

Certificate of Analysis

**Thorium
AA Standard**

Catalog Number: IAA-290

Lot Number: R01003

Lot Issue Date: 09/19/2013

Expiration Date: 10/31/2020

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 $\pm 2.5\%$, 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
thorium	1000 $\pm$ 5 $\mu\text{g/mL}$	ICP / ICP-MS	3159

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

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.

-Density of Solution (measured at 20.00°C $\pm$ 0.05°C): 1.0160 g/mL