Certificate of Analysis

ULTRAgrade™ Solution
Indium ICP / ICP-MS Standard
1000 µg/mL

Catalog Number: ICP-049
Lot Number: R00677
Job Number: J00016582
Lot Issue Date: 07/11/2013
Expiration Date: 08/31/2020

Starting Material:	Indium metal
Starting Material Purity:	99.999%, 99.999%
Starting Material Lot #:	BH02305, BH02449
Matrix:	1% nitric acid in low TOC water (< 50 ppb)
Atomic Weight In:	114.82

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 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 3124a

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	*	Nb	<0.005	ND	n	S		
*	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	s	In			*	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	<1	D	*	Fe	<0.005	ND	*	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	*	Li	<0.005	ND	*	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	n	Hg			*	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

I – spectral interference
D – detected

n – not checked for
s – solution standard element

Density of Solution (measured at 20.00°C ± 0.05°C): 1.0074 g/mL

ACCREDITED

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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