	09/23/25 14:11		mohan	OK
6	S7.5	S7.5	CAL6	09/23/25 14:20		mohan	OK
7	S10	S10	CAL7	09/23/25 14:39		mohan	OK
8	ICV42	ICV42	ICV	09/23/25 14:45		mohan	OK
9	ICB42	ICB42	ICB	09/23/25 14:47		mohan	OK
10	CCV28	CCV28	CCV	09/23/25 14:50		mohan	OK
11	CCB28	CCB28	CCB	09/23/25 14:52		mohan	OK
12	CRA	CRA	CRDL	09/23/25 14:54		mohan	OK
13	HighStd	HighStd	HIGH STD	09/23/25 14:56		mohan	OK
14	ChkStd	ChkStd	SAM	09/23/25 14:59		mohan	OK
15	PB169802BL	PB169802BL	MB	09/23/25 15:01		mohan	OK
16	PB169802BS	PB169802BS	LCS	09/23/25 15:03		mohan	OK
17	Q3125-02	Comp	SAM	09/23/25 15:06		mohan	OK
18	Q3125-02DUP	CompDUP	DUP	09/23/25 15:08		mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB137278

Review By	mohan	Review On	9/24/2025 10:25:09 AM
Supervise By	jaswal	Supervise On	9/24/2025 10:55:19 AM
STD. NAME	STD REF.#		
ICAL Standard	MP87304,MP87305,MP87306,MP87307,MP87308,MP87309,MP87310		
ICV Standard	MP87311		
CCV Standard	MP87314		
ICSA Standard			
CRI Standard	MP87315		
LCS Standard			
Chk Standard	MP87312,MP87313,MP87316,MP87301		

19	Q3125-02MS	CompMS	MS	09/23/25 15:10		mohan	OK
20	Q3125-02MSD	CompMSD	MSD	09/23/25 15:16		mohan	OK
21	Q3158-01	EFFLUENT-DAY-1-M	SAM	09/23/25 15:18		mohan	OK
22	CCV29	CCV29	CCV	09/23/25 15:20		mohan	OK
23	CCB29	CCB29	CCB	09/23/25 15:23		mohan	OK
24	Q3125-02L	CompL	SD	09/23/25 15:25		mohan	OK
25	Q3125-02A	CompA	PS	09/23/25 15:27		mohan	OK
26	CCV30	CCV30	CCV	09/23/25 15:29		mohan	OK
27	CCB30	CCB30	CCB	09/23/25 15:32		mohan	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137314

Review By	Review On
Supervise By	Supervise On

STD. NAME	STD REF.#
ICAL Standard ICV Standard CCV Standard ICSA Standard CRI Standard LCS Standard Chk Standard	

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	09/25/25 10:55		Jaswal	OK
2	S1	S1	CAL2	09/25/25 11:00		Jaswal	OK
3	S2	S2	CAL3	09/25/25 11:04		Jaswal	OK
4	S3	S3	CAL4	09/25/25 11:08		Jaswal	OK
5	S4	S4	CAL5	09/25/25 11:12		Jaswal	OK
6	S5	S5	CAL6	09/25/25 11:16		Jaswal	OK
7	ICV01	ICV01	ICV	09/25/25 11:20		Jaswal	OK
8	LLICV01	LLICV01	LLICV	09/25/25 11:29		Jaswal	OK
9	ICB01	ICB01	ICB	09/25/25 11:33		Jaswal	OK
10	CRI01	CRI01	CRDL	09/25/25 11:38		Jaswal	OK
11	ICSA01	ICSA01	ICSA	09/25/25 11:42		Jaswal	OK
12	ICSAB01	ICSAB01	ICSAB	09/25/25 11:46		Jaswal	OK
13	ICSADL	ICSADL	ICSA	09/25/25 11:50		Jaswal	OK
14	ICSABDL	ICSABDL	ICSAB	09/25/25 12:00		Jaswal	OK
15	CCV01	CCV01	CCV	09/25/25 12:12		Jaswal	OK
16	CCB01	CCB01	CCB	09/25/25 12:17		Jaswal	OK
17	LR-2	LR-2	HIGH STD	09/25/25 12:40		Jaswal	OK
18	LR-3	LR-3	HIGH STD	09/25/25 12:44		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137314

Review By	Review On
Supervise By	Supervise On

STD. NAME	STD REF.#
ICAL Standard ICV Standard CCV Standard ICSA Standard CRI Standard LCS Standard Chk Standard	

