



Certificate of Analysis

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

Catalog Number: ICP-113
Lot Number: T00030
Job Number: J00017527
Lot Issue Date: 01/09/2014
Expiration Date: 02/28/2021

Starting Material: aluminum nitrate nonahydrate
Starting Material Purity: 99.999%
Starting Material Lot #: BH02503
Matrix: 2% nitric acid in low TOC water (< 50 ppb)
Atomic Weight Al: 26.98

Certified Value: 10015 ± 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 3101a

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:

s	Al			*	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	<0.005	ND	n	Re			*	Sn	<0.005	ND		
*	Ca	<0.005	nD	*	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			n	U				
*	Cr	<0.005	ND	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 20.00°C ± 0.05°C): 1.0704 g/mL



ISO 17025:2005
Accredited
A2LA
Cert. No. 0851.01

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

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