▪ Certificate of Analysis ▪

Product: WatR™ Supply Metals
Catalog Number: 697
Lot No. S229-697
Certificate Issue Date: December 10, 2015
Expiration Date: November 30, 2018
Revision Number: Original

CERTIFICATION

Parameter	Certified Value[1]	Uncertainty[2]	QC Performance Acceptance Limits[3]	PT Performance Acceptance Limits[4]
	µg/L	%	µg/L	µg/L
Aluminum	696	2.44	590 - 807	592 - 800
Antimony	28.1	1.55	22.3 - 34.6	19.7 - 36.5
Arsenic	30.6	4.75	25.7 - 34.9	21.4 - 39.8
Barium	1770	2.44	1580 - 1950	1500 - 2040
Beryllium	3.49	3.64	2.84 - 4.15	2.97 - 4.01
Boron	1150	1.67	1020 - 1290	978 - 1320
Cadmium	28.8	3.80	24.3 - 32.0	23.0 - 34.6
Chromium	198	3.39	173 - 222	168 - 228
Copper	810	3.13	720 - 883	729 - 891
Iron	213	3.38	181 - 243	170 - 256
Lead	44.3	4.25	37.6 - 51.4	31.0 - 57.6
Manganese	147	4.29	132 - 160	125 - 169
Molybdenum	29.3	2.88	24.9 - 33.1	24.9 - 33.7
Nickel	346	1.18	306 - 384	294 - 398
Selenium	82.4	4.94	67.5 - 97.2	65.9 - 98.9
Silver	86.0	2.55	75.6 - 96.3	60.2 - 112
Thallium	3.32	1.77	2.52 - 4.15	2.32 - 4.32
Vanadium	197	4.24	180 - 211	167 - 227
Zinc	1290	4.23	1170 - 1420	1100 - 1480

ANALYTICAL VERIFICATION

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Parameter	Certified Value[1]	Proficiency Testing Study			NIST Traceability	
		Mean	Recovery[5]	n	SRM Number	Recovery
	µg/L	µg/L	%			%
Aluminum	696	701	101	43	3101a	99.8
Antimony	28.1	28.9	103	35	3102a	96.4
Arsenic	30.6	31.4	103	47	3103a	98.0
Barium	1770	1760	99.6	40	3104a	98.4
Beryllium	3.49	3.51	100	39	3105a	96.6
Boron	1150	1150	99.9	24	3107	101
Cadmium	28.8	28.4	98.7	51	3108	97.6
Chromium	198	196	99.1	48	3112a	98.4
Copper	810	802	99.0	50	3114	99.0
Iron	213	212	99.7	48	3126a	98.5
Lead	44.3	44.9	101	48	3128	100
Manganese	147	149	101	51	3132	97.9
Molybdenum	29.3	29.1	99.3	29	3134	99.3
Nickel	346	342	98.8	43	3136	97.9
Selenium	82.4	80.8	98.0	36	3149	99.3
Silver	86.0	84.9	98.8	38	3151	100
Thallium	3.32	3.43	103	28	3158	95.9
Vanadium	197	195	98.9	32	3165	96.1
Zinc	1290	1290	100	46	3168a	98.3

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1. The **Certified Values** are the actual "made-to" concentrations confirmed by ERA analytical verification. The certified values are monitored and purchasers will be notified of any significant changes resulting in recertification or withdrawal of this certified reference material during the period of validity of this certificate.

2. The **Uncertainty** is the total propagated uncertainty at the 95% confidence interval. The uncertainty is based on the preparation and internal analytical verification of the product by ERA, multiplied by a coverage factor. The uncertainty applies to the product as supplied and does not take into account any required or optional dilution and/or preparations the laboratory may perform while using this product.

3. The **QC Performance Acceptance Limits (QC PALs™)**are based on actual historical data collected in ERA's Proficiency Testing program. The QC PALs™ reflect any inherent biases in the methods used to establish the limits and closely approximate a 95% confidence interval of the performance that experienced laboratories should achieve using accepted environmental methods. Use the QC PALs™ to realistically evaluate your performance against your peers.

4. The **PT Performance Acceptance Limits (PT PALs™)** are calculated using the regression equations and fixed acceptance criteria specified in the NELAC proficiency testing requirements. Use the PT PALs™ when analyzing this QC standard alongside USEPA and NELAC compliant PT standards. Please note that many PT study acceptance limits are concentration dependent (some non-linearly) and, therefore, the acceptance limits of this QC standard and any PT standard may differ relative to their difference in concentrations.

5. The **PT Data/Traceability** data include the mean value, percent recovery and number of data points reported by the laboratories in our Proficiency Testing study compared to the Certified Values. In addition, where NIST Standard Reference Materials (SRMs) are available, each analyte has been analytically traced to the NIST SRM listed. This product is traceable to the lot numbers of its starting materials. All gravimetric and volumetric measurements related to its manufacture are traceable to NIST through an unbroken chain of comparisons.
Traceability Recovery (%) = [(% recovery certified standard)/(% recovery NIST SRM)]*100
The traceability data shown were compiled by analyzing the ERA standards or their associated stock solutions against the applicable NIST SRMs.

6. For additional information on this product such as intended use, instructions for use, level of homogeneity, and safety information, please refer to the provided Instruction Sheet

If you have any questions or need technical assistance, please call ERA technical assistance at 1-800-372-0122 or send an email to info@eraqc.com.

Certifying Officer

Tom Widera

Quality Officer

David Kilhefner

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