

## Detrex ULTRAMAX® 1 - 20° Baume Hydrochloric Acid

Semiconductor Grade 2 – SEMI C7.2-94

CAS No. 7647-01-0

<u>Parameter</u>	<u>SEMI Specification*</u>	<u>Detrex Specification</u>	<u>Detrex Typical</u>
Assay	N/A	30.45 – 32.45%	31.45%
Color (APHA)	10 max	< 5 APHA	< 5 APHA
Extractable Organic Substances	500 ppb max	500 ppb max	B.D.L
Free Halogen (as Cl <sub>2</sub> )	500 ppb max	500 ppb max	B.D.L.
Phosphate (PO <sub>4</sub> )	50 ppb max	20 ppb max	B.D.L.
Sulfate (SO <sub>4</sub> )	100 ppb max	100 ppb max	B.D.L.
Sulfite (SO <sub>3</sub> )	100 ppb max	100 ppb max	B.D.L.
Aluminum (Al)	1 ppb max	1 ppb max	< .1 ppb
Antimony (Sb)	1 ppb max	1 ppb max	< .1 ppb
Arsenic (As)	1 ppb max	1 ppb max	< .1 ppb
Barium (Ba)	1 ppb max	1 ppb max	< .1 ppb
Boron (B)	1 ppb max	1 ppb max	.15 ppb
Cadmium (Cd)	1 ppb max	1 ppb max	< .1 ppb
Calcium (Ca)	1 ppb max	1 ppb max	.5 ppb
Chromium (Cr)	1 ppb max	1 ppb max	< .1 ppb
Copper (Cu)	1 ppb max	1 ppb max	< .1 ppb
Iron (Fe)	1 ppb max	1 ppb max	.5 ppb
Lead (Pb)	1 ppb max	1 ppb max	< .1 ppb
Lithium (Li)	1 ppb max	1 ppb max	< .1 ppb
Magnesium (Mg)	1 ppb max	1 ppb max	.15 ppb
Manganese (Mn)	1 ppb max	1 ppb max	< .1 ppb
Nickel (Ni)	1 ppb max	1 ppb max	< .1 ppb
Potassium (K)	1 ppb max	1 ppb max	.15 ppb
Sodium (Na)	1 ppb max	1 ppb max	.2 ppb
Tin (Sn)	1 ppb max	1 ppb max	< .1 ppb
Titanium (Ti)	1 ppb max	1 ppb max	< .1 ppb
Vanadium (V)	1 ppb max	1 ppb max	< .1 ppb
Zinc (Zn)	1 ppb max	1 ppb max	< .1 ppb

\*SEMI C27-0708 Standards 1978, 2008

Beryllium (Be)	1 ppb max	< .1 ppb
Bismuth (Bi)	1 ppb max	< .1 ppb
Cobalt (Co)	1 ppb max	< .1 ppb
Gallium (Ga)	1 ppb max	< .1 ppb
Germanium (Ge)	1 ppb max	< .1 ppb
Gold (Au)	1 ppb max	< .1 ppb
Niobium (Nb)	1 ppb max	< .1 ppb
Silver (Ag)	1 ppb max	< .1 ppb
Strontium (Sr)	1 ppb max	< .1 ppb
Tantalum (Ta)	1 ppb max	< .1 ppb
Thallium (Tl)	1 ppb max	< .1 ppb
Zirconium (Zr)	1 ppb max	< .1 ppb

< 1 particle per mL @ 1 micron

< 1 particle per mL @ .5 micron

< 5 particles per mL @ .3 micron

< 70 particles per mL @ .2 micron