

MPLWATER - ISM02.4 - 2019

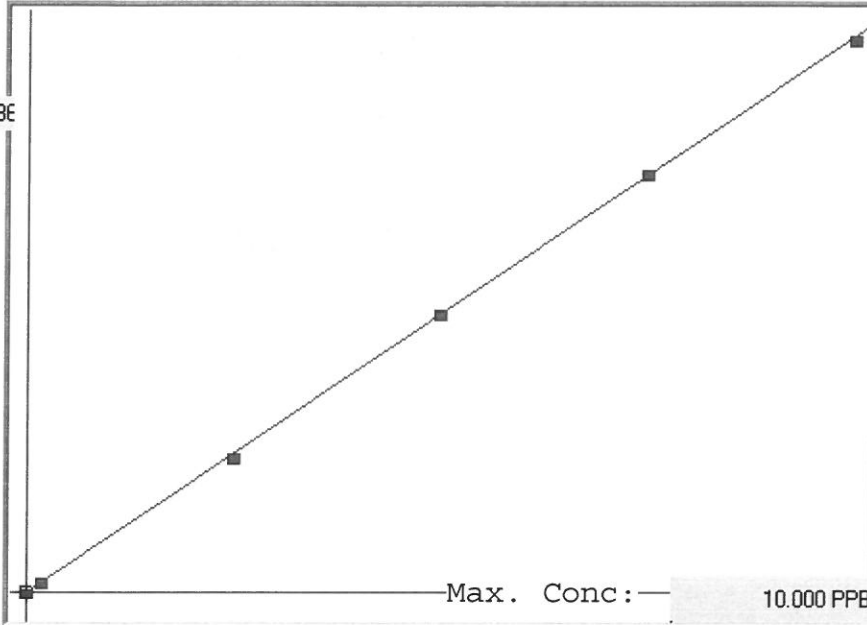
ISM02.4

INSTRUMENT ID: CV1

Linear

μ Abs.:

36286



A= 0.0000e+000

B= 2.7402e-004

C= 1.7223e-002

Rho= 0.9999509

Accept=Accepted

Handwritten: slope
 $y = 1.7223e-002$

Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	%D
0.00	0.000	0.008	0.008	-32	0.000	-32					-
0.2	0.200	0.208	0.008	698	0.0 %	698					4
2.5	2.500	2.449	-0.051	8873	0.0 %	8873					-2
5.0	5.000	5.016	0.016	18243	0.0 %	18243					0
7.5	7.500	7.558	0.058	27520	0.0 %	27520					1
10.0	10.000	9.960	-0.040	36286	0.0 %	36286					0

Handwritten: 11/19/18

Sample ID	Extended ID	μ Abs.	Conc.	Std Conc	Method	Units	Date	Type
	0 S0	-32	-		0 ISM02.4	PPB	11/19/2018 14:41	Std
	0.2 S0.2	698	-		0.2 ISM02.4	PPB	11/19/2018 14:43	Std
	2.5 S2.5	8873	-		2.5 ISM02.4	PPB	11/19/2018 14:45	Std
	5 S5	18243	-		5 ISM02.4	PPB	11/19/2018 14:47	Std
	7.5 S7.5	27520	-		7.5 ISM02.4	PPB	11/19/2018 14:52	Std
	10 S10	36286	-		10 ISM02.4	PPB	11/19/2018 14:57	Std
ICV	ICV	13525	3.7233 -		ISM02.4	PPB	11/19/2018 15:00	SMPL
ICB	ICB	-82	-0.0052 -		ISM02.4	PPB	11/19/2018 15:02	SMPL
CCV045	CCV045	17908	4.9243 -		ISM02.4	PPB	11/19/2018 15:05	SMPL
CCB045	CCB045	-65	-0.0006 -		ISM02.4	PPB	11/19/2018 15:07	SMPL
PBW	PBW003	26	0.0243 -		ISM02.4	PPB	11/19/2018 15:09	SMPL
MDL1	MDL1	107	0.0465 -		ISM02.4	PPB	11/19/2018 15:25	SMPL
MDL2	MDL2	162	0.0616 -		ISM02.4	PPB	11/19/2018 15:27	SMPL
MDL3	MDL3	141	0.0559 -		ISM02.4	PPB	11/19/2018 15:30	SMPL
MDL4	MDL4	125	0.0515 -		ISM02.4	PPB	11/19/2018 15:32	SMPL
MDL5	MDL5	134	0.0539 -		ISM02.4	PPB	11/19/2018 15:34	SMPL
MDL6	MDL6	147	0.0575 -		ISM02.4	PPB	11/19/2018 15:36	SMPL
MDL7	MDL7	149	0.0581 -		ISM02.4	PPB	11/19/2018 15:39	SMPL
CCV046	CCV046	18071	4.969 -		ISM02.4	PPB	11/19/2018 15:41	SMPL
CCB046	CCB046	-54	0.0024 -		ISM02.4	PPB	11/19/2018 15:43	SMPL

