

**Material Number:** 87003-216 0500mL FEP | 87003-218 1000mL FEP | 87003-220 2000mL FEP  
**Material Description:** Hydrochloric acid  
**Grade:** BDH Aristar® Ultra  
**Lot Number:** 4221050  
**Use By:** 2024-May-27  
**Date of Certification:** 2021-May-27  
**CAS Number:** 7647-01-0  
**Molecular Weight:** 36.46  
**Molecular Formula:** HCl

Characteristics	Specifications	Measured Values
Assay (HCl)	32 - 35% w/w	33% w/w
Aluminum (Al)	max. 20 ppt	< 2 ppt
Antimony (Sb)	max. 20 ppt	< 0.05 ppt
Arsenic (As)	max. 50 ppt	< 0.1 ppt
Barium (Ba)	max. 10 ppt	< 0.05 ppt
Beryllium (Be)	max. 10 ppt	< 0.05 ppt
Bismuth (Bi)	max. 10 ppt	< 0.02 ppt
Boron (B)	max. 100 ppt	< 10 ppt
Cadmium (Cd)	max. 10 ppt	< 0.01 ppt
Calcium (Ca)	max. 10 ppt	< 10 ppt
Cerium (Ce)	max. 10 ppt	< 0.01 ppt
Cesium (Cs)	max. 10 ppt	< 0.01 ppt
Chromium (Cr)	max. 10 ppt	< 0.2 ppt
Cobalt (Co)	max. 10 ppt	< 0.1 ppt
Copper (Cu)	max. 10 ppt	< 5 ppt
Dysprosium (Dy)	max. 1 ppt	< 0.01 ppt
Erbium (Er)	max. 1 ppt	< 0.01 ppt
Europium (Eu)	max. 1 ppt	< 0.01 ppt
Gadolinium (Gd)	max. 1 ppt	< 0.01 ppt
Gallium (Ga)	max. 10 ppt	< 1 ppt
Gold (Au)	max. 50 ppt	< 5 ppt
Hafnium (Hf)	max. 10 ppt	< 0.01 ppt
Holmium (Ho)	max. 1 ppt	< 0.01 ppt
Indium (In)	max. 1 ppt	< 0.01 ppt
Iron (Fe)	max. 10 ppt	< 2 ppt
Lanthanum (La)	max. 1 ppt	< 0.01 ppt
Lead (Pb)	max. 10 ppt	< 0.05 ppt
Lithium (Li)	max. 10 ppt	< 0.05 ppt
Lutetium (Lu)	max. 10 ppt	< 0.01 ppt
Magnesium (Mg)	max. 10 ppt	< 0.5 ppt
Manganese (Mn)	max. 10 ppt	< 0.05 ppt
Mercury (Hg)	max. 50 ppt	< 20 ppt
Molybdenum (Mo)	max. 10 ppt	< 0.1 ppt
Neodymium (Nd)	max. 1 ppt	< 0.01 ppt
Nickel (Ni)	max. 20 ppt	< 5 ppt

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Niobium (Nb)	max. 1 ppt	< 0.05 ppt
Palladium (Pd)	Information Only	< 0.1 ppt
Platinum (Pt)	Information Only	< 1 ppt
Potassium (K)	max. 10 ppt	< 1 ppt
Praseodymium (Pr)	max. 1 ppt	< 0.01 ppt
Rhenium (Re)	max. 10 ppt	< 0.01 ppt
Rhodium (Rh)	max. 10 ppt	< 0.01 ppt
Rubidium (Rb)	max. 10 ppt	< 0.01 ppt
Ruthenium (Ru)	max. 10 ppt	< 0.01 ppt
Samarium (Sm)	max. 1 ppt	< 0.01 ppt
Scandium (Sc)	max. 10 ppt	< 0.01 ppt
Selenium (Se)	Information Only	< 20 ppt
Silver (Ag)	max. 10 ppt	< 0.05 ppt
Sodium (Na)	max. 10 ppt	< 0.5 ppt
Strontium (Sr)	max. 10 ppt	< 0.02 ppt
Tantalum (Ta)	Information Only	< 0.01 ppt
Tellurium (Te)	max. 1 ppt	< 0.1 ppt
Terbium (Tb)	max. 1 ppt	< 0.01 ppt
Thallium (Tl)	max. 10 ppt	< 0.01 ppt
Thorium (Th)	max. 1 ppt	< 0.01 ppt
Thulium (Tm)	max. 1 ppt	< 0.01 ppt
Tin (Sn)	max. 20 ppt	< 0.2 ppt
Titanium (Ti)	max. 10 ppt	< 0.2 ppt
Tungsten (W)	max. 10 ppt	< 0.5 ppt
Uranium (U)	max. 1 ppt	< 0.01 ppt
Vanadium (V)	max. 10 ppt	< 0.1 ppt
Ytterbium (Yb)	max. 1 ppt	< 0.01 ppt
Yttrium (Y)	max. 1 ppt	< 0.01 ppt
Zinc (Zn)	max. 10 ppt	< 0.2 ppt
Zirconium (Zr)	max. 10 ppt	< 0.01 ppt

Signed on behalf of VWR:  
*Greg Henson*  
 Quality Assurance Manager