19	PB169800BL	PB169800BL	MB	09/25/25 12:54		Jaswal	OK
20	PB169800BS	PB169800BS	LCS	09/25/25 12:58		Jaswal	OK
21	PB169812BL	PB169812BL	MB	09/25/25 13:02		Jaswal	OK
22	PB169812BS	PB169812BS	LCS	09/25/25 13:07		Jaswal	OK
23	LR-1	LR-1	HIGH STD	09/25/25 13:11		Jaswal	OK
24	Q3187-01	228	SAM	09/25/25 13:15		Jaswal	OK
25	Q3188-02	RB22120	SAM	09/25/25 13:19		Jaswal	OK
26	CCV02	CCV02	CCV	09/25/25 13:23		Jaswal	OK
27	CCB02	CCB02	CCB	09/25/25 13:27		Jaswal	OK
28	PB169833BL	PB169833BL	MB	09/25/25 13:32		Jaswal	OK
29	PB169833BS	PB169833BS	LCS	09/25/25 13:36		Jaswal	OK
30	Q3125-02	Comp	SAM	09/25/25 13:40		Jaswal	OK
31	Q3125-02DUP	CompDUP	DUP	09/25/25 13:44		Jaswal	OK
32	Q3125-02L	CompL	SD	09/25/25 13:49		Jaswal	OK
33	Q3125-02MS	CompMS	MS	09/25/25 13:53		Jaswal	OK
34	Q3125-02MSD	CompMSD	MSD	09/25/25 13:57		Jaswal	OK
35	Q3125-02A	CompA	PS	09/25/25 14:08		Jaswal	OK
36	Q3168-06	TOTES COMP#2	SAM	09/25/25 14:13	Confirm wt/vol	Jaswal	OK
37	Q3172-01	FW7D	SAM	09/25/25 14:17		Jaswal	OK
38	CCV03	CCV03	CCV	09/25/25 14:21		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137314

Review By	Review On
Supervise By	Supervise On

STD. NAME	STD REF.#
ICAL Standard ICV Standard CCV Standard ICSA Standard CRI Standard LCS Standard Chk Standard	

39	CCB03	CCB03	CCB	09/25/25 14:30		Jaswal	OK
40	Q3172-02	FW6D	SAM	09/25/25 14:35		Jaswal	OK
41	Q3168-05	TOTES COMP#1	SAM	09/25/25 14:39		Jaswal	OK
42	Q3168-05DUP	TOTES COMP#1DUP	DUP	09/25/25 14:43		Jaswal	OK
43	Q3168-05L	TOTES COMP#1L	SD	09/25/25 14:47		Jaswal	OK
44	Q3168-05MS	TOTES COMP#1MS	MS	09/25/25 14:52		Jaswal	OK
45	Q3168-05MSD	TOTES COMP#1MSD	MSD	09/25/25 14:56		Jaswal	OK
46	Q3168-05A	TOTES COMP#1A	PS	09/25/25 15:00		Jaswal	OK
47	Q3189-01	72-11989	SAM	09/25/25 15:04		Jaswal	OK
48	Q3176-01	EME-TS12-01	SAM	09/25/25 15:08		Jaswal	OK
49	Q3176-02	EME-TS13-01	SAM	09/25/25 15:12		Jaswal	OK
50	CCV04	CCV04	CCV	09/25/25 15:16		Jaswal	OK
51	CCB04	CCB04	CCB	09/25/25 15:20		Jaswal	OK
52	Q3176-03	EME-TS14-02	SAM	09/25/25 15:24		Jaswal	OK
53	Q3178-01	EME-TS14-01	SAM	09/25/25 15:28		Jaswal	OK
54	Q3178-02	MS	MS	09/25/25 15:40		Jaswal	OK
55	Q3178-03	MSD	MSD	09/25/25 15:44		Jaswal	OK
56	Q3178-01A	EME-TS14-01A	PS	09/25/25 15:48		Jaswal	OK
57	Q3183-01	WC-1	SAM	09/25/25 15:52		Jaswal	OK
58	Q3183-04	WC-4	SAM	09/25/25 15:56		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137314

Review By	Review On
Supervise By	Supervise On

STD. NAME	STD REF.#
ICAL Standard ICV Standard CCV Standard ICSA Standard CRI Standard LCS Standard Chk Standard	

59	Q3183-07	WC-3	SAM	09/25/25 16:00		Jaswal	OK
60	Q3178-01DUP	EME-TS14-01DUP	DUP	09/25/25 16:07		Jaswal	OK
61	Q3178-01L	EME-TS14-01L	SD	09/25/25 16:11		Jaswal	OK
62	CCV05	CCV05	CCV	09/25/25 16:16		Jaswal	OK
63	CCB05	CCB05	CCB	09/25/25 16:20		Jaswal	OK
64	PB169832BL	PB169832BL	MB	09/25/25 16:29		Jaswal	OK
65	PB169832BS	PB169832BS	LCS	09/25/25 16:43		Jaswal	OK
66	PB169754TB	PB169754TB	MB	09/25/25 16:47		Jaswal	OK
67	PB169816TB	PB169816TB	MB	09/25/25 16:52		Jaswal	OK
68	Q3168-04	ARS20-0010-Oily Soil	SAM	09/25/25 16:56		Jaswal	OK
69	Q3168-04DUP	ARS20-0010-Oily Soil	DUP	09/25/25 17:01		Jaswal	OK
70	Q3168-04L	ARS20-0010-Oily Soil	SD	09/25/25 17:05		Jaswal	OK
71	Q3168-04MS	ARS20-0010-Oily Soil	MS	09/25/25 17:09		Jaswal	OK
72	Q3168-04MSD	ARS20-0010-Oily Soil	MSD	09/25/25 17:13		Jaswal	OK
73	Q3168-04A	ARS20-0010-Oily Soil	PS	09/25/25 17:23		Jaswal	OK
74	CCV06	CCV06	CCV	09/25/25 17:27		Jaswal	OK
75	CCB06	CCB06	CCB	09/25/25 17:31		Jaswal	OK
76	Q3170-02DL	MOD-25-0271DL	SAM	09/25/25 17:35	Confirm wt/vol & Straight 5x Dilution for all elements	Jaswal	OK
77	CCV07	CCV07	CCV	09/25/25 17:40		Jaswal	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB137314