Parameter(s): Hg-ISM02.4 Matrix: WATER
 Analysis Method: ISM02.4 Instrument: CV1
 Prep Method: 7471B Analyst: MOHAN

Replicates	5	6	7	8
t value	3.747	3.365	3.143	2.998

Analytes	Units: ug/L								Blank Result ug/L	Spike Amount ug/L	t value	Raw MDL ug/L	Calculated MDL ug/L
	1	2	3	4	5	6	7	8					
Hg	0.04650	0.06160	0.05590	0.05150	0.05390	0.05750	0.05810			0.05000	3.14300	0.0155	0.0155
Replicate ID:	MDL 1	MDL 2	MDL 3	MDL 4	MDL 5	MDL 6	MDL 7						
Determination Date:	11/19/2018	11/19/2018	11/19/2018	11/19/2018	11/19/2018	11/19/2018	11/19/2018						
Preparation Date:	11/19/2018	11/19/2018	11/19/2018	11/19/2018	11/19/2018	11/19/2018	11/19/2018						

Analytes	Average Measured Value ug/L	Average Recovery (%R)	Standard Deviation ug/L	Spike Level Check (low) (<MDL)	Spike Level Check (high) (>10 X MDL)	Spike Level Check (high) (>5 X MDL)	Raw MDL ug/L	Calculated MDL ug/L
Hg	0.05500	110.00000	0.00493	Acceptable	Acceptable	Acceptable	0.0155	0.0155

METALS PREPARATION WORKSHEETMethod# ISMD2-4 Project#: MDL Hot plate temp: 95 °CInitial Volume/Weight 100 (g/mL)Balance Check: (0.20g): — Final Volume 100 mL Digestion date: 11/19/18Analyst Signature: MB Supervisor Signature [Signature] Date 11/19/18

Standard Name	mls used	STD REF# from Log	Chemical Name	ml used	LOT#
ICV	100	MP49250	H ₂ SO ₄ :HNO ₃ (2:1)	5.00	MP48754
CCV	100	MP49252	KMNO ₄	15.00	MP49151
			H ₂ S ₂ O ₈	8.00	MP49169
			NaCl:NH ₄ OH:HCl	6.00	MP49170

Lab Sample Number	Client Sample Number	Matrix Water, soil, leachate	Sample WT. (g)/ Vol. (mL)	Comments
BLANK 0.0 ppb	5.00	WATER	100 ML	MP49244
STD 0.2 ppb	50.2	WATER	100 ML	MP49245
STD 2.5 ppb	52.5	WATER	100 ML	MP49246
STD 5.0 ppb	55.0	WATER	100 ML	MP49247
STD 7.5 ppb	57.5	WATER	100 ML	MP49248
STD 10.0 ppb	510.0	WATER	100 ML	MP49249
ICV	ICV	WATER	100 ML	MP49250
ICB	ICB	WATER	100 ML	MP49251
CCV	CCV	WATER	100 ML	MP49252
CCB	CCB	WATER	100 ML	MP49253
PBW	PBW 603	WATER	100 ML	—
MDL 1	MDL 1	WATER	100 ML	0.05 mL of MP49243 in 250 mL flask
MDL 2	MDL 2	WATER	100 ML	0.05 mL of MP49243 in 250 mL flask
MDL 3	MDL 3	WATER	100 ML	0.05 mL of MP49243 in 250 mL flask
MDL 4	MDL 4	WATER	100 ML	0.05 mL of MP49243 in 250 mL flask
MDL 5	MDL 5	WATER	100 ML	0.05 mL of MP49243 in 250 mL flask
MDL 6	MDL 6	WATER	100 ML	0.05 mL of MP49243 in 250 mL flask
MDL 7	MDL 7	WATER	100 ML	0.05 mL of MP49243 in 250 mL flask



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CERTIFICATE OF ANALYSIS

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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "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: M2-HG657392
Matrix: 10% (v/v) HCl
Value / Analyte(s): 10 µg/mL ea:
Mercury
Starting Material: Hg metal
Starting Material Lot#: 05214TX, R307HGA1, 1780
Starting Material Purity: 99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.000 ± 0.052 µg/mL
Certified Density: 1.020 g/mL (measured at 20 ± 1 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	061204
Hg	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 Methods

