

Ethylene Glycol  
CMOS



Material No.: 9346-05  
Batch No.: 0000014416  
Manufactured Date: 2012/08/22  
Retest Date: 2017/08/21

## Certificate of Analysis

Test	Specification	Result
Assay (HOCH <sub>2</sub> CH <sub>2</sub> OH) (by GC)	>= 99.0 %	100.0
Color (APHA)	<= 10	5
Acidity (µeq/g)	<= 0.8	0.4
Acidity (as CH <sub>3</sub> COOH)(by wt)	<= 0.01 %	< 0.01
Residue after Ignition	<= 0.005 %	< 0.001
Water (H <sub>2</sub> O)(by Karl Fischer titrn)	<= 0.2 %	< 0.1
Chloride (Cl)	<= 1 ppm	< 1
Phosphate (PO <sub>4</sub> )	<= 2 ppm	< 2
Sulfate (SO <sub>4</sub> )	<= 2 ppm	< 2
Arsenic and Antimony (as As)	<= 0.100 ppm	< 0.100
Trace Impurities – Iron (Fe)	<= 0.2 ppm	0.0
Trace Impurities – Aluminum (Al)	<= 100.0 ppb	< 5.0
Trace Impurities – Barium (Ba)	<= 100.0 ppb	< 1.0
Trace Impurities – Boron (B)	<= 50.0 ppb	< 5.0
Trace Impurities – Calcium (Ca)	<= 300.0 ppb	19.1
Trace Impurities – Chromium (Cr)	<= 50.0 ppb	< 1.0
Trace Impurities – Copper (Cu)	<= 10.0 ppb	< 1.0
Trace Impurities – Gold (Au)	<= 50.0 ppb	< 5.0
Trace Impurities – Lead (Pb)	<= 200.0 ppb	5.1
Trace Impurities – Lithium (Li)	<= 100.0 ppb	< 1.0
Trace Impurities – Magnesium (Mg)	<= 100.0 ppb	3.7
Trace Impurities – Manganese (Mn)	<= 100.0 ppb	< 1.0
Trace Impurities – Nickel (Ni)	<= 100.0 ppb	< 5.0
Trace Impurities – Potassium (K)	<= 300.0 ppb	< 10.0

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Trace Impurities - Sodium (Na)	<= 300.0 ppb	11.0
Trace Impurities - Tin (Sn)	<= 100.0 ppb	< 10.0
Trace Impurities - Titanium (Ti)	<= 100.0 ppb	< 1.0
Trace Impurities - Zinc (Zn)	<= 400.0 ppb	18.9
Particle Count - 0.5 µm and greater	<= 200 par/ml	20
Particle Count - 1.0 µm and greater	<= 10 par/ml	5

For Microelectronic Use

Country of Origin: US  
Packaging Site: Paris Mfg Ctr & DC

ISO

Phillipsburg, NJ 9001.2008, 14001.2004  
Paris, KY 9001.2008  
Mexico city, Mexico 9001.2008  
Deventer, The Netherlands 9001.2008, 14001.2004  
Selangor, Malaysia 9001.2008  
Panoli, India 9001.2008  
Gliwice, Poland 9001.2008, 17025.2005



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Global Director of Quality Assurance

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