

Certificate of Analysis

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

Lot Number: 4402M80

Product Number: PCA10KN

Manufacture Date: FEB 21, 2024

Expiration Date: AUG 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)	9950-10050 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)	0.0194 ppm	Magnesium (Mg)	0.6209 ppm	Thorium (Th)	0.0007 ppm
Antimony (Sb)	0.0240 ppm	Manganese (Mn)	< 0.00002 ppm	Thulium (Tm)	< 0.00002 ppm
Arsenic (As)	< 0.0007 ppm	Mercury (Hg)	< 0.03 ppm	Tin (Sn)	0.0041 ppm
Barium (Ba)	0.0439 ppm	Molybdenum (Mo)	0.2174 ppm	Titanium (Ti)	< 0.001 ppm
Beryllium (Be)	< 0.0001 ppm	Neodymium (Nd)	< 0.0002 ppm	Tungsten (W)	I
Bismuth (Bi)	0.0074 ppm	Nickel (Ni)	0.0482 ppm	Uranium (U)	< 0.00007 ppm
Boron (B)	I	Niobium (Nb)	< 0.00008 ppm	Vanadium (V)	0.0059 ppm
Cadmium (Cd)	< 0.00007 ppm	Osmium (Os)	0.0027 ppm	Ytterbium (Yb)	< 0.001 ppm
Cerium (Ce)	0.0005 ppm	Palladium (Pd)	0.0041 ppm	Yttrium (Y)	0.0006 ppm
Cesium (Cs)	0.0442 ppm	Phosphorus (P)	I	Zinc (Zn)	0.1571 ppm
Chromium (Cr)	0.0409 ppm	Platinum (Pt)	0.0001 ppm	Zirconium (Zr)	I
Cobalt (Co)	0.0098 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)	0.0031 ppm		
Europium (Eu)	< 0.00008 ppm	Rubidium (Rb)	< 0.00004 ppm		
Gadolinium (Gd)	0.0004 ppm	Ruthenium (Ru)	N		
Gallium (Ga)	0.0027 ppm	Samarium (Sm)	< 0.002 ppm		
Germanium (Ge)	< 0.0003 ppm	Scandium (Sc)	0.0034 ppm		
Gold (Au)	I	Selenium (Se)	< 0.004 ppm		
Hafnium (Hf)	< 0.001 ppm	Silicon (Si)	I		
Holmium (Ho)	< 0.0001 ppm	Silver (Ag)	0.0559 ppm		
Indium (In)	< 0.00003 ppm	Sodium (Na)	0.4351 ppm		
Iridium (Ir)	0.0002 ppm	Strontium (Sr)	0.2180 ppm		
Iron (Fe)	N	Sulfur (S)	I		
Lanthanum (La)	0.0023 ppm	Tantalum (Ta)	0.4814 ppm		
Lead (Pb)	< 0.00003 ppm	Tellurium (Te)	I		
Lithium (Li)	0.0099 ppm	Terbium (Tb)	0.0001 ppm		
Lutetium (Lu)	< 0.0003 ppm	Thallium (Tl)	< 0.00002 ppm		

Specification	Reference
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Calcium ICP Standard, 1 mL = 10 mg Ca (10,000 ppm Ca)	EPA (200.7)
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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)
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PCA10KN-500	500 mL natural poly	18 months
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Recommended Storage: 15°C - 30°C (59°F - 86°F)



Paul Brandon (02/21/2024)

Production Manager

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

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