Review By	Review On
Supervise By	Supervise On

STD. NAME	STD REF.#
ICAL Standard	
ICV Standard	
CCV Standard	
ICSA Standard	
CRI Standard	
LCS Standard	
Chk Standard	

78	CCB07	CCB07	CCB	09/25/25 17:44		Jaswal	OK
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Prep Standard - Chemical Standard Summary

Order ID : Q3125

Test : Mercury, Metals ICP-Group1

Prepbatch ID : PB169800, PB169802,

Sequence ID/Qc Batch ID: LB137278, LB137314,

Standard ID :

MP85892, MP85893, MP85894, MP85895, MP87148, MP87301, MP87303, MP87304, MP87305, MP87306, MP87307, MP87308, MP87309, MP87310, MP87311, MP87312, MP87313, MP87314, MP87315, MP87316,

Chemical ID :

M4371, M4465, M4916, M5062, M5882, M5884, M6041, M6151, M6158, M6161, M6162, M6180, M6181, M6187, M6200, W 3112

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>
3965	2:1 H2SO4 : HNO3	MP85892	06/05/2025	11/27/2025	Mohan Bera	None	None	Sarabjit Jaswal
								06/14/2025

FROM 1600.00000ml of M6041 + 800.00000ml of M6162 = Final Quantity: 3200.000 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>
65	POTASSIUM PERMANGANATE SOLUTION 5 %	MP85893	06/05/2025	12/05/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
								06/14/2025

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

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
66	POTASSIUM PERSULFATE SOLUTION 5 %	MP85894	06/05/2025	09/30/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
06/14/2025								

FROM 100.00000ml of M4465 + 2000.00000ml of W3112 = 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>
67	SODIUM CHLORIDE - HYDROXYL- CHLORIDE SOLUTION	MP85895	06/05/2025	09/30/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
06/14/2025								

FROM 2000.00000ml of W3112 + 240.00000gram of M4371 + 240.00000gram of M5884 = Final Quantity: 2000.000 ml

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
170	1:1HCL	MP87148	09/09/2025	02/17/2026	Sagar Kanani	None	None	Sarabjit Jaswal
								09/10/2025

FROM 1250.00000ml of M6151 + 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>
68	STANNOUS CHLORIDE SOLUTION	MP87301	09/23/2025	09/24/2025	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal
								09/25/2025

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



<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>
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP87303	09/23/2025	09/24/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG	Sarabjit Jaswal 09/25/2025

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

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1340	Hg 0.00 PPB STD	MP87304	09/23/2025	09/24/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 09/25/2025

FROM	TO	REMARKS
2.50000ml of M6187 + 247.50000ml of W3112	= Final Quantity: 250.000 ml	A)



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
2750	Hg 0.05ppb	MP87305	09/23/2025	09/24/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 09/25/2025
FROM 2.50000ml of M6187 + 247.50000ml of W3112 + 0.05000ml of MP87303 = 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>
1341	Hg 0.2 PPB STD	MP87306	09/23/2025	09/24/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/25/2025
<u>FROM</u>	2.50000ml of M6187 + 247.30000ml of W3112 + 0.20000ml of MP87303 = 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>
1342	Hg 2.5 PPB STD	MP87307	09/23/2025	09/24/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 09/25/2025
FROM 2.50000ml of M6187 + 245.00000ml of W3112 + 2.50000ml of MP87303 = 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>
1343	Hg 5.0 PPB STD	MP87308	09/23/2025	09/24/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
A) FROM 2.50000ml of M6187 + 242.50000ml of W3112 + 5.00000ml of MP87303 = 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>
1344	Hg 7.5 PPB STD	MP87309	09/23/2025	09/24/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
A) FROM 2.50000ml of M6187 + 240.00000ml of W3112 + 7.50000ml of MP87303 = 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>
1345	Hg 10.0 PPB STD	MP87310	09/23/2025	09/24/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 09/25/2025
FROM 2.50000ml of M6187 + 237.50000ml of W3112 + 10.00000ml of MP87303 = 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>
1346	Hg ICV SOLUTION	MP87311	09/23/2025	09/24/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 09/25/2025
FROM 2.50000ml of M6161 + 2.50000ml of M6187 + 245.00000ml of W3112 = 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>
1351	ICB (Hg 0.00 PPB SOLUTION)	MP87312	09/23/2025	09/24/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/25/2025
<u>FROM</u>	2.50000ml of M6187 + 247.50000ml of W3112 = 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>
1352	CCB (Hg 0.00 PPB SOLUTION)	MP87313	09/23/2025	09/24/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG	Sarabjit Jaswal
A) FROM 495.00000ml of W3112 + 5.00000ml of M6187 = Final Quantity: 500.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1358	CCV (Hg 5.0 PPB SOLUTION)	MP87314	09/23/2025	09/24/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 09/25/2025
<u>FROM</u>	485.00000ml of W3112 + 5.00000ml of M6187 + 10.00000ml of MP87303 = Final Quantity: 500.000 ml							



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1349	CRA/CRI (Hg 0.2 PPB SOLUTION)	MP87315	09/23/2025	09/24/2025	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 09/25/2025
<u>FROM</u> 2.50000ml of M6187 + 247.30000ml of W3112 + 0.20000ml of MP87303 = 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>
1350	CHK STD (Hg 7.0 PPB SOLUTION)	MP87316	09/23/2025	09/24/2025	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 09/25/2025
<u>FROM</u>	2.50000ml of M6187 + 240.50000ml of W3112 + 7.00000ml of MP87303 = Final Quantity: 250.000 ml							

