

Product Specification

ICMPS Calibration Standard, 10 ppm: Al, As, Ba, Be, Cd, Ca, Cs, Cr, Co, Cu, Ga, Fe, Pb, Os, Li, Mg, Mn, Ni, K, Rb, Se, Ag, Na, Sr, Tl, W, U, V, Zn in 5% HNO₃

Lot Number: SAMPLE

Product Number: RICPMS21

Manufacture Date: N/A

Expiration Date: N/A

This is a multielement solution that was prepared gravimetrically to contain the elements and concentrations stated below. The uncertainty associated with the certified values is $\pm 0.5\%$ relative. The concentrations are confirmed by ICP or ICP-MS.

Matrix: 5% HNO₃

Name	CAS#	Grade
Water	7732-18-5	ACS/ASTM/USP/EP
Nitric Acid	7697-37-2	Trace Metals
Hydrochloric Acid	7647-01-0	Trace Metals
Hydrofluoric Acid	7664-39-3	Trace Metals

Test	Specification	Result
Appearance	Colorless Liquid	N/A

Analyte	Analysis (ppm)	Solute	CAS#	Grade	NIST SRM#
Aluminum (Al)	9.95-10.05 ppm	Aluminum Nitrate Nonahydrate	7784-27-2	High Purity	3101
Lithium (Li)	9.95-10.05 ppm	Lithium Nitrate	7790-69-4	High Purity	3129
Chromium (Cr)	9.95-10.05 ppm	Chromium Nitrate Nonahydrate	7789-02-8	High Purity	3112
Calcium (Ca)	9.95-10.05 ppm	Calcium Carbonate	471-34-1	High Purity	3109
Sodium (Na)	9.95-10.05 ppm	Sodium Carbonate	497-19-8	High Purity	3152
Osmium (Os)	9.95-10.05	Osmium (III) Chloride Trihydrate	14996-60-2	High Purity	
Barium (Ba)	9.95-10.05 ppm	Barium Nitrate	10022-31-8	High Purity	3104
Potassium (K)	9.95-10.05 ppm	Potassium Carbonate	584-08-7	High Purity	3141
Rubidium (Rb)	9.95-10.05 ppm	Rubidium Nitrate	13126-12-0	High Purity	3145
Strontium (Sr)	9.95-10.05 ppm	Strontium Carbonate	1633-05-2	High Purity	3153
Cesium (Cs)	9.95-10.05 ppm	Cesium Nitrate	7789-18-6	High Purity	3111
Arsenic (As)	9.95-10.05 ppm	Arsenic Trioxide	1327-53-3	High Purity	3103
Uranium (U)	9.95-10.05 ppm	Uranium Oxide	1344-58-7	High Purity	3164
Selenium (Se)	9.95-10.05 ppm	Selenium	7782-49-2	High Purity	3149
Zinc (Zn)	9.95-10.05 ppm	Zinc	7440-66-6	High Purity	3168
Vanadium (V)	9.95-10.05 ppm	Vanadium	7440-62-2	High Purity	3165
Gallium (Ga)	9.95-10.05 ppm	Gallium	7440-55-3	High Purity	3119
Copper (Cu)	9.95-10.05 ppm	Copper	7440-50-8	High Purity	3114
Cobalt (Co)	9.95-10.05 ppm	Cobalt	7440-48-4	High Purity	3113
Cadmium (Cd)	9.95-10.05 ppm	Cadmium	7440-43-9	High Purity	3108

Beryllium (Be)	9.95-10.05 ppm	Beryllium	7440-41-7	High Purity	3105
Tungsten (W)	9.95-10.05	Tungsten	7440-33-7	High Purity	3163
Thallium (Tl)	9.95-10.05 ppm	Thallium	7440-28-0	High Purity	3158
Silver (Ag)	9.95-10.05 ppm	Silver	7440-22-4	High Purity	3151
Nickel (Ni)	9.95-10.05 ppm	Nickel	7440-02-0	High Purity	3136
Manganese (Mn)	9.95-10.05 ppm	Manganese	7439-96-5	High Purity	3132
Magnesium (Mg)	9.95-10.05 ppm	Magnesium	7439-95-4	High Purity	3131
Lead (Pb)	9.95-10.05 ppm	Lead	7439-92-1	High Purity	3128
Iron (Fe)	9.95-10.05 ppm	Iron	7439-89-6	High Purity	3126

This standard is guaranteed to be stable and accurate provided the product is kept tightly capped and stored under normal laboratory conditions. Balances are calibrated using NIST traceable weights whose verification of maintenance and recalibration is documented per in-house Standard Operating Procedures. Class A glassware is also calibrated and routinely rechecked per in-house Standard Operating Procedures. Trace metal analyzed acids and Trace Metals Analyzed Water are used in the manufacture of this product. Triple cleaned containers are used in the manufacture of this product.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
RICPMS21-120B	120 mL amber poly	12 months

Recommended Storage: 15°C - 30°C (59°F - 86°F)

This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."

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