

Certificate of Analysis

Custom Standard

Catalog Number: CICM-240

Lot Number: CP-5003

Lot Issue Date: 10/03/2016

Expiration Date: 11/30/2019

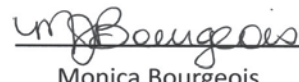
This Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentration(s) were prepared and verified by an ISO Guide 34 / ISO 17025 accredited laboratory, and compared to calibration standards independently prepared using NIST 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	20.0	±	0.1 µg/mL	ICP / ICP-MS	3101a
antimony	20.0	±	0.1 µg/mL	ICP / ICP-MS	3102a
arsenic	20.0	±	0.1 µg/mL	ICP / ICP-MS	3103a
barium	20.0	±	0.1 µg/mL	ICP / ICP-MS	3104a
beryllium	20.0	±	0.1 µg/mL	ICP / ICP-MS	3105a
boron	20.1	±	0.1 µg/mL	ICP / ICP-MS	3107
cadmium	20.0	±	0.1 µg/mL	ICP / ICP-MS	3108
calcium	20.0	±	0.1 µg/mL	ICP / ICP-MS	3109a
chromium	20.0	±	0.1 µg/mL	ICP / ICP-MS	3112a
cobalt	20.0	±	0.1 µg/mL	ICP / ICP-MS	3113
copper	20.0	±	0.1 µg/mL	ICP / ICP-MS	3114
iron	20.0	±	0.1 µg/mL	ICP / ICP-MS	3126a
lead	20.0	±	0.1 µg/mL	ICP / ICP-MS	3128
lithium	20.0	±	0.1 µg/mL	ICP / ICP-MS	3129a
magnesium	20.0	±	0.1 µg/mL	ICP / ICP-MS	3131a
manganese	20.0	±	0.1 µg/mL	ICP / ICP-MS	3132
molybdenum	20.0	±	0.1 µg/mL	ICP / ICP-MS	3134
nickel	20.0	±	0.1 µg/mL	ICP / ICP-MS	3136
phosphorus	100.2	±	0.5 µg/mL	ICP / ICP-MS	3139a
potassium	100.2	±	0.5 µg/mL	ICP / ICP-MS	3141a
selenium	20.0	±	0.1 µg/mL	ICP / ICP-MS	3149

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.

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 John Russo
 President


 Monica Bourgeois
 Director of QA/RA

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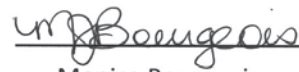
Analyte	True Value			Analytical Method	NIST SRM
silicon	100.2	±	0.5 µg/mL	ICP / ICP-MS	3150
* silver	5.01	±	0.03 µg/mL	ICP / ICP-MS	3151
sodium	20.0	±	0.1 µg/mL	ICP / ICP-MS	3152a
strontium	20.0	±	0.1 µg/mL	ICP / ICP-MS	3153a
thallium	20.0	±	0.1 µg/mL	ICP / ICP-MS	3158
tin	20.0	±	0.1 µg/mL	ICP / ICP-MS	3161a
* vanadium	20.0	±	0.1 µg/mL	ICP / ICP-MS	3165
zinc	20.0	±	0.1 µg/mL	ICP / ICP-MS	3168a

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

* *light sensitive*

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