Methanol
VLSI

Material No.: 5370-05
Batch No.: 22F2661004
Manufactured Date: 2022-06-20
Retest Date: 2027-06-19
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (CH_3OH) (by GC)	≥ 99.9 %	99.9 %
Color (APHA)	≤ 10	< 5
Acidity (µeq/g)	≤ 0.3	0.2
Alkalinity (µeq/g)	≤ 0.1	< 0.1
Residue after Evaporation	≤ 5 ppm	< 1 ppm
Water (H_2O)(by Karl Fischer titrn)	≤ 0.05 %	0.01 %
Solubility in H_2O	Passes Test	Passes Test
Arsenic and Antimony (as As)	≤ 10.0 ppb	< 1.0 ppb
Chloride (Cl)	≤ 0.2 ppm	< 0.2 ppm
Heavy Metals (as Pb)	≤ 100.0 ppb	< 100.0 ppb
Phosphate (PO_4)	≤ 0.3 ppm	< 0.3 ppm
Trace Impurities - Aluminum (Al)	≤ 50.0 ppb	< 5.0 ppb
Trace Impurities - Barium (Ba)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities - Cadmium (Cd)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Calcium (Ca)	≤ 50.0 ppb	1.1 ppb
Trace Impurities - Chromium (Cr)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Cobalt (Co)	≤ 20 ppb	< 1 ppb
Trace Impurities - Copper (Cu)	≤ 10.0 ppb	1.0 ppb
Trace Impurities - Gallium (Ga)	≤ 50 ppb	< 1 ppb
Trace Impurities - Germanium (Ge)	≤ 50.0 ppb	< 10.0 ppb
Trace Impurities - Gold (Au)	≤ 20 ppb	< 5 ppb
Trace Impurities - Iron (Fe)	≤ 50.0 ppb	4.9 ppb
Trace Impurities - Lead (Pb)	≤ 50 ppb	< 10 ppb
Trace Impurities - Lithium (Li)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities - Magnesium (Mg)	≤ 50.0 ppb	< 1.0 ppb
Trace Impurities - Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Nickel (Ni)	≤ 10.0 ppb	< 5.0 ppb

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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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Test	Specification	Result
Trace Impurities - Potassium (K)	≤ 50 ppb	< 10 ppb
Trace Impurities - Silicon (Si)	≤ 50 ppb	< 10 ppb
Trace Impurities - Silver (Ag)	≤ 20.0 ppb	< 1.0 ppb
Trace Impurities - Sodium (Na)	≤ 50.0 ppb	< 5.0 ppb
Trace Impurities - Strontium (Sr)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities - Tin (Sn)	≤ 50 ppb	< 10 ppb
Trace Impurities - Titanium (Ti)	≤ 20 ppb	< 1 ppb
Trace Impurities - Zinc (Zn)	≤ 50 ppb	< 1 ppb
Particle Count - 0.5 µm and greater	≤ 50 par/ml	14 par/ml
Particle Count - 1.0 µm and greater	≤ 8 par/ml	5 par/ml

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

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

Jamie Ethier
Vice President Global Quality

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