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

$$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$$

X_a = mean of Assay Method A with standard uncertainty $u_{char a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$$w_a = (1/u_{char a})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

$$w_b = (1/u_{char b})^2 / ((1/u_{char a})^2 + (1/u_{char b})^2)$$

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

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a \& b} = [(w_a)^2 (u_{char a})^2 + (w_b)^2 (u_{char b})^2]^{1/2}$ where $u_{char a}$ and $u_{char b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

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:

$$X_{CRM/RM} = \text{mean of Assay Method A with standard uncertainty } u_{char a}$$

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

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

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

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

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

4.1 Thermometer Calibration

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

4.2 Balance Calibration

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

4.3 Glassware Calibration

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

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

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

M Ag	0.000017	M Eu	< 0.000203	O Na	0.000007	M Se	< 0.013813	O Zn	0.000001
O Al	0.000001	O Fe	0.000001	M Nb	< 0.000203	O Si	0.000004	M Zr	< 0.001218
M As	< 0.002844	M Ga	< 0.000203	M Nd	< 0.000203	M Sm	< 0.000203		
O Au	< 0.003219	M Gd	< 0.000203	O Ni	< 0.001812	M Sn	< 0.000203		
O B	< 0.002478	M Ge	< 0.000609	M Os	< 0.000201	O Sr	< 0.000152		
M Ba	< 0.000203	M Hf	< 0.000203	O P	< 0.010730	M Ta	< 0.000203		
O Be	< 0.000321	s Hg	<	M Pb	< 0.000203	M Tb	< 0.000203		
M Bi	< 0.013001	M Ho	< 0.000203	M Pd	< 0.000403	M Te	< 0.001422		
O Ca	0.000017	M In	< 0.004062	M Pr	< 0.000203	M Th	< 0.000203		
M Cd		M Ir	< 0.000201	M Pt	< 0.000203	O Ti	< 0.000530		
M Ce	< 0.000203	M K	0.000004	M Rb	< 0.001218	O Tl	< 0.002787		
M Co	< 0.000406	M La	< 0.000203	M Re	< 0.001015	M Tm	< 0.000203		
O Cr	0.000001	O Li	< 0.000180	M Rh	< 0.000203	M U	< 0.000812		
M Cs	< 0.000203	M Lu	< 0.000203	M Ru	< 0.000201	M V	< 0.000406		
M Cu	< 0.000406	O Mg	0.000003	O S	< 0.023508	M W	< 0.000609		
M Dy	< 0.000203	M Mn	< 0.000203	O Sb	< 0.009657	M Y	< 0.000203		
M Er	< 0.000203	O Mo	< 0.002152	M Sc	< 0.000406	M Yb	< 0.000203		

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. Store and use at 20° ± 4° C. 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 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

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

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

April 18, 2017

- 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 18, 2021

- 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 from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Maurice Harris
Product Documentation Technician



Certificate Approved By:

Michael Booth
Supervisor, Quality Control



Certifying Officer:

Paul Gaines
CEO, Senior Technical Director





QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2008 Certified Program"

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INITIAL CALIBRATION VERIFICATION SOLUTIONS
(ICV1, ICV5, AND ICV6)

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

APPLICATION: For use with CLP SOWs and revisions.

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

M4113
M4114
M4115
M4116
M4117

Red m
02/15/18
NB

Contains Metals in Dilute Acidic or
Cyanide in Basic Aqueous Solutions
HAZARDOUS MATERIAL

Safety Data Sheets
Available Upon Request

(A) **SAMPLE DESCRIPTION**

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. **For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-1014", "ICV5-0415", and "ICV6-0400", respectively.**

(B) **BREAKAGE OR MISSING ITEMS**

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

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

(C) **ANALYSIS OF SAMPLES**

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in µg/L (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

ICV1-1014 For ICP-AES use: dilute the ICV1 concentrate 10-fold with 2% (v/v) nitric acid; pipet 10 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.



QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2008 Certified Program"

Instructions for QATS Reference Material: Inorganic ICV Solutions

For ICP-MS use: dilute the ICV1 concentrate 50-fold with 1% (v/v) nitric acid; pipet 2 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.

ICV5-0415 For the cold vapor analysis of mercury by AA: dilute the ICV5 concentrate 100-fold with 2% (v/v) nitric acid; pipet 1 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) $K_2Cr_2O_7$ and 5% (v/v) nitric acid.

