

## CERTIFICATE OF ANALYSIS

**PRODUCT NUMBER: S010301**

LOT NUMBER: 3108032

RELEASE DATE: February, 2009

EXPIRY DATE: February, 2012

H<sub>2</sub>SO<sub>4</sub> (93 - 98%): Properties

Molar Mass: 98.07g/mol

Density: 1.84 g/ml

Molarity: 18 moles/litre

Normality: 36 moles/litre

Tests	Maximum Specification	Actual Value	Units
Assay (H <sub>2</sub> SO <sub>4</sub> , w/w):	93 - 98%	98%	% by w/w
Colour:	10	< 10	APHA

Analyte	Maximum Specification	Actual Value (in ppb)	Analyte	Maximum Specification	Actual Value (in ppb)
Aluminum (Al)	1 ppb	< 0.5	Molybdenum (Mo)	0.5 ppb	< 0.1
Antimony (Sb)	1 ppb	< 0.1	Neodymium (Nd)	0.1 ppb	< 0.1
Arsenic (As)	0.5 ppb	< 0.5	Nickel (Ni)	0.5 ppb	< 0.1
Barium (Ba)	0.1 ppb	< 0.1	Niobium (Nb)	0.1 ppb	< 0.1
Beryllium (Be)	0.1 ppb	< 0.1	Palladium (Pd)	Information Only	< 0.5
Bismuth (Bi)	0.1 ppb	< 0.1	Platinum (Pt)	Information Only	< 0.5
Cadmium (Cd)	0.5 ppb	< 0.1	Potassium (K)	1 ppb	< 0.5
Calcium (Ca)	1 ppb	< 0.5	Praseodymium (Pr)	0.1 ppb	< 0.1
Cerium (Ce)	0.1 ppb	< 0.1	Rhodium (Rh)	0.5 ppb	< 0.5
Cesium (Cs)	0.1 ppb	< 0.1	Rubidium (Rb)	0.5 ppb	< 0.5
Chromium (Cr)	0.5 ppb	< 0.1	Samarium (Sm)	0.1 ppb	< 0.1
Cobalt (Co)	0.5 ppb	< 0.1	Scandium (Sc)	0.1 ppb	< 0.1
Copper (Cu)	0.5 ppb	< 0.1	Selenium (Se)	10 ppb	< 5
Dysprosium (Dy)	0.1 ppb	< 0.1	Silver (Ag)	1 ppb	< 0.1
Erbium (Er)	0.1 ppb	< 0.1	Sodium (Na)	1 ppb	< 0.5
Europium (Eu)	0.1 ppb	< 0.1	Strontium (Sr)	0.5 ppb	< 0.1
Gadolinium (Gd)	0.1 ppb	< 0.1	Tantalum (Ta)	Information Only	< 0.5
Gallium (Ga)	0.1 ppb	< 0.1	Tellurium (Te)	0.1 ppb	< 0.1
Germanium (Ge)	1 ppb	< 0.1	Terbium (Tb)	0.1 ppb	< 0.1
Gold (Au)	0.5 ppb	< 0.5	Thallium (Tl)	0.1 ppb	< 0.1
Hafnium (Hf)	0.1 ppb	< 0.1	Thorium (Th)	0.1 ppb	< 0.1
Holmium (Ho)	0.1 ppb	< 0.1	Thulium (Tm)	0.1 ppb	< 0.1
Indium (In)	0.1 ppb	< 0.1	Tin (Sn)	1 ppb	< 0.1
Iron (Fe)	1 ppb	< 0.5	Titanium (Ti)	1 ppb	< 0.5
Lanthanum (La)	0.1 ppb	< 0.1	Tungsten (W)	0.5 ppb	< 0.5
Lead (Pb)	0.1 ppb	< 0.1	Uranium (U)	0.1 ppb	< 0.1
Lithium (Li)	0.5 ppb	< 0.1	Vanadium (V)	0.5 ppb	< 0.1
Lutetium (Lu)	0.1 ppb	< 0.1	Ytterbium (Yb)	0.1 ppb	< 0.1
Magnesium (Mg)	1 ppb	< 0.5	Yttrium (Y)	0.1 ppb	< 0.1
Manganese (Mn)	0.5 ppb	< 0.1	Zinc (Zn)	1 ppb	< 0.2
Mercury (Hg)	0.1 ppb	< 0.1	Zirconium (Zr)	0.5 ppb	< 0.1

Analyte	Maximum Specification	Actual Value (in ppm)	Analyte	Maximum Specification	Actual Value (in ppm)
Chloride (Cl <sup>-</sup> )	0.7 ppm	< 0.1	Nitrate (NO <sub>3</sub> <sup>-</sup> )	0.2 ppm	< 0.2
Total Phosphorus (P)	0.05 ppm	< 0.05	Substances reducing permanganate (KMnO <sub>4</sub> )	20 ppm	< 20

Element concentrations are at the point of bottling. Concentrations of some elements in particular, Ca, Si, K, Na, B, Al, Mg & Mn will increase due to storage in glass bottles.

  
Dr. B. McKelvey  
QA/QC Manager