



Certified Reference Material CRM



CERTIFIED WEIGHT REPORT:

Part Number: **51328**Lot Number: **030121**Description: **ICP Mix**

9 Components

Expiration Date: 030124

Recommended Storage: Ambient (20 °C)

Nominal Concentration (mg/L): **Varied**

NIST Test Number: 23060

5E-05 Balance Uncertainty

Volumes shown below were diluted to (mL): 250.09 0.014 Flask Uncertainty

Lot #

19410105

Solvent:

Nitric Acid

2.0%

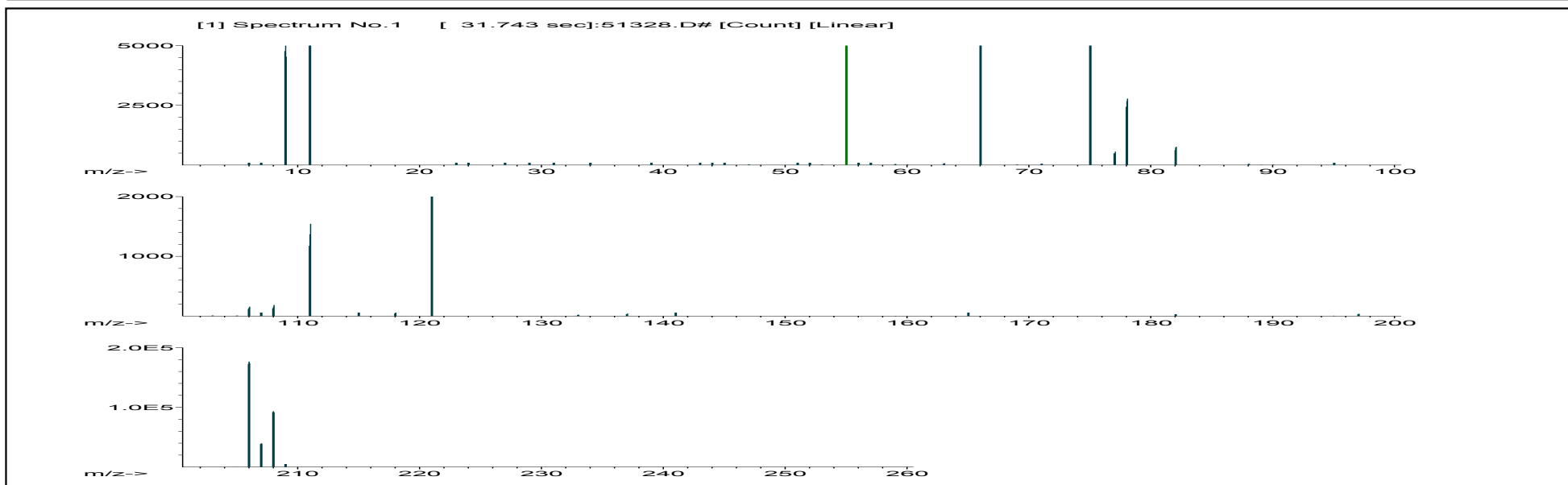
5.0

(mL)

