

Certificate of Analysis

Custom Standard

Catalog Number: ICUS-4938

Lot Number: CP-1659

Lot Issue Date: 04/07/2016

Expiration Date: 05/31/2017

This Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentration(s) were prepared and verified by an ISO Guide 34 / ISO 17025 accredited laboratory, and 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	200.3	±	1.0 µg/mL	ICP / ICP-MS	3101a
barium	50.1	±	0.3 µg/mL	ICP / ICP-MS	3104a
beryllium	20.0	±	0.1 µg/mL	ICP / ICP-MS	3105a
cadmium	20.0	±	0.1 µg/mL	ICP / ICP-MS	3108
calcium	1001	±	5 µg/mL	ICP / ICP-MS	3109a
chromium	20.0	±	0.1 µg/mL	ICP / ICP-MS	3112a
cobalt	50.1	±	0.3 µg/mL	ICP / ICP-MS	3113
copper	50.1	±	0.3 µg/mL	ICP / ICP-MS	3114
iron	501.3	±	2.5 µg/mL	ICP / ICP-MS	3126a
lead	50.1	±	0.3 µg/mL	ICP / ICP-MS	3128
magnesium	1000	±	5 µg/mL	ICP / ICP-MS	3131a
manganese	50.0	±	0.3 µg/mL	ICP / ICP-MS	3132
nickel	20.0	±	0.1 µg/mL	ICP / ICP-MS	3136
potassium	1001	±	5 µg/mL	ICP / ICP-MS	3141a
sodium	2002	±	10 µg/mL	ICP / ICP-MS	3152a
strontium	50.1	±	0.3 µg/mL	ICP / ICP-MS	3153a
titanium	50.1	±	0.3 µg/mL	ICP / ICP-MS	3162a
* vanadium	50.1	±	0.3 µg/mL	ICP / ICP-MS	3165
zinc	50.1	±	0.3 µg/mL	ICP / ICP-MS	3168a
boron	50.0	±	0.3 µg/mL	ICP / ICP-MS	3107

Matrix: 2% nitric acid with trace hydrofluoric acid in low TOC water (< 50 ppb)

* *light sensitive*

ULTRA uses purified acids, 18 megaohm double deionized water, calibrated Class A glassware, and 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.