



Certificate of Analysis

ULTRAgrade™ Solution
Silicon ICP Standard
10000 µg/mL

Catalog Number: ICP-114
Lot Number: K00195
Job Number: J00009425
Lot Issue Date: 03/02/2009
Expiration Date: 03/31/2016

Starting Material: Ammonium Hexafluorosilicate
Starting Material Purity: 99.999%
Starting Material Lot No.: BH00960
Matrix: 2% nitric acid, and trace hydrofluoric acid, in low TOC water (< 50 ppb)
Atomic Weight Si: 28.09

Certified Value: 10005 ± 20 µg/mL

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001:2000 registered quality system, and the analyte concentrations were verified by our ISO 17025 accredited laboratory. The certified value and uncertainty value, at the 95% confidence level, for each analyte determined gravimetrically.

Classical Wet Assay Method: Theoretical, based on gravimetric measurements

Confirmation by Inductively Coupled Plasma Spectroscopy (ICP / ICP-MS) vs. NIST SRM 3150

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	<0.030	D	*	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	<0.030 D
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	<0.010	D	n	Sc			n	Yb	
*	Cu	<0.005	ND	*	Mn	<0.005	ND	*	Se	<0.005	ND	n	Y	
n	Dy			*	Hg	<0.005	ND	s	Si			*	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	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 23.0°C ± 0.5°C): 1.057 g/mL



ISO 9001 Registered Quality System – TUV USA

William J. Leary
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