



Certificate of Analysis

ICP-MS Calibration Standard

Catalog Number: IMS-120

Lot Number: CR-4190

Lot Issue Date: 09/12/2017

Expiration Date: 10/31/2021

This Reference Material (RM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentration(s) were 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 | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3101a |
| arsenic | 100.1 | ± | 0.5 | µg/mL | ICP / ICP-MS | 3103a |
| barium | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3104a |
| beryllium | 100.2 | ± | 0.5 | µg/mL | ICP / ICP-MS | 3105a |
| bismuth | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3106 |
| boron | 100.1 | ± | 0.5 | µg/mL | ICP / ICP-MS | 3107 |
| cadmium | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3108 |
| calcium | 1004 | ± | 5 | µg/mL | ICP / ICP-MS | 3109a |
| chromium | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3112a |
| cobalt | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3113 |
| copper | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3114 |
| gallium | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3119a |
| iron | 100.1 | ± | 0.5 | µg/mL | ICP / ICP-MS | 3126a |
| lead | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3128 |
| lithium | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3129a |
| magnesium | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3131a |
| manganese | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3132 |
| molybdenum | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3134 |
| nickel | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3136 |
| potassium | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3141a |
| rubidium | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3145a |
| selenium | 100.2 | ± | 0.5 | µg/mL | ICP / ICP-MS | 3149 |
| * silver | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3151 |
| sodium | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3152a |
| strontium | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3153a |
| tellurium | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3156 |
| thallium | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3158 |
| uranium | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | second source |
| * vanadium | 10.0 | ± | 0.1 | µg/mL | ICP / ICP-MS | 3165 |
| zinc | 100.2 | ± | 0.5 | µg/mL | ICP / ICP-MS | 3168a |

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

* light sensitive

ULTRA uses purified acids, 18 megohm-cm 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/NCCL Z-540-1 and ISO 9001


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ISO 9001 Registered Quality System – TUV USA