



Certificate of Analysis

ULTRAGrade™ Solution
Lithium ICP / ICP-MS Standard
10000 µg/mL

Catalog Number: ICP-103
Lot Number: T00356
Lot Issue Date: 04/01/2014
Expiration Date: 05/31/2021

Starting Material: lithium carbonate
Starting Material Purity: 99.9999%
Starting Material Lot #: BH02551
Matrix: 10% nitric acid in low TOC water (< 50 ppb)
Atomic Weight Li: 6.94

Certified Value: 10008 ± 20 µg/mL

This Certified Reference Material (CRM) 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.

Classical Wet Assay Method: Theoretical, based on gravimetric measurements

Confirmation by Inductively Coupled Plasma Spectroscopy (ICP / ICP/MS) vs. NIST SRM 3129a

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/NCCL Z-540-1 and ISO 9001.

Trace Metallic Impurities in Solution Standard in µg/mL:

* Al <0.005 ND	* Ga <0.005 ND	* Nb <0.005 ND	* S <0.005 ND
* Sb <0.005 ND	* Ge <0.005 ND	* Os <0.005 ND	* Ta <0.005 ND
* As <0.005 ND	* Au <0.005 ND	* Pd <0.005 ND	* Te <0.005 ND
* Ba <0.005 ND	* Hf <0.005 ND	* P <0.005 ND	* Tb <0.005 ND
* Be <0.005 ND	* Ho <0.005 ND	* Pt <0.005 ND	* Tl <0.005 ND
* Bi <0.005 ND	* In <0.005 ND	* K <0.005 ND	* Th <0.005 ND
* B <0.005 ND	* Ir <0.005 ND	* Pr <0.005 ND	* Tm <0.005 ND
* Cd <0.005 ND	* Fe <0.010 D	* Re <0.005 ND	* Sn <0.005 ND
* Ca <0.005 ND	* La <0.005 ND	* Rh <0.005 ND	* Ti <0.005 ND
* Ce <0.005 ND	* Pb <0.005 ND	* Rb <0.005 ND	* W <0.005 ND
* Cs <0.005 ND	s Li	* Ru <0.005 ND	* U <0.005 ND
* Cr <0.005 ND	* Lu <0.005 ND	* Sm <0.005 ND	* V <0.005 ND
* Co <0.005 ND	* Mg <0.005 ND	* Sc <0.005 ND	* Yb <0.005 ND
* Cu <0.005 ND	* Mn <0.005 ND	* Se <0.005 ND	* Y <0.005 ND
* Dy <0.005 ND	* Hg <0.005 ND	* Si <0.005 ND	* Zn <0.005 ND
* Er <0.005 ND	* Mo <0.005 ND	* Ag <0.005 ND	* Zr <0.005 ND
* Eu <0.005 ND	* Nd <0.005 ND	* Na <0.005 ND	
* Gd <0.005 ND	* Ni <0.005 ND	* Sr <0.005 ND	

* - element checked for
ND - not detected

l - spectral interference
D - detected

n - not checked for
s - solution standard element

Density of Solution (measured at 20.00°C ± 0.05°C): 1.0555 g/mL



ISO 17025:2005
Accredited
A2LA
Cert. No. 0851.01

ISO 9001:2000
Registered
TUV USA, Inc.
Cert. No. 06-1004

William J. Leary
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