Certificate of Analysis

ULTRAgrade™ Solution
Iron ICP / ICP-MS Standard
10000 µg/mL

Catalog Number: ICP-126
Lot Number: CM-3098
Lot Issue Date: 06/08/2015
Expiration Date: 07/31/2022

Starting Material:	iron (III) nitrate nonahydrate
Starting Material Purity:	99.9999%
Starting Material Lot #:	RM07199
Matrix:	2% nitric acid in low TOC water (< 50 ppb)
Atomic Weight Fe:	55.85

Certified Value: 10017± 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 3126a

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	n	Ge			n	Os			*	Ta	<0.005	ND
*	As	<0.005	ND	*	Au	<0.005	ND	*	Pd	<0.005	ND	n	Te		
*	Ba	<0.005	ND	*	Hf	<0.005	ND	n	P			*	Tb	<0.005	ND
*	Be	<0.005	ND	*	Ho	<0.005	ND	*	Pt	<0.005	ND	n	Tl		
n	Bi			*	In	<0.005	ND	*	K	<0.005	ND	*	Th	<0.005	ND
*	B	<0.005	ND	n	Ir			*	Pr	<0.005	ND	*	Tm	<0.005	ND
*	Cd	<0.005	ND	s	Fe			*	Re	<0.005	ND	*	Sn	<0.005	ND
*	Ca	<0.005	D	*	La	<0.005	ND	*	Rh	<0.005	ND	*	Ti	<0.005	ND
n	Ce			*	Pb	<0.005	ND	n	Rb			*	W	<0.005	ND
n	Cs			*	Li	<0.005	ND	*	Ru	<0.005	ND	*	U	<0.005	ND
*	Cr	<0.005	ND	n	Lu			*	Sm	<0.005	ND	*	V	<0.005	ND
*	Co	<0.300	D	*	Mg	<0.005	ND	*	Sc	<0.005	ND	*	Yb	<0.005	ND
*	Cu	<0.005	ND	*	Mn	<0.005	ND	n	Se			*	Y	<0.005	ND
*	Dy	<0.005	ND	n	Hg			n	Si			*	Zn	<0.300	D
*	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	<0.100	D	*	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): 1.0451 g/mL

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY

William J. Leary
Quality Assurance Manager

ISO 9001 Registered Quality System – TUV USA