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-2196-01 / Hydroxylamine Hydrochloride, Crystal (cs/4x500g)	0000215387	06/25/2025	07/01/2019 / RICHARD	06/07/2019 / RICHARD	M4371

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3238-05 / Potassium Persulfate (2.5kg)	0000234156	08/06/2025	07/23/2019 /	07/25/2019 / manojkumar	M4465

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3227-05 / Potassium Permanganate (2.5kg)	210800	03/31/2026	11/30/2022 / mohan	07/28/2021 / mohan	M4916

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	MSHG-10PPM / MERCURY HCl 125mL 10ug/mL	S2-HG709270	09/22/2026	05/28/2022 / mohan	01/27/2022 / mohan	M5062

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3980-01 / Stannous Chloride (cs/4x500g)	232820	08/31/2028	04/30/2024 / mohan	04/25/2024 / mohan	M5882

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3624-05 / Sodium Chloride, Crystal (cs/4x2.5kg)	0000281938	07/06/2026	04/30/2024 / mohan	04/25/2024 / mohan	M5884

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9673-33 / Sulfuric Acid, Instra-Analyzed (cs/6c2.5L)	23D2462010	03/20/2028	08/16/2024 / mohan	08/16/2024 / mohan	M6041

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	22G2862015	02/17/2026	02/18/2025 / Sagar	01/15/2025 / Sagar	M6151

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	10/09/2025	03/10/2025 / Eman	02/02/2025 / Sagar	M6158

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

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24H0162012	11/27/2025	05/27/2025 / Sagar	04/27/2025 / Sagar	M6162

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	W2-MEB752149	02/05/2026	08/06/2025 / Janvi	07/22/2025 / Janvi	M6180

CHEMICAL RECEIPT LOG BOOK

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	V2-MEB7433480	02/05/2026	08/06/2025 / Janvi	07/22/2025 / Janvi	M6181

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24H0162012	01/28/2026	08/29/2025 / Sagar	08/08/2025 / Sagar	M6187

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	24D1562005	02/10/2026	09/11/2025 / Sagar	08/25/2025 / Sagar	M6200

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

M5882
 M3

Certificate of Analysis

1 Reagent Lane
 Fair Lawn, NJ 07410
 201.796.7100 tel
 201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System
 Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120633

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalog Number	T142	Quality Test / Release Date	08/17/2023
Lot Number	232820		
Description	STANNOUS CHLORIDE, DIHYDRATE CERTIFIED ACS (Suitable for Mercury Determination)		
Country of Origin	United States	Suggested Retest Date	Aug/2028
Chemical Origin	Inorganic-non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear crystals
ASSAY	%	Inclusive Between 98 - 103	100.65
CALCIUM	%	<= 0.005	0.0017
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IRON (Fe)	%	<= 0.003	0.0011
LEAD (Pb)	%	<= 0.01	0.0006
MERCURY (Hg)	ppm	<= 0.05	<0.05
POTASSIUM (K)	%	<= 0.005	0.0001
SODIUM (Na)	%	<= 0.01	<0.01
SOLUBILITY IN HCL	PASS/FAIL	= PASS TEST	PASS TEST
SULFATE (SO4)	PASS/FAIL	= P.T. (ABOUT 0.003%)	P.T. (ABOUT 0.003%)



Harout Sahagian - Quality Control Supervisor - Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.

If there are any questions with this certificate, please call at (800) 227-6701.

*Based on suggested storage condition.

M4371

Hydroxylamine Hydrochloride, Crystal
BAKER ANALYZED® A.C.S. Reagent
Suitable for Mercury Determination
(hydroxylammonium chloride)

Rec - 06.07.19



avantortm

Material No.: 2196-01
Batch No.: 0000215387
Manufactured Date: 2018/06/27
Retest Date: 2025/06/25
Revision No: 1

Certificate of Analysis

Meets ACS Reagent Chemical Requirements,

Test	Specification	Result
Assay (NH ₂ OH · HCl) (by KMnO ₄ titrn)	>= 96.0 %	99.1
Clarity of Alcohol Solution	Passes Test	PT
Residue after Ignition	<= 0.050 %	0.017
Titrate Free Acid (meq/g)	<= 0.25	0.19
Ammonium (NH ₄)	Passes Test	PT
Sulfur Compounds (as SO ₄)	<= 0.005 %	< 0.003
Trace Impurities - ACS - Heavy Metals (as Pb)	<= 5 ppm	4
Trace Impurities - Iron (Fe)	<= 5 ppm	< 3
Trace Impurities - Mercury (Hg)	<= 0.050 ppm	< 0.005

For Laboratory, Research or Manufacturing Use

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

ISO

Phillipsburg, NJ 9001:2015, FSSC22000
Paris, KY 9001:2008
Mexico City, Mexico 9001:2008
Gliwice, Poland 9001:2015, 13485:2012
Selangor, Malaysia 9001:2008
Dehradun, India, 9001:2008, 14001:2004, 13485:2003
Mumbai, India, 9001:2015, 17025:2005
Panoli, India 9001:2015

James Ethier

Jamie Ethier
Vice President Global Quality

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

Avantor Performance Materials, LLC

100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

M4913-16

MS

Certificate of Analysis

1 Reagent Lane
 Fair Lawn, NJ 07410
 201.796.7100 tel
 201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System
 Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120632

