RICCA CHEMICAL COMPANY®

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Certificate of Analysis

Chromium ICP Standard, 1000 ppm Cr in 3% HNO_3

Lot Number: 4403S03 **Product Number:** PCR1KN

Manufacture Date: MAR 27, 2024
Expiration Date: SEP 2025

This is a single element solution that was prepared volumetrically to contain the certified value reported. The uncertainty associated with the certifiec 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 3112. All trace level elements were determined by ICP or ICP-MS.

Name	CAS#	Grade
Water	7732-18-5	
Nitric Acid	7697-37-2	
Chromium Nitrate Nonahydrate	7789-02-8	

Test	Specification	Result	NIST SRM#
Appearance	Dark blue liquid	Passed	
Chromium (Cr)	995-1005 ppm	1000 ppm	3112

I=Spectral Interference N=Not Tested

Trace Elements by ICP or ICP - MS

All values reported in mg/L (ppm)

Aluminum (Al)	0.0156 ppm	Lead (Pb)	0.0123 ppm	Strontium (Sr)	0.0063 ppm
Antimony (Sb)	< 0.0001 ppm	Lithium (Li)	0.0073 ppm	Sulfur (S)	I
Arsenic (As)	0.5260 ppm	Lutetium (Lu)	< 0.0003 ppm	Tantalum (Ta)	< 0.00006 ppn
Barium (Ba)	< 0.0001 ppm	Magnesium (Mg)	0.0307 ppm	Tellurium (Te)	0.1549 ppm
Beryllium (Be)	0.0241 ppm	Manganese (Mn)	0.0187 ppm	Terbium (Tb)	N
Bismuth (Bi)	0.0005 ppm	Mercury (Hg)	< 0.03 ppm	Thallium (Tl)	0.1407 ppm
Boron (B)	0.0986 ppm	Molybdenum (Mo)	0.0369 ppm	Thorium (Th)	0.0020 ppm
Cadmium (Cd)	0.0064 ppm	Neodymium (Nd)	0.0025 ppm	Thulium (Tm)	N
Calcium (Ca)	0.3071 ppm	Nickel (Ni)	0.4501 ppm	Tin (Sn)	0.0028 ppm
Cerium (Ce)	0.0034 ppm	Niobium (Nb)	I	Titanium (Ti)	< 0.001 ppm
Cesium (Cs)	0.0038 ppm	Osmium (Os)	< 0.003 ppm	Tungsten (W)	0.0361 ppm
Cobalt (Co)	0.0028 ppm	Palladium (Pd)	0.0316 ppm	Uranium (U)	N
Copper (Cu)	0.2587 ppm	Phosphorus (P)	I	Vanadium (V)	< 0.00004 ppn
Dysprosium (Dy)	< 0.0001 ppm	Platinum (Pt)	0.0007 ppm	Ytterbium (Yb)	< 0.001 ppm
Erbium (Er)	0.0001 ppm	Potassium (K)	0.6590 ppm	Yttrium (Y)	0.0284 ppm
Europium (Eu)	0.0001 ppm	Praseodymium (Pr)	0.0005 ppm	Zinc (Zn)	0.4682 ppm
Gadolinium (Gd)	0.0001 ppm	Rhenium (Re)	0.0001 ppm	Zirconium (Zr)	0.0409 ppm
Gallium (Ga)	0.5646 ppm	Rhodium (Rh)	0.0103 ppm		
Germanium (Ge)	0.0085 ppm	Rubidium (Rb)	0.1770 ppm		
Gold (Au)	< 0.0005 ppm	Ruthenium (Ru)	N		
Hafnium (Hf)	0.0063 ppm	Samarium (Sm)	0.0059 ppm		
Holmium (Ho)	< 0.0001 ppm	Scandium (Sc)	0.0034 ppm		
Indium (In)	N	Selenium (Se)	N		
Iridium (Ir)	0.0014 ppm	Silicon (Si)	I		
Iron (Fe)	N	Silver (Ag)	0.0873 ppm		
Lanthanum (La)	0.0046 ppm	Sodium (Na)	N		

Specification	Reference
Chromium ICP, 1,000 ppm in HNO3	EPA (200.7)

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)
PCR1KN-100	100 mL natural LDPE	18 months

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

Paul Brandon (03/27/2024)
Production Manager
This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."