

Certificate of Analysis

ICP/MS Calibration Standard #1

Catalog Number: IMS-101

Lot Number: T00268

Job Number: J00017823

Lot Issue Date: 03/13/2014

Expiration Date: 04/30/2018

This Certified Reference Material (CRM) was manufactured and verified in accordance with ULTRA's ISO 9001 registered quality system. The analyte concentrations were verified by our ISO 17025 accredited laboratory to be within $\pm 5.0\%$, when 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.

Analyte	True Value				Analytical Method	NIST SRM
cerium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3110
dysprosium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3115a
erbium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3116a
europium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3117a
gadolinium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3118a
holmium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3123a
lanthanum	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3127a
lutetium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3130a
neodymium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3135a
praseodymium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3142a
samarium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3147a
scandium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3148a
terbium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3157a
thorium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3159
thulium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3160a
ytterbium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3166a
yttrium	10.00	\pm	0.05	$\mu\text{g/mL}$	ICP / ICP-MS	3167a

Matrix: 5% nitric acid in low TOC water (< 50 ppb)

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



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