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalog Number	P279	Quality Test / Release Date	01/12/2021
Lot Number	210306		
Description	POTASSIUM PERMANGANATE, A.C.S.		
Country of Origin	United States	Suggested Retest Date	Jan/2026

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Dark purple to purple green crystals
ASSAY	%	>= 99	99.3
CHLORIDE & CHLORATE	%	<= 0.005	<0.005
IDENTIFICATION	PASS/FAIL	= PASS TEST	pass test
INSOLUBLE MATTER	%	<= 0.2	<0.2
MERCURY (Hg)	ppm	<= 0.05	<0.004
SULFATE (SO4)	%	<= 0.02	<0.02

Julian Burton

Julian Burton - Quality Control Manager – Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.
 If there are any questions with this certificate, please call at (800) 227-6701.

*Based on suggested storage condition.

300 Technology Drive
 Christiansburg, VA 24073 USA
 inorganicventures.com

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

MS062
 MS063
 MB

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 Mass Spec Solution
 Catalog Number: MSHG-10PPM
 Lot Number: S2-HG709270
 Matrix: 10% (v/v) HCl
 Value / Analyte(s): 10 µg/mL ea:
 Mercury
 Starting Material: Hg metal
 Starting Material Lot#: 1959
 Starting Material Purity: 99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.001 ± 0.053 µg/mL
Density: 1.020 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
Hg	Calculated		See Sec. 4.2

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Ag	0.000011	M	Eu	<	0.000201	O	Na	0.000004	M	Se	<	0.015915	O	Zn	<	0.001510
O	Al	0.000001	O	Fe	0.000001	M	Nb	<	0.000201	O	Si	0.000005	M	Zr	<	0.000201	
M	As	<	0.000402	M	Ga	<	0.000201	M	Nd	<	0.000201	M	Sm	<	0.000201		
M	Au	<	0.003631	M	Gd	<	0.000201	M	Ni	<	0.000402	M	Sn	<	0.001007		
M	B	<	0.001208	M	Ge	<	0.000201	M	Os	<	0.000605	M	Sr	<	0.000201		
M	Ba	<	0.000201	M	Hf	<	0.000201	O	P	<	0.032370	M	Ta	<	0.000201		
M	Be	<	0.000201	s	Hg	<		M	Pb	<	0.000201	M	Tb	<	0.000201		
M	Bi	<	0.000201	M	Ho	<	0.000201	M	Pd	<	0.000403	M	Te	<	0.002216		
O	Ca	0.000007	M	In	<	0.000201	M	Pr	<	0.000201	M	Th	<	0.000201			
M	Cd	<	0.000201	M	Ir	<	0.000201	M	Pt	<	0.000402	M	Ti	<	0.000402		
M	Ce	<	0.000201	O	K	0.000020	M	Rb	<	0.000201	O	Tl	<	0.016508			
M	Co	<	0.000201	M	La	<	0.000201	M	Re	<	0.000201	M	Tm	<	0.000201		
O	Cr	<	0.003021	O	Li	<	0.000107	M	Rh	<	0.000201	M	U	<	0.008058		
M	Cs	<	0.001208	M	Lu	<	0.000201	M	Ru	<	0.000201	M	V	<	0.000201		
M	Cu	<	0.000402	O	Mg	0.000001	O	S	<	0.053950	M	W	<	0.000604			
M	Dy	<	0.000201	M	Mn	<	0.000604	M	Sb	<	0.001208	M	Y	<	0.000201		
M	Er	<	0.000201	M	Mo	0.000009	M	Sc	<	0.000201	M	Yb	<	0.000201			

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

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

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

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+

Chemical Compatibility - Stable in HNO₃. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.

Stability - 2-100 ppb levels not stable in 1% HNO₃ / LDPE container, stable in 10% HNO₃ packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO₃ packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO₃ / LDPE container.

Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO₃); Oxide (Soluble in HNO₃); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).

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

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W16O
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th ,Rh , Fe, U

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 22, 2021

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

11.2 Lot Expiration Date

- **September 22, 2026**

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

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

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

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Supervisor, Product Documentation



Certificate Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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



MS824
MB

Material No.: 3624-01

Batch No.: 0000281938

Manufactured Date: 2021-06-07

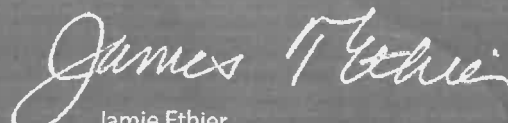
Retest Date: 2026-06-07

Revision No.: 1

Certificate of Analysis

Test	Specification	Result
Assay (NaCl) (by Ag titrn)	$\geq 99.0 \%$	100.0 %
pH of 5% Solution at 25°C	5.0 - 9.0	6.3
Insoluble Matter	$\leq 0.005 \%$	0.003 %
Iodide (I)	$\leq 0.002 \%$	< 0.002 %
Bromide (Br)	$\leq 0.01 \%$	< 0.01 %
Chlorate and Nitrate (as NO ₃)	$\leq 0.003 \%$	< 0.001 %
ACS - Phosphate (PO ₄)	$\leq 5 \text{ ppm}$	< 5 ppm
Sulfate (SO ₄)	$\leq 0.004 \%$	< 0.004 %
Barium (Ba)	Passes Test	Passes Test
ACS - Heavy Metals (as Pb)	$\leq 5 \text{ ppm}$	< 5 ppm
Iron (Fe)	$\leq 2 \text{ ppm}$	< 1 ppm
Calcium (Ca)	$\leq 0.002 \%$	< 0.001 %
Magnesium (Mg)	$\leq 0.001 \%$	< 0.001 %
Potassium (K)	$\leq 0.005 \%$	0.001 %

