RICCA CHEMICAL COMPANY®

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Certificate of Analysis

Iron ICP-MS Standard, 1000 ppm Fe in 3% HNO_3

Lot Number: 4403E51 **Product Number:** MSFE1KN

Manufacture Date: MAR 06, 2024
Expiration Date: AUG 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 3126. All trace level elements were determined by ICP or ICP-MS.

Name	CAS#	Grade
Water	7732-18-5	
Nitric Acid	7697-37-2	
Iron	7439-89-6	

Test	Specification	Result	NIST SRM#
Appearance	Colorless to slightly yellow liquid	Passed	
Iron (Fe)	997-1003 ppm	1000 ppm	3126

I=Spectral Interference N=Not Tested

Trace Elements by ICP or ICP - MS

All values reported in mg/L (ppm)

Aluminum (Al)	< 0.0009 ppm	Lead (Pb)	< 0.00003 ppn	Strontium (Sr)	< 0.00006 ppn
Antimony (Sb)	0.017 ppm	Lithium (Li)	< 0.03 ppm	Sulfur (S)	I
Arsenic (As)	0.008 ppm	Lutetium (Lu)	< 0.0003 ppm	Tantalum (Ta)	< 0.00006 ppn
Barium (Ba)	< 0.0001 ppm	Magnesium (Mg)	I	Tellurium (Te)	I
Beryllium (Be)	< 0.0001 ppm	Manganese (Mn)	0.087 ppm	Terbium (Tb)	< 0.00003 ppn
Bismuth (Bi)	0.006 ppm	Mercury (Hg)	< 0.03 ppm	Thallium (Tl)	0.061 ppm
Boron (B)	0.011 ppm	Molybdenum (Mo)	0.031 ppm	Thorium (Th)	0.001 ppm
Cadmium (Cd)	< 0.00007 ppn	Neodymium (Nd)	I	Thulium (Tm)	< 0.00002 ppn
Calcium (Ca)	I	Nickel (Ni)	0.185 ppm	Tin (Sn)	0.001 ppm
Cerium (Ce)	< 0.00003 ppn	Niobium (Nb)	0.006 ppm	Titanium (Ti)	< 0.001 ppm
Cesium (Cs)	0.027 ppm	Osmium (Os)	< 0.003 ppm	Tungsten (W)	< 0.0001 ppm
Chromium (Cr)	0.136 ppm	Palladium (Pd)	0.006 ppm	Uranium (U)	< 0.00007 ppn
Cobalt (Co)	0.085 ppm	Phosphorus (P)	I	Vanadium (V)	0.001 ppm
Copper (Cu)	0.058 ppm	Platinum (Pt)	< 0.00003 ppn	Ytterbium (Yb)	< 0.001 ppm
Dysprosium (Dy)	< 0.0001 ppm	Potassium (K)	< 0.00002 ppn	Yttrium (Y)	< 0.00009 ppn
Erbium (Er)	< 0.00007 ppn	Praseodymium (Pr)	< 0.00003 ppn	Zinc (Zn)	< 0.0003 ppm
Europium (Eu)	< 0.00008 ppn	Rhenium (Re)	0.001 ppm	Zirconium (Zr)	I
Gadolinium (Gd)	< 0.0002 ppm	Rhodium (Rh)	< 0.00003 ppn		
Gallium (Ga)	0.007 ppm	Rubidium (Rb)	< 0.00004 ppn		
Germanium (Ge)	0.773 ppm	Ruthenium (Ru)	N		
Gold (Au)	0.067 ppm	Samarium (Sm)	< 0.002 ppm		
Hafnium (Hf)	< 0.001 ppm	Scandium (Sc)	0.005 ppm		
Holmium (Ho)	< 0.0001 ppm	Selenium (Se)	I		
Indium (In)	0.000 ppm	Silicon (Si)	< 0.007 ppm		
Iridium (Ir)	< 0.00007 ppn	Silver (Ag)	< 0.0004 ppm		
Lanthanum (La)	< 0.00004 ppn	Sodium (Na)	< 0.02 ppm		

Specification	Reference
Iron Standard, 1000 ppm	EPA (200.8)

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)
MSFE1KN-100	100 mL natural LDPE	18 months

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

Paul Brandon (03/06/2024)
Production Manager
This document is designed to comply with ISO Guide 31 "Reference Materials -- Contents of Certificates and Labels."