ICV6-0400 For the analysis of cyanide: dilute the ICV6 concentrate 100-fold with Type II water; pipet 1 mL of the concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from $K_3Fe(CN)_6$, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

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

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

ICV1-1014		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2520	504
Sb	1010	202
As	997	199
Ba	518	104
Be	514	103
Cd	514	103
Ca	10000	2000
Cr	517	103
Co	521	104
Cu	505	101
Fe	10100	2020
Pb	1030	206
Mg	5990	1198
Mn	524	105
Ni	525	105
K	9940	1988
Se	1030	206
Ag	252	50
Na	10100	2020
Tl	1040	208
V	504	101
Zn	1010	202

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

284, Sheffield Street, Mountainside NJ 07092 (908) 789 - 8900

<u>RecipeID</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>
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP49243	11/19/2018	11/20/2018	Mohan Bera	None	METALS_ PIPETTE_ 5 (HG A)
<u>FROM</u>	1.000ml of M4238 + 2.500ml of M4111 + 96.500ml of W1152 = Final Quantity: 100.000 ml						

<u>RecipeID</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>
1340	Hg 0.00 PPB STD	<u>MP49244</u>	11/19/2018	11/20/2018	Mohan Bera	None	METALS_ PIPETTE_ 5 (HG A)
<u>FROM</u> 2.500ml of M4238 + 247.500ml of W1152 = Final Quantity: 250.000 ml							

CHEMTECH

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Metals STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID
1341	Hg 0.2 PPB STD	MP49245	11/19/2018	11/20/2018	Mohan Bera	None	METALS_ PIPETTE_ 5 (HG A)

FROM 2.500ml of M4238 + 247.300ml of W1152 + 0.200ml of MP49243 = Final Quantity: 250.000 ml

RecipeID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID
1342	Hg 2.5 PPB STD	MP49246	11/19/2018	11/20/2018	Mohan Bera	None	METALS_ PIPETTE_ 5 (HG A)

FROM 2.500ml of M4238 + 245.000ml of W1152 + 2.500ml of MP49243 = Final Quantity: 250.000 ml

CHEMTECH

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Metals STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID
1343	Hg 5.0 PPB STD	<u>MP49247</u>	11/19/2018	11/20/2018	Mohan Bera	None	METALS_PIPETTE_5 (HG A)
FROM 2.500ml of M4238 + 242.500ml of W1152 + 5.000ml of MP49243 = Final Quantity: 250.000 ml							

RecipeID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID
1344	Hg 7.5 PPB STD	<u>MP49248</u>	11/19/2018	11/20/2018	Mohan Bera	None	METALS_PIPETTE_5 (HG A)
FROM 2.500ml of M4238 + 240.000ml of W1152 + 7.500ml of MP49243 = Final Quantity: 250.000 ml							

CHEMTECH

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Metals STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID
1345	Hg 10.0 PPB STD	MP49249	11/19/2018	11/20/2018	Mohan Bera	None	METALS_ PIPETTE_ 5 (HG A)
FROM 2.500ml of M4238 + 237.500ml of W1152 + 10.000ml of MP49243 = Final Quantity: 250.000 ml							

RecipeID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID
1346	Hg ICV SOLUTION	MP49250	11/19/2018	11/20/2018	Mohan Bera	None	METALS_ PIPETTE_ 5 (HG A)
FROM 2.500ml of M4113 + 2.500ml of M4238 + 245.000ml of W1152 = Final Quantity: 250.000 ml							

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RecipeID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID
1351	ICB (Hg 0.00 PPB SOLUTION)	MP49251	11/19/2018	11/20/2018	Mohan Bera	None	METALS_ PIPETTE_ 5 (HG A)
FROM 2.500ml of M4238 + 247.500ml of W1152 = Final Quantity: 250.000 ml							

RecipeID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID
1358	CCV (Hg 5.0 PPB SOLUTION)	MP49252	11/19/2018	11/20/2018	Mohan Bera	None	METALS_ PIPETTE_ 5 (HG A)
FROM 485.000ml of W1152 + 5.000ml of M4238 + 10.000ml of MP49243 = Final Quantity: 500.000 ml							

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Metals STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID
1352	CCB (Hg 0.00 PPB SOLUTION)	MP49253	11/19/2018	11/20/2018	Mohan Bera	None	METALS_ PIPETTE_ 5 (HG A)
FROM 495.000ml of W1152 + 5.000ml of M4238 = Final Quantity: 500.000 ml							

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Metals STANDARD PREPARATION LOG

RecipeID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID
68	STANNOUS CHLORIDE SOLUTION	MP49257	11/19/2018	11/20/2018	Mohan Bera	METALS_SCALE_3 (M SC-3)	None
FROM 450.000ml of W1152 + 50.000gram of M4224 + 50.000ml of M4234 = Final Quantity: 500.000 ml							

RecipeID	NAME	NO.	Prep Date	Expiration Date	Prepared By	ScaleID	PipetteID
104	5% RINSING HCL	MP49258	11/19/2018	05/19/2019	Mohan Bera	None	None
FROM 100.000ml of M4234 + 1900.000ml of W1152 = Final Quantity: 2000.000 ml							