For Laboratory, Research, or Manufacturing Use
Meets Reagent Specifications for testing USP/NF monographs
Country of Origin: USA
Packaging Site: Paris Mfg Ctr & DC


Jamie Ethier
Vice President Global Quality

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

Avantor Performance Materials, LLC

100 Mansford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone 610.386.1700

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

avantor™



M 6041-4b
MS

Material No.: 9673-33
Batch No.: 23D2462010
Manufactured Date: 2023-03-22
Retest Date: 2028-03-20
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (H ₂ SO ₄)	95.0 – 98.0 %	96.1 %
Appearance	Passes Test	Passes Test
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Substances Reducing Permanganate (as SO ₂)	≤ 2 ppm	< 2 ppm
Ammonium (NH ₄)	≤ 1 ppm	1 ppm
Chloride (Cl)	≤ 0.1 ppm	< 0.1 ppm
Nitrate (NO ₃)	≤ 0.2 ppm	< 0.1 ppm
Phosphate (PO ₄)	≤ 0.5 ppm	< 0.1 ppm
Trace Impurities – Aluminum (Al)	≤ 30.0 ppb	< 5.0 ppb
Arsenic and Antimony (as As)	≤ 4.0 ppb	< 2.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	8.5 ppb
Trace Impurities – Cadmium (Cd)	≤ 2.0 ppb	< 0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 6.0 ppb	< 0.4 ppb
Trace Impurities – Cobalt (Co)	≤ 0.5 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gold (Au)	≤ 10.0 ppb	0.5 ppb
Heavy Metals (as Pb)	≤ 500.0 ppb	< 100.0 ppb
Trace Impurities – Iron (Fe)	≤ 50.0 ppb	1.3 ppb
Trace Impurities – Lead (Pb)	≤ 0.5 ppb	< 0.5 ppb
Trace Impurities – Magnesium (Mg)	≤ 7.0 ppb	0.8 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	< 0.1 ppb
Trace Impurities – Nickel (Ni)	≤ 2.0 ppb	0.3 ppb
Trace Impurities – Potassium (K)	≤ 500.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se)	≤ 50.0 ppb	< 0.1 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	31.5 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	< 0.3 ppb

>>> Continued on page 2 >>>

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

 **avantor™**

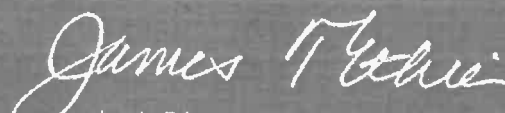


Material No.: 9673-33
Batch No.: 23D2462010

Test	Specification	Result
Trace Impurities – Sodium (Na)	≤ 500.0 ppb	5.4 ppb
Trace Impurities – Strontium (Sr)	≤ 5.0 ppb	< 0.2 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	< 0.8 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	0.4 ppb

For Laboratory, Research, or Manufacturing Use

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


Jamie Ethier
Vice President Global Quality

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

 **avantor™**



M6151

R → 11/15/25

Material No.: 9530-33
Batch No.: 22G2862015
Manufactured Date: 2022-06-15
Retest Date: 2027-06-14
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
ACS – Assay (as HCl) (by acid–base titrn)	36.5 – 38.0 %	37.9 %
ACS – Color (APHA)	≤ 10	5
ACS – Residue after Ignition	≤ 3 ppm	< 1 ppm
ACS – Specific Gravity at 60°/60°F	1.185 – 1.192	1.191
ACS – Bromide (Br)	≤ 0.005 %	< 0.005 %
ACS – Extractable Organic Substances	≤ 5 ppm	< 1 ppm
ACS – Free Chlorine (as Cl ₂)	≤ 0.5 ppm	< 0.5 ppm
Phosphate (PO ₄)	≤ 0.05 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.5 ppm	< 0.3 ppm
Sulfite (SO ₃)	≤ 0.8 ppm	0.3 ppm
Ammonium (NH ₄)	≤ 3 ppm	< 1 ppm
Trace Impurities – Arsenic (As)	≤ 0.010 ppm	< 0.003 ppm
Trace Impurities – Aluminum (Al)	≤ 10.0 ppb	1.3 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 3.0 ppb
Trace Impurities – Barium (Ba)	≤ 1.0 ppb	0.2 ppb
Trace Impurities – Beryllium (Be)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Bismuth (Bi)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 20.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	163.0 ppb
Trace Impurities – Chromium (Cr)	≤ 1.0 ppb	0.7 ppb
Trace Impurities – Cobalt (Co)	≤ 1.0 ppb	< 0.3 ppb
Trace Impurities – Copper (Cu)	≤ 1.0 ppb	< 0.1 ppb
Trace Impurities – Gallium (Ga)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Germanium (Ge)	≤ 3.0 ppb	< 2.0 ppb
Trace Impurities – Gold (Au)	≤ 4.0 ppb	0.6 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 15 ppb	6 ppb

