Ethylene Glycol CMOS





Material No.: 9346-05 Batch No.: 0000211332 Manufactured Date: 2018/09/28 Retest Date: 2023/09/27 Revision No: 1

## Certificate of Analysis

Test	Specification	Result
Assay (HOCH2CH2OH) (by GC)	>= 99.0 %	99.7
Color (APHA)	<= 10	< 5
Acidity (µeq/g)	<= 0.8	0.2
Acidity (as CH3COOH)(by wt)	<= 0.01 %	< 0.01
Residue after Ignition	<= 0.005 %	< 0.001
Nater (H2O)(by Karl Fischer titrn)	<= 0.2 %	< 0.1
Chloride (Cl)	<= 1 ppm	< 1
Phosphate (PO4)	<= 2 ppm	< 2
Sulfate (SO4)	<= 2 ppm	< 2
Arsenic and Antimony (as As)	<= 0.100 ppm	< 0.100
Frace Impurities – Iron (Fe)	<= 0.2 ppm	< 0.1
Frace Impurities – Aluminum (Al)	<= 100.0 ppb	< 5.0
Frace Impurities – Barium (Ba)	<= 100.0 ppb	< 1.0
Frace Impurities – Boron (B)	<= 50.0 ppb	< 5.0
Frace Impurities – Calcium (Ca)	<= 300.0 ppb	< 1.0
Frace Impurities – Chromium (Cr)	<= 50.0 ppb	< 1.0
Frace Impurities – Copper (Cu)	<= 10.0 ppb	< 1.0
Frace Impurities – Gold (Au)	<= 50.0 ppb	< 5.0
Frace Impurities – Lead (Pb)	<= 200.0 ppb	< 10.0
Frace Impurities – Lithium (Li)	<= 100.0 ppb	< 1.0
Frace Impurities – Magnesium (Mg)	<= 100.0 ppb	< 1.0
Frace Impurities – Manganese (Mn)	<= 100.0 ppb	< 1.0
Frace Impurities – Nickel (Ni)	<= 100.0 ppb	< 5.0
Frace Impurities – Potassium (K)	<= 300.0 ppb	< 10.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700 Avantor Performance Materials, LLC 100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

## Material No.: 9346-05 Batch No.: 0000211332

Test	Specification	Result
Trace Impurities - Sodium (Na)	<= 300.0 ppb	< 5.0
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	8.8
Particle Count - 0.5 µm and greater	<= 200 par/ml	3
Particle Count - 1.0 µm and greater	<= 10 par/ml	1

For Microelectronic Use

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



Phillipsburg, NJ 9001:2015, FSSC22000 Paris, KY 9001:2008 Mexico City, Mexico 9001:2008 Gliwice, Poland 9001:2015, 13485:2012 Selangor, Malaysia 9001:2008 Dehradun, India, 9001:2008, 14001:2004, 13485:2003 Mumbai, India, 9001:2015, 17025:2005 Panoli, India 9001:2015

James Techie

Jamie Ethier Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700 Avantor Performance Materials, LLC 100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700