Nitric Acid

Formulated By:	Lawrence Barry	030121
Reviewed By:	Pedro L. Rentas	030121

Compound	Part Number	Lot Number	Dilution Factor	Initial Vol. (mL)	Uncertainty Pipette (mL)	Nominal Conc. (mg/L)	Initial Conc. (mg/L)	Final Conc. (mg/L)	Expanded Uncertainty +/- (mg/L)	SDS Information (Solvent Safety Info. On Attached pg.)			NIST SRM
										CAS#	OSHA PEL (TWA)	LD50	
1. Arsenic (As)	58133	092220	0.0120	3.0	0.017	120	10001.0	120.0	1.4	7440-38-2	0.2 mg/m3	orl-rat 763 mg/kg	3103a
2. Boric acid (B)	58105	063020	0.0900	22.5	0.084	900	10000.0	900.0	7.0	10043-35-3	2 mg/m3	orl-rat 2660 mg/kg	3107
3. Beryllium acetate (Be)	57004	040820	0.0100	2.50	0.017	10	1000.0	10.0	0.14	19049-40-2	0.002 mg/m3	orl-rat 28 mg/kg	3105a
4. Cadmium nitrate tetrahydrate (Cd)	57048	020421	0.0100	2.50	0.017	10	1000.0	10.0	0.14	10022-68-1	0.2 mg/m3	orl-rat 300 mg/kg	3108
5. Manganese(II) nitrate tetrahydrate (Mn)	58125	011321	0.0900	22.5	0.084	900	10000.3	900.0	7.0	20694-39-7	5 mg/m3	orl-rat >300mg/kg	3132
6. Lead (II) Nitrate (Pb)	58182	012120	0.0120	3.0	0.017	120	10000.4	120.0	1.38	10099-74-8	0.05 mg/m3	intrvns-rat 93 mg/kg	3128
7. Antimony (Sb)	57051	052120	0.0100	2.50	0.017	10	1000.0	10.0	0.14	7440-36-0	0.5 mg/m3	orl-rat 100 mg/kg	3102a
8. Selenium(IV) oxide (Se)	57034	021021	0.0400	10.0	0.042	40	1000.0	40.0	0.35	7446-08-4	0.2 mg/m3	orl-rat 68 mg/kg	3149
9. Zinc nitrate hexahydrate (Zn)	58130	082020	0.0500	12.50	0.084	500	10000.3	500.0	6.8	10196-18-6	1 mg/m3	orl-rat 1190mg/kg	3168



**Instrumental Analysis by Inductively Coupled Plasma Mass Spectroscopy (ICP-MS):****Trace Metals Verification by ICP-MS ($\mu\text{g/mL}$)**

Al	<0.02	Cd	T	Dy	<0.02	Hf	<0.02	Li	<0.02	Ni	<0.02	Pr	<0.02	Se	T	Tb	<0.02	W	<0.02
Sb	T	Ca	<0.2	Er	<0.02	Ho	<0.02	Lu	<0.02	Nb	<0.02	Re	<0.02	Si	<0.02	Te	<0.02	U	<0.02
As	T	Ce	<0.02	Eu	<0.02	In	<0.02	Mg	<0.01	Os	<0.02	Rh	<0.02	Ag	<0.02	Tl	<0.02	V	<0.02
Ba	<0.02	Cs	<0.02	Gd	<0.02	Ir	<0.02	Mn	T	Pd	<0.02	Rb	<0.02	Na	<0.2	Th	<0.02	Yb	<0.02
Be	T	Cr	<0.02	Ga	<0.02	Fe	<0.2	Hg	<0.2	P	<0.02	Ru	<0.02	Sr	<0.02	Tm	<0.02	Y	<0.02
Bi	<0.02	Co	<0.02	Ge	<0.02	La	<0.02	Mo	<0.02	Pt	<0.02	Sm	<0.02	S	<0.02	Sn	<0.02	Zn	T
B	T	Cu	<0.02	Au	<0.02	Pb	T	Nd	<0.02	K	<0.2	Sc	<0.02	Ta	<0.02	Ti	<0.02	Zr	<0.02

(T)= Target analyte

Physical Characterization:

Homogeneity: No heterogeneity was observed in the preparation of this standard.

Certified by:

- * The certified value is the concentration calculated from gravimetric and volumetric measurements unless otherwise stated.
- * Purified acids, 18.2 megohm deionized water, calibrated Class A glassware and the highest purity raw materials are used in the preparation of all standards.
- * All standard containers are meticulously cleaned prior to use.
- * Standards are prepared gravimetrically using balances that are calibrated with weights traceable to NIST (see above).
- * Standards are certified (+/-) 0.5% of the stated value, unless otherwise stated.
- * All standards should be stored with caps tight and under appropriate laboratory conditions.
- * Uncertainty Reference: Taylor, B.N. and Kuyat, C.E., "Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Result," NIST Technical Note 1297, U.S. Government Printing Office, Washington, D.C. (1994).