>>> Continued on page 2 >>>

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

 **avantorsm**



Material No.: 9530-33
Batch No.: 22G2862015

Test	Specification	Result
Trace Impurities – Lead (Pb)	≤ 1.0 ppb	< 0.5 ppb
Trace Impurities – Lithium (Li)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Magnesium (Mg)	≤ 10.0 ppb	2.9 ppb
Trace Impurities – Manganese (Mn)	≤ 1.0 ppb	< 0.4 ppb
Trace Impurities – Mercury (Hg)	≤ 0.5 ppb	0.1 ppb
Trace Impurities – Molybdenum (Mo)	≤ 10.0 ppb	< 3.0 ppb
Trace Impurities – Nickel (Ni)	≤ 4.0 ppb	< 0.3 ppb
Trace Impurities – Niobium (Nb)	≤ 1.0 ppb	0.8 ppb
Trace Impurities – Potassium (K)	≤ 9.0 ppb	< 2.0 ppb
Trace Impurities – Selenium (Se), For Information Only		< 1.0 ppb
Trace Impurities – Silicon (Si)	≤ 100.0 ppb	< 10.0 ppb
Trace Impurities – Silver (Ag)	≤ 1.0 ppb	0.5 ppb
Trace Impurities – Sodium (Na)	≤ 100.0 ppb	2.3 ppb
Trace Impurities – Strontium (Sr)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Tantalum (Ta)	≤ 1.0 ppb	1.6 ppb
Trace Impurities – Thallium (Tl)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Tin (Sn)	≤ 5.0 ppb	4.0 ppb
Trace Impurities – Titanium (Ti)	≤ 1.0 ppb	1.5 ppb
Trace Impurities – Vanadium (V)	≤ 1.0 ppb	< 0.2 ppb
Trace Impurities – Zinc (Zn)	≤ 5.0 ppb	0.8 ppb
Trace Impurities – Zirconium (Zr)	≤ 1.0 ppb	0.3 ppb

>>> Continued on page 3 >>>

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

 **avantor**™

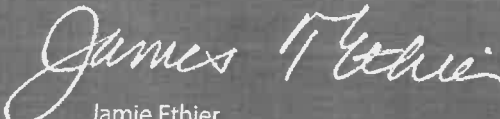


Material No.: 9530-33
Batch No.: 22G2862015

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

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


Jamie Ethier
Vice President Global Quality

Nitric Acid 69%
CMOS

avantor™



R- 0210212025

m - 6158

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

 **avantorsTM**



Material No.: 9606-03
Batch No.: 24D1062002

Test	Specification	Result
Trace Impurities – Niobium (Nb)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities – Potassium (K)	≤ 50 ppb	16 ppb
Trace Impurities – Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities – Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Sodium (Na)	≤ 150.0 ppb	< 5.0 ppb
Trace Impurities – Strontium (Sr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Thallium (Tl)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Zinc (Zn)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count – 0.5 µm and greater	≤ 60 par/ml	10 par/ml
Particle Count – 1.0 µm and greater	≤ 10 par/ml	3 par/ml

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

 **avantor™**



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

A handwritten signature in cursive script, appearing to read 'J. Croak'.

Jamie Croak
Director Quality Operations, Bioscience Production

Nitric Acid 69%
CMOS

 **avantorsTM**



m-6162

Material No.: 9606-03
Batch No.: 24H0162012
Manufactured Date: 2024-06-28
Retest Date: 2029-06-27
Revision No.: 0

R. Date :- 04/27/2025

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	0.03 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	0.1 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	0.1 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 1 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 1 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 1.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

 **avantorsTM**



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

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

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

 **avantor™**



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

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

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030
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:	WW-LFS-1
Lot Number:	W2-MEB752149
Matrix:	5% (v/v) HNO ₃

M6180
R-37/22/23

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,	Aluminum,
	Cerium,	Selenium,
	Thallium,	
	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,	Boron,
	Vanadium,	
	20 µg/mL ea:	
	Zinc,	Strontium,
	Barium,	Beryllium,
	Cadmium,	Cobalt,
	Manganese,	Lithium,
	7.5 µg/mL ea:	
	Silver	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	200.2 ± 0.7 µg/mL	Arsenic, As	80.1 ± 0.5 µg/mL
Barium, Ba	20.02 ± 0.12 µg/mL	Beryllium, Be	20.02 ± 0.11 µg/mL
Boron, B	30.02 ± 0.15 µg/mL	Cadmium, Cd	20.04 ± 0.09 µg/mL
Calcium, Ca	100.1 ± 0.3 µg/mL	Cerium, Ce	200.2 ± 1.0 µg/mL
Chromium, Cr	40.02 ± 0.26 µg/mL	Cobalt, Co	20.03 ± 0.09 µg/mL
Copper, Cu	30.03 ± 0.13 µg/mL	Iron, Fe	300.3 ± 1.3 µg/mL
Lead, Pb	100.1 ± 0.5 µg/mL	Lithium, Li	20.03 ± 0.09 µg/mL
Magnesium, Mg	200.2 ± 0.9 µg/mL	Manganese, Mn	19.99 ± 0.09 µg/mL
Mercury, Hg	70.0 ± 0.3 µg/mL	Nickel, Ni	50.05 ± 0.22 µg/mL
Phosphorus, P	600.5 ± 2.9 µg/mL	Potassium, K	1 001 ± 4 µg/mL
Selenium, Se	200.2 ± 1.1 µg/mL	Silver, Ag	7.52 ± 0.03 µg/mL
Sodium, Na	300.3 ± 1.3 µg/mL	Strontium, Sr	20.02 ± 0.10 µg/mL
Thallium, Tl	200.2 ± 1.0 µg/mL	Vanadium, V	30.02 ± 0.13 µg/mL
Zinc, Zn	20.05 ± 0.09 µg/mL		

