

Certificate of Analysis

Calcium ICP-MS Standard, 10,000 ppm Ca in 5% HNO₃

Lot Number: 4404P14

Product Number: MSCA10KN

Manufacture Date: APR 25, 2024

Expiration Date: OCT 2025

The final solution concentration is confirmed by AA, ICP, or ICP-MS, and is traceable to NIST Standard Reference Material 3109. All trace level elements were determined by ICP or ICP-MS.

Name	CAS#	Grade
Water	7732-18-5	
Nitric Acid	7697-37-2	
Calcium Carbonate	471-34-1	

Test	Specification	Result	NIST SRM#
Appearance	Colorless liquid	Passed	
Assay (vs. EDTA/Eriochrome Black T)	9970-10030 ppm Ca	10000 ppm Ca	915

Trace Elements by ICP or ICP - MS

I=Spectral Interference N=Not Tested

All values reported in mg/L (ppm)

Aluminum (Al)	0.019 ppm	Magnesium (Mg)	0.621 ppm	Thorium (Th)	0.001 ppm
Antimony (Sb)	0.024 ppm	Manganese (Mn)	< 0.00002 ppm	Thulium (Tm)	< 0.00002 ppm
Arsenic (As)	< 0.0007 ppm	Mercury (Hg)	< 0.03 ppm	Tin (Sn)	0.004 ppm
Barium (Ba)	0.044 ppm	Molybdenum (Mo)	0.217 ppm	Titanium (Ti)	< 0.001 ppm
Beryllium (Be)	< 0.0001 ppm	Neodymium (Nd)	< 0.0002 ppm	Tungsten (W)	I
Bismuth (Bi)	0.007 ppm	Nickel (Ni)	0.048 ppm	Uranium (U)	< 0.00007 ppm
Boron (B)	I	Niobium (Nb)	< 0.00008 ppm	Vanadium (V)	0.006 ppm
Cadmium (Cd)	< 0.00007 ppm	Osmium (Os)	0.003 ppm	Ytterbium (Yb)	< 0.001 ppm
Cerium (Ce)	0.001 ppm	Palladium (Pd)	0.004 ppm	Yttrium (Y)	0.001 ppm
Cesium (Cs)	0.044 ppm	Phosphorus (P)	I	Zinc (Zn)	0.157 ppm
Chromium (Cr)	0.041 ppm	Platinum (Pt)	0.000 ppm	Zirconium (Zr)	I
Cobalt (Co)	0.010 ppm	Potassium (K)	< 0.00002 ppm		
Copper (Cu)	< 0.00005 ppm	Praseodymium (Pr)	< 0.00003 ppm		
Dysprosium (Dy)	< 0.0001 ppm	Rhenium (Re)	< 0.00003 ppm		
Erbium (Er)	< 0.00007 ppm	Rhodium (Rh)	0.003 ppm		
Europium (Eu)	< 0.00008 ppm	Rubidium (Rb)	< 0.00004 ppm		
Gadolinium (Gd)	0.000 ppm	Ruthenium (Ru)	N		
Gallium (Ga)	0.003 ppm	Samarium (Sm)	< 0.002 ppm		
Germanium (Ge)	< 0.0003 ppm	Scandium (Sc)	0.003 ppm		
Gold (Au)	I	Selenium (Se)	< 0.004 ppm		
Hafnium (Hf)	< 0.001 ppm	Silicon (Si)	I		
Holmium (Ho)	< 0.0001 ppm	Silver (Ag)	0.056 ppm		
Indium (In)	< 0.00003 ppm	Sodium (Na)	0.435 ppm		
Iridium (Ir)	0.000 ppm	Strontium (Sr)	0.218 ppm		
Iron (Fe)	N	Sulfur (S)	I		
Lanthanum (La)	0.002 ppm	Tantalum (Ta)	0.481 ppm		
Lead (Pb)	< 0.00003 ppm	Tellurium (Te)	I		
Lithium (Li)	0.010 ppm	Terbium (Tb)	0.000 ppm		
Lutetium (Lu)	< 0.0003 ppm	Thallium (Tl)	< 0.00002 ppm		

Specification	Reference
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Calcium Standard, 10,000 ppm	EPA (200.8)
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Volumetric glassware complies with Class A tolerance requirements of ASTM E 288 and NIST Circular 434; it is calibrated before first use and recalibrated regularly in accordance with ASTM E 542 and NIST Procedure NBSIR 74-461. Balances are calibrated regularly with weights certified traceable to the NIST national mass standard. Thermometers and temperature probes are calibrated before first use and recalibrated regularly with a thermometer traceable to NIST standards. All products are prepared according to master documents that assure manufacture according to validated methods. Batch records document raw material traceability and production and testing history for each lot manufactured.

Part Number	Size / Package Type	Shelf Life (Unopened Container)
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MSCA10KN-100	100 mL natural LDPE	18 months
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Recommended Storage: 15°C - 30°C (59°F - 86°F)



Paul Brandon (04/25/2024)

Production Manager

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