

# Certificate of Analysis

**Beryllium ICP Standard, 10,000 ppm Be in 5% HNO<sub>3</sub>**

**Lot Number:** 4311E58

**Product Number:** PBE10KN

**Manufacture Date:** NOV 07, 2023

**Expiration Date:** APR 2025

This is a single element solution that was prepared volumetrically to contain the certified value reported. The uncertainty associated with the certified value is the sum of the estimated errors due to the purity of the raw material, the volumetric preparation of the solution, and transpiration of the solution through the container wall.

The final solution concentration is confirmed by AA, ICP, or ICP-MS, and is traceable to NIST Standard Reference Material 3105a. All trace level elements were determined by ICP or ICP-MS.

Name	CAS#	Grade
Water	7732-18-5	
Beryllium Basic Acetate	19049-40-2	
Nitric Acid	7697-37-2	

Test	Specification	Result	NIST SRM#
Appearance	Colorless liquid	Passed	
Beryllium (Be)	9950-10050 ppm	10000 ppm	3105

## Trace Elements by ICP or ICP - MS

I=Spectral Interference N=Not Tested

All values reported in mg/L (ppm)

Aluminum (Al)	0.1363 ppm	Lead (Pb)	< 0.00003 ppn	Strontium (Sr)	0.0005 ppm
Antimony (Sb)	0.0101 ppm	Lithium (Li)	I	Sulfur (S)	I
Arsenic (As)	0.0824 ppm	Lutetium (Lu)	< 0.0003 ppm	Tantalum (Ta)	0.1166 ppm
Barium (Ba)	< 0.0001 ppm	Magnesium (Mg)	< 0.0007 ppm	Tellurium (Te)	0.0789 ppm
Bismuth (Bi)	< 0.00002 ppn	Manganese (Mn)	0.0065 ppm	Terbium (Tb)	< 0.00003 ppn
Boron (B)	0.2853 ppm	Mercury (Hg)	< 0.03 ppm	Thallium (Tl)	I
Cadmium (Cd)	0.0205 ppm	Molybdenum (Mo)	0.0245 ppm	Thorium (Th)	0.0032 ppm
Calcium (Ca)	N	Neodymium (Nd)	< 0.0002 ppm	Thulium (Tm)	< 0.00002 ppn
Cerium (Ce)	N	Nickel (Ni)	< 0.0001 ppm	Tin (Sn)	0.0010 ppm
Cesium (Cs)	0.0030 ppm	Niobium (Nb)	0.0057 ppm	Titanium (Ti)	N
Chromium (Cr)	0.0370 ppm	Osmium (Os)	0.0111 ppm	Tungsten (W)	0.0882 ppm
Cobalt (Co)	0.0074 ppm	Palladium (Pd)	0.0389 ppm	Uranium (U)	< 0.00007 ppn
Copper (Cu)	0.1413 ppm	Phosphorus (P)	I	Vanadium (V)	0.0053 ppm
Dysprosium (Dy)	< 0.0001 ppm	Platinum (Pt)	0.0051 ppm	Ytterbium (Yb)	< 0.001 ppm
Erbium (Er)	< 0.00007 ppn	Potassium (K)	< 0.00002 ppn	Yttrium (Y)	0.0005 ppm
Europium (Eu)	0.0001 ppm	Praseodymium (Pr)	< 0.00003 ppn	Zinc (Zn)	0.1434 ppm
Gadolinium (Gd)	< 0.0002 ppm	Rhenium (Re)	< 0.00003 ppn	Zirconium (Zr)	0.0134 ppm
Gallium (Ga)	0.0006 ppm	Rhodium (Rh)	N		
Germanium (Ge)	< 0.0003 ppm	Rubidium (Rb)	0.3701 ppm		
Gold (Au)	I	Ruthenium (Ru)	0.0043 ppm		
Hafnium (Hf)	0.0020 ppm	Samarium (Sm)	< 0.002 ppm		
Holmium (Ho)	< 0.0001 ppm	Scandium (Sc)	0.0589 ppm		
Indium (In)	N	Selenium (Se)	0.1592 ppm		
Iridium (Ir)	< 0.00007 ppn	Silicon (Si)	I		
Iron (Fe)	I	Silver (Ag)	< 0.0004 ppm		
Lanthanum (La)	< 0.00004 ppn	Sodium (Na)	N		

**Specification****Reference**

Beryllium ICP Standard, 1 mL = 10 mg Be (10,000 ppm Be)

EPA (200.7)

Be<sub>4</sub>O(C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>)<sub>6</sub> in 5% HNO<sub>3</sub>

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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)**

PBE10KN-100

100 mL natural LDPE

18 months

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



Paul Brandon (11/07/2023)

Production Manager

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

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