

CERTIFICATE OF ANALYSIS

Product: ISOPROPANOL
 Lot. No.: Example
 Man. Date: Example
 Exp. Date: Example
 Grade: ULSI

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From a representative sample the following values were determined:

07.06.2018
 QC Director Dr.-Ing. Christian Koch

Parameter	Specification	Result
Assay (GC, on anhydrous basis)	99.9-100 %	99.9 %
Specific gravity (20°C)	0.790 g/cm ³	0.790 g/cm ³
Color (APHA, Pt-Co)	0-10	5
Water (KF)	0-0.05 % w/w	0.01 % w/w
Phosphate (PO ₄)	0-0.5 ppm	< 0.5 ppm
Nitrate (NO ₃)	0-0.1 ppm	< 0.1 ppm
Chloride (Cl)	0-0.5 ppm	< 0.5 ppm
Sulfate (SO ₄)	0-0.5 ppm	< 0.5 ppm
Sulfite (SO ₃)	0-0.5 ppm	< 0.5 ppm
Residue after evaporation	0-0.0005 % w/w	< 0.0005 % w/w
Alkalinity	0-0.0001 meq/g	< 0.0001 eq/g
Acidity	0-0.0002 meq/g	0.0002 meq/g
Cations		
Aluminum (Al)	0-10 ppb	< 10 ppb
Antimony (Sb)	0-10 ppb	< 10 ppb
Arsenic (As)	0-10 ppb	< 10 ppb
Barium (Ba)	0-10 ppb	< 10 ppb
Beryllium (Be)	0-10 ppb	< 10 ppb
Bismuth (Bi)	0-10 ppb	< 10 ppb
Boron (B)	0-10 ppb	< 10 ppb
Cadmium (Cd)	0-10 ppb	< 10 ppb
Calcium (Ca)	0-10 ppb	< 10 ppb
Chromium (Cr)	0-10 ppb	< 10 ppb
Cobalt (Co)	0-10 ppb	< 10 ppb
Copper (Cu)	0-10 ppb	< 10 ppb
Gallium (Ga)	0-10 ppb	< 10 ppb
Germanium (Ge)	0-10 ppb	< 10 ppb
Gold (Au)	0-10 ppb	< 10 ppb
Iron (Fe)	0-5 ppb	< 5 ppb
Lead (Pb)	0-10 ppb	< 10 ppb
Lithium (Li)	0-10 ppb	< 10 ppb
Magnesium (Mg)	0-10 ppb	< 10 ppb
Manganese (Mn)	0-10 ppb	< 10 ppb
Molybdenum (Mo)	0-10 ppb	< 10 ppb
Nickel (Ni)	0-10 ppb	< 10 ppb
Niobium (Nb)	0-10 ppb	< 10 ppb
Potassium (K)	0-10 ppb	< 10 ppb
Silver (Ag)	0-5 ppb	< 5 ppb
Sodium (Na)	0-10 ppb	< 10 ppb
Strontium (Sr)	0-10 ppb	< 10 ppb
Tantalum (Ta)	0-10 ppb	< 10 ppb
Thallium (Tl)	0-10 ppb	< 10 ppb
Tin (Sn)	0-10 ppb	< 10 ppb
Titanium (Ti)	0-10 ppb	< 10 ppb
Vanadium (V)	0-10 ppb	< 10 ppb
Zinc (Zn)	0-10 ppb	< 10 ppb
Zirconium (Zr)	0-10 ppb	< 10 ppb
Particles		
Particle count > 0.5 um (Filtered through 0.2 um, filled under inert gas.)	0-100 p/ml	23 P/ml

The analytical results should not be construed as guaranteeing specific properties of the product or its suitability for a particular application. The above data do not release from carrying out an incoming goods inspection. This report is not to be signed.