



Certificate of Analysis

ULTRAGrade™ Solution
Uranium ICP Standard
1000 µg/mL

Catalog Number: ICP-092
Lot Number: L00045
Job Number: J00010829
Lot Issue Date: 01/15/2010
Expiration Date: 02/28/2017

Starting Material: Uranium Oxide
Starting Material Purity: 99.997%
Starting Material Lot No.: BH01248
Matrix: 1% nitric acid in low TOC water (< 50 ppb)
Atomic Weight U: 238.07

Certified Value: 1000 ± 2 µg/mL

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 ± 2.5%, when compared to calibration standards independently prepared using NIST SRM(s). The certified value and uncertainty value for each analyte is determined gravimetrically.

Classical Wet Assay Method: Theoretical, based on gravimetric measurements

Confirmation by Inductively Coupled Plasma Spectroscopy (ICP / ICP-MS) vs. NIST SRM 3164

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.

Trace Metallic Impurities in Solution Standard in µg/mL:

* Al <0.005 ND	* Ga <0.005 ND	n Nb	n S
* Sb <0.005 ND	n Ge	n Os	n Ta
* As <0.005 ND	n Au	* Pd <0.005 ND	n Te
* Ba <0.005 ND	n Hf	* P <0.005 ND	n Tb
* Be <0.005 ND	n Ho	* Pt <0.005 ND	* Tl <0.005 ND
* Bi <0.005 ND	* In <0.005 ND	* K <0.005 ND	n Th
* B <0.005 ND	n Ir	n Pr	n Tm
* Cd <0.005 ND	* Fe <0.010 D	n Re	* Sn <0.005 ND
* Ca <0.010 D	* La <0.005 ND	n Rh	* Ti <0.005 ND
n Ce	* Pb <0.005 ND	n Rb	n W
n Cs	* Li <0.005 ND	n Ru	s U
* Cr <0.005 D	n Lu	n Sm	* V <0.005 ND
* Co <0.005 ND	* Mg <0.005 ND	n Sc	n Yb
* Cu <0.005 ND	* Mn <0.005 ND	* Se <0.005 ND	n Y
n Dy	* Hg <0.005 ND	* Si <0.005 ND	* Zn <0.005 ND
* Er <0.005 ND	* Mo <0.005 ND	* Ag <0.005 ND	n Zr
* Eu <0.005 ND	n Nd	* Na <0.005 D	
* Gd <0.005 ND	* Ni <0.005 ND	* Sr <0.005 ND	
* - element checked for	i - spectral interference	n - not checked for	
ND - not detected	D - detected	s - solution standard element	

Density of Solution (measured at 22.5°C ± 0.5°C): 1.019 g/mL




William J. Leary
Quality Assurance Manager

ISO 9001 Registered Quality System – TUV USA