



Material No.: 9503-05  
Batch No.: 0000194690  
Manufactured Date: 2018/01/25  
Expiration Date: 2019/07/26  
Revision No: 1

## Certificate of Analysis

Test	Specification	Result
Assay (CH <sub>3</sub> COOH) (by freezing point)	>= 99.7 %	99.7
Color (APHA)	<= 10	5
Acetic Anhydride ((CH <sub>3</sub> CO) <sub>2</sub> O)	<= 0.01 %	< 0.01
Acetaldehyde	<= 0.05 %	< 0.01
Residue after Evaporation	<= 4 ppm	1
Solubility in H <sub>2</sub> O	Passes Test	PT
Specific Gravity at 20°/20°C	>= 1.048	1.051
Substances Reducing Dichromate	Passes Test	PT
Substances Reducing Permanganate	Passes Test	PT
Chloride (Cl)	<= 0.5 ppm	< 0.5
Phosphate (PO <sub>4</sub> )	<= 0.5 ppm	< 0.3
Sulfate (SO <sub>4</sub> )	<= 0.5 ppm	< 0.3
Trace Impurities – Aluminum (Al)	<= 50.0 ppb	0.8
Arsenic and Antimony (as As)	<= 5 ppb	< 5
Trace Impurities – Barium (Ba)	<= 10.0 ppb	< 1.0
Trace Impurities – Beryllium (Be)	<= 10.0 ppb	< 0.2
Trace Impurities – Bismuth (Bi)	<= 50.0 ppb	26.0
Trace Impurities – Boron (B)	<= 10.0 ppb	< 0.7
Trace Impurities – Cadmium (Cd)	<= 10.0 ppb	< 1.0
Trace Impurities – Calcium (Ca)	<= 200.0 ppb	17.0
Trace Impurities – Chromium (Cr)	<= 30.0 ppb	3.0
Trace Impurities – Cobalt (Co)	<= 10.0 ppb	< 0.3
Trace Impurities – Copper (Cu)	<= 20.0 ppb	< 1.0
Trace Impurities – Gallium (Ga)	<= 10.0 ppb	< 1.0

Test	Specification	Result
Trace Impurities – Germanium (Ge)	<= 10.0 ppb	< 10.0
Trace Impurities – Gold (Au)	<= 10.0 ppb	< 5.0
Heavy Metals (as Pb)	<= 300 ppb	< 300
Trace Impurities – Iron (Fe)	<= 100.0 ppb	11.0
Trace Impurities – Lead (Pb)	<= 100.0 ppb	17.0
Trace Impurities – Lithium (Li)	<= 10.0 ppb	< 0.2
Trace Impurities – Magnesium (Mg)	<= 50.0 ppb	2.0
Trace Impurities – Manganese (Mn)	<= 10.0 ppb	< 1.0
Trace Impurities – Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities – Nickel (Ni)	<= 25.0 ppb	< 5.0
Trace Impurities – Niobium (Nb)	<= 10.0 ppb	< 1.0
Trace Impurities – Potassium (K)	<= 100.0 ppb	< 10.0
Trace Impurities – Silicon (Si)	<= 50.0 ppb	5.0
Trace Impurities – Silver (Ag)	<= 10.0 ppb	< 1.0
Trace Impurities – Sodium (Na)	<= 100.0 ppb	7.0
Trace Impurities – Strontium (Sr)	<= 10.0 ppb	< 1.0
Trace Impurities – Tantalum (Ta)	<= 10.0 ppb	< 5.0
Trace Impurities – Thallium (Tl)	<= 50.0 ppb	< 5.0
Trace Impurities – Tin (Sn)	<= 50.0 ppb	< 1
Trace Impurities – Titanium (Ti)	<= 100.0 ppb	< 1.0
Trace Impurities – Vanadium (V)	<= 10.0 ppb	< 1.0
Trace Impurities – Zinc (Zn)	<= 50.0 ppb	7.0
Trace Impurities – Zirconium (Zr)	<= 10.0 ppb	< 1.0
Particle Count – 1.0 µm and greater	<= 10 par/ml	6

For Microelectronic Use

For additional information, go to [www.askavantor.com](http://www.askavantor.com). Search keywords "freezing" and product name.

Storage Conditions: IMPORTANT: Material will freeze if stored below 17 °C (63°F).

Country of Origin: US

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