

Sulfuric Acid 96%  
VLSI



Material No.: 5374-03  
Batch No.: 0000164226  
Manufactured Date: 2017/01/04  
Retest Date: 2022/01/03

## Certificate of Analysis

Test	Specification	Result
Assay (H <sub>2</sub> SO <sub>4</sub> )	95.0 - 97.0 %	95.8
Color (APHA)	<= 10	5
Chloride (Cl)	<= 0.1 ppm	< 0.1
Nitrate (NO <sub>3</sub> )	<= 0.2 ppm	< 0.1
Phosphate (PO <sub>4</sub> )	<= 0.3 ppm	< 0.1
Trace Impurities - Aluminum (Al)	<= 50.0 ppb	< 5.0
Arsenic and Antimony (as As)	<= 5 ppb	< 2
Trace Impurities - Barium (Ba)	<= 50.0 ppb	< 1.0
Trace Impurities - Beryllium (Be)	<= 10.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 20.0 ppb	< 10.0
Trace Impurities - Boron (B)	<= 10.0 ppb	0.9
Trace Impurities - Cadmium (Cd)	<= 50.0 ppb	< 1.0
Trace Impurities - Calcium (Ca)	<= 100.0 ppb	1.3
Trace Impurities - Chromium (Cr)	<= 50.0 ppb	< 1.0
Trace Impurities - Cobalt (Co)	<= 50.0 ppb	< 1.0
Trace Impurities - Copper (Cu)	<= 10.0 ppb	< 1.0
Trace Impurities - Gallium (Ga)	<= 20.0 ppb	< 1.0
Trace Impurities - Germanium (Ge)	<= 100.0 ppb	< 10.0
Trace Impurities - Gold (Au)	<= 40.0 ppb	< 5.0
Trace Impurities - Iron (Fe)	<= 200.0 ppb	3.8
Trace Impurities - Lead (Pb)	<= 20.0 ppb	< 1.0
Trace Impurities - Lithium (Li)	<= 50.0 ppb	< 1.0
Trace Impurities - Magnesium (Mg)	<= 50.0 ppb	< 1.0
Trace Impurities - Manganese (Mn)	<= 10.0 ppb	< 1.0

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.573.2600  
Avantor Performance Materials, LLC.

3477 Corporate Parkway. Center Valley, PA 18034. U.S.A. Phone: 610.573.2600 . Fax: 610.573.2610

Test	Specification	Result
Trace Impurities – Molybdenum (Mo)	<= 10.0 ppb	< 3.0
Trace Impurities – Nickel (Ni)	<= 50.0 ppb	< 5.0
Trace Impurities – Niobium (Nb)	<= 10.0 ppb	0.4
Trace Impurities – Potassium (K)	<= 100.0 ppb	< 10.0
Trace Impurities – Silicon (Si)	<= 100.0 ppb	3.6
Trace Impurities – Silver (Ag)	<= 50.0 ppb	< 1.0
Trace Impurities – Sodium (Na)	<= 100.0 ppb	5.7
Trace Impurities – Strontium (Sr)	<= 10.0 ppb	< 1.0
Trace Impurities – Tantalum (Ta)	<= 10.0 ppb	< 0.9
Trace Impurities – Thallium (Tl)	<= 20.0 ppb	< 2.0
Trace Impurities – Tin (Sn)	<= 50.0 ppb	< 10.0
Trace Impurities – Titanium (Ti)	<= 10.0 ppb	0.6
Trace Impurities – Vanadium (V)	<= 10.0 ppb	< 0.2
Trace Impurities – Zinc (Zn)	<= 50.0 ppb	< 1.0
Trace Impurities – Zirconium (Zr)	<= 10.0 ppb	0.4
Particle Count – 0.5 µm and greater	<= 80 par/ml	15
Particle Count – 1.0 µm and greater	<= 10 par/ml	3

For Microelectronic Use

Reported value is the average of all samples counted for this lot number, with no individual sample value exceeding the specification.

Storage Conditions: Recommended Storage Conditions: 15° – 100°F  
 Country of Origin: US  
 Packaging Site: Phillipsburg Mfg Ctr & DC

Phillipsburg, NJ 9001:2008, 14001:2004, FSSC 22000  
 Paris, KY 9001:2008  
 Mexico City, Mexico 9001:2008  
 Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003  
 Gliwice, Poland 9001:2008, 13485:2012  
 Selangor, Malaysia 9001:2008  
 Dehradun, India, 9001:2008, 14001:2004, 13485:2003  
 Mumbai, India, 9001:2008  
 Panoli, India 9001:2008

Jamie Ethier  
 Vice President Global Quality

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