

Ammonium Hydroxide 29%
CMOS



Material No.: 9731-03
Batch No.: 22A2562011
Manufactured Date: 2022-01-12
Retest Date: 2027-01-11
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Appearance	Passes Test	Passes Test
Assay (as NH ₃)	28.0 - 30.0 %	28.8 %
Color (APHA)	≤ 7	5
Insoluble Matter	≤ 1 ppm	< 1 ppm
Residue after Ignition	≤ 3 ppm	< 3 ppm
Carbon Dioxide (CO ₂)	≤ 10 ppm	< 10 ppm
Pyridine	Passes Test	Passes Test
Substances Reducing Permanganate	Passes Test	Passes Test
Chloride (Cl)	≤ 0.3 ppm	< 0.2 ppm
Phosphate (PO ₄)	≤ 0.20 ppm	< 0.05 ppm
Total Sulfur (as SO ₄)	≤ 0.8 ppm	< 0.2 ppm
Trace Impurities - Aluminum (Al)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Arsenic (As)	≤ 50.0 ppb	< 2.0 ppb
Arsenic and Antimony (as As)	≤ 30.0 ppb	< 5.0 ppb
Trace Impurities - Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 5.0 ppb	2.0 ppb
Trace Impurities - Calcium (Ca)	≤ 100.0 ppb	8.0 ppb
Trace Impurities - Chromium (Cr)	≤ 5.0 ppb	< 1.0 ppb
Trace Impurities - Cobalt (Co)	≤ 1.0 ppb	< 1.0 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Germanium (Ge)	≤ 50.0 ppb	< 10.0 ppb
Trace Impurities - Gold (Au)	≤ 10.0 ppb	< 5.0 ppb
Heavy Metals (as Pb)	≤ 200.0 ppb	< 100.0 ppb
Trace Impurities - Iron (Fe)	≤ 10.0 ppb	1.0 ppb

>>> Continued on page 2 >>>

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

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Trace Impurities - Lead (Pb)	≤ 10.0 ppb	< 10.0 ppb
Trace Impurities - Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities - Manganese (Mn)	≤ 5.0 ppb	< 1.0 ppb
Trace Impurities - Molybdenum (Mo)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Nickel (Ni)	≤ 5.0 ppb	< 5.0 ppb
Trace Impurities - Niobium (Nb)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Potassium (K)	≤ 100 ppb	< 10 ppb
Trace Impurities - Silicon (Si)	≤ 150.0 ppb	< 10.0 ppb
Trace Impurities - Silver (Ag)	≤ 5.0 ppb	< 1.0 ppb
Trace Impurities - Sodium (Na)	≤ 100.0 ppb	9.0 ppb
Trace Impurities - Strontium (Sr)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Tantalum (Ta)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Thallium (Tl)	≤ 20.0 ppb	< 5.0 ppb
Trace Impurities - Tin (Sn)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities - Titanium (Ti)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Vanadium (V)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Zinc (Zn)	≤ 5.0 ppb	2.0 ppb
Trace Impurities - Zirconium (Zr)	≤ 10.0 ppb	< 1.0 ppb
Particle Count - 0.5 µm and greater	≤ 80 par/ml	14 par/ml
Particle Count - 1.0 µm and greater	≤ 10 par/ml	5 par/ml

>>> Continued on page 3 >>>

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For Microelectronic Use
Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC

James Ethier
Jamie Ethier
Vice President Global Quality

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