Density: 1.037 g/mL (measured at 20 ± 5 °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
As	ICP Assay	3103a	100818
B	ICP Assay	3107	190605
B	Calculated		See Sec. 4.2
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	160830
Ce	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	120618
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	3152a	200413
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	ICP Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{TS} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

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

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

X_a = mean of Assay Method A with

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

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

k = coverage factor = 2

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

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{TS} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

N/A

6.0 INTENDED USE

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

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

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

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

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

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 25° C to minimize the effects of transpiration. Use at 20° ± 5° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

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

Note: This solution contains Silver (Ag), please refer to our Sample Preparation Guide for more information (<https://www.inorganicventures.com/sample-preparation-guide/samples-containing-silver>)

8.0 HAZARDOUS INFORMATION

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

9.0 HOMOGENEITY

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

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

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

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

April 08, 2025

- 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

- **April 08, 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:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Jodie Wall
Stock VSM Coordinator



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

Certificate of Analysis

P: 800-669-6799/540-585-3030
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M6181
R → 7/22/28

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: V2-MEB743480
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 ± 0.5 µg/mL	Molybdenum, Mo	40.05 ± 0.22 µg/mL
Silica, SiO ₂	200.3 ± 1.4 µg/mL	Tin, Sn	70.1 ± 0.4 µg/mL
Titanium, Ti	20.03 ± 0.12 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
Sb	ICP Assay	3102a	140911
SiO ₂	Calculated		See Sec. 4.2
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	traceable to 3162a	T2-TI725816

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

Characterization of CRM/RM by Two or More Methods

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

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

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

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

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

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

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; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 07, 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

- **May 07, 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:

Justin Dirico
Stock Processing Supervisor



Certificate Approved By:

Thomas Kozikowski
Stock VS Manager



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



Nitric Acid 69%
CMOS



M6187

R.D :- 08/08/25

Material No.: 9606-03
Batch No.: 24H0162012
Manufactured Date: 2024-06-28
Retest Date: 2029-06-27
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	< 1 ppm
Chloride (Cl)	≤ 0.08 ppm	0.03 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	0.1 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	0.3 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	0.1 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 1 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 1 ppb
Heavy Metals (as Pb)	≤ 100 ppb	< 50 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 1.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS



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

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

>>> Continued on page 3 >>>

Nitric Acid 69%
CMOS

 **avantorsTM**



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

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

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



M6200
R.O → 08/25/25

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

Certificate of Analysis

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

>>> Continued on page 2 >>>

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



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

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

>>> Continued on page 3 >>>

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



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

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

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

A handwritten signature in cursive script, appearing to read 'J. Croak'.

Jamie Croak
Director Quality Operations, Bioscience Production



SHIPPING DOCUMENTS

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: Aramark Uniforms
ADDRESS: 740 Frelinghuysen Ave
CITY: Newark STATE: NJ ZIP: 07114
ATTENTION: Jarrod Mills
PHONE: 973-820-1101 FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME: Monthly
PROJECT NO.: LOCATION:
PROJECT MANAGER:
e-mail:
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY STATE: ZIP:
ATTENTION: PHONE:

ANALYSIS

DATA TURNAROUND INFORMATION

FAX (RUSH) DAYS*
HARDCOPY (DATA PACKAGE): DAYS*
EDD: DAYS*
*TO BE APPROVED BY CHEMTECH
STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS

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

TPH
BOD5
ISS
mercury metals
sediment - metals

ALLIANCE SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE		SAMPLE COLLECTION		# OF BOTTLES	PRESERVATIVES									COMMENTS
			COMP	GRAB	DATE	TIME		1	2	3	4	5	6	7	8	9	
1.	Grab Comp	W		✓	9-17-25	1108	1	✓									
2.		W	✓		9-17-25	1111	3		✓	✓	✓						
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: 1. <u>[Signature]</u>	DATE/TIME: <u>9-17-25 1112</u>	RECEIVED BY: 1. <u>[Signature]</u>	DATE/TIME: <u>9-17-25 1112</u>	Conditions of bottles or coolers at receipt: ☐ COMPLIANT ☐ NON COMPLIANT ☐ COOLER TEMP <u>3.1</u> °C
RELINQUISHED BY SAMPLER: 2. <u>[Signature]</u>	DATE/TIME:	RECEIVED BY: 2. <u>[Signature]</u>		Comments:
RELINQUISHED BY SAMPLER: 3. <u>[Signature]</u>	DATE/TIME: <u>9-17-25 1122</u>	RECEIVED BY: 3. <u>[Signature]</u>		

Page ____ of CLIENT: ☐ Hand Delivered ☐ Other Shipment Complete
☐ YES ☐ NO

Laboratory Certification

Certified By	License No.
Connecticut	PH-0830
DOD ELAP (ANAB)	L2219
Maine	2024021
Maryland	296
New Hampshire	255425
New Jersey	20012
New York	11376
Pennsylvania	68-00548
Soil Permit	525-24-234-08441
Texas	TX-C25-00189
Virginia	460312