

Certificate of Analysis

CLP ICP Spike Standard #1

Catalog Number: ICM-451

Lot Number: P00840

Job Number: J00015099

Lot Issue Date: 08/20/2012

Expiration Date: 09/30/2016

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentrations were verified by our ISO 17025 accredited laboratory to be within $\pm 5.0\%$, when compared to calibration standards independently prepared using NIST SRM(s). The certified value and uncertainty value at the 95% confidence level for each analyte is determined gravimetrically.

Analyte	True Value			Analytical Method	NIST SRM
aluminum	2002	\pm	10 $\mu\text{g/mL}$	ICP / ICP-MS	3101a
barium	2001	\pm	10 $\mu\text{g/mL}$	ICP / ICP-MS	3104a
beryllium	50.00	\pm	0.25 $\mu\text{g/mL}$	ICP / ICP-MS	3105a
chromium	200.0	\pm	1.0 $\mu\text{g/mL}$	ICP / ICP-MS	3112a
cobalt	500.8	\pm	2.5 $\mu\text{g/mL}$	ICP / ICP-MS	3113
copper	250.2	\pm	1.3 $\mu\text{g/mL}$	ICP / ICP-MS	3114
iron	1002	\pm	5 $\mu\text{g/mL}$	ICP / ICP-MS	3126a
manganese	500.1	\pm	2.5 $\mu\text{g/mL}$	ICP / ICP-MS	3132
nickel	500.5	\pm	2.5 $\mu\text{g/mL}$	ICP / ICP-MS	3136
* silver	50.00	\pm	0.25 $\mu\text{g/mL}$	ICP / ICP-MS	3151
* vanadium	500.0	\pm	2.5 $\mu\text{g/mL}$	ICP / ICP-MS	3165
zinc	500.0	\pm	2.5 $\mu\text{g/mL}$	ICP / ICP-MS	3168a

Matrix: 5% nitric acid in low TOC water (< 50 ppb)

* light sensitive

ULTRA uses purified acids, 18 megohm double deionized water, calibrated Class A glassware & meticulously cleaned bottles in the manufacturing of ULTRAgrade standards. Balances used in the manufacturing of this standard are calibrated with weights traceable to NIST in compliance with ANSI/NCSL Z-540-1 and ISO 9001.



ISO 17025:2005
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