



Material No.: 5356-05 Batch No.: 24J2361026 Manufactured Date: 2024-10-17 Retest Date:2029-10-16 Revision No.: 0

Certificate of Analysis

Assay (ICH3)2C0) (by CC, corrected forwater) $>= 99.5 \%$ 99.9% Color (APHA) $<= 10$ 5Residue after Evaporation $<= 5 ppm$ $<1 ppm$ Acidity (µeq/g) $<= 0.3$ 0.1 Akialinity (µeq/g) $<= 0.5 \%$ 0.1 Water (H:O) $<= 0.5 \%$ $<0.1 \%$ Solubility in H:OPasses TestPasses TestChloride (Cl) $<= 0.2 ppm$ $<0.2 ppm$ Phosphate (PO-4) $<= 0.05 ppm$ $<0.05 ppm$ Trace Impurities - Aluminum (Al) $<= 50.0 ppb$ $<5.0 ppb$ Arsenic & Antimony (as As) $<= 20.0 opb$ $<1.0 ppb$ Trace Impurities - Barium (Ba) $<= 20.0 opb$ $<1.0 ppb$ Trace Impurities - Calcium (Ca) $<= 25.0 ppb$ $<1.0 ppb$ Trace Impurities - Corper (Cu) $<= 10.0 ppb$ $<1.0 ppb$ Trace Impurities - Corper (Cu) $<= 20.0 ppb$ $<1.0 ppb$ Trace Impurities - Corper (Cu) $<= 20.0 ppb$ $<1.0 ppb$ Trace Impurities - Corper (Cu) $<= 20.0 ppb$ $<1.0 ppb$ Trace Impurities - Lindi m(Li) $<= 20.0 ppb$ $<1.0 ppb$ Trace Impurities - Lead (Pb) $<= 20.0 ppb$ $<1.0 ppb$ Trace Impurities - Lindi m(Li) $<= 50.0 ppb$ $<1.0 ppb$ Trace Impurities - Lindi m(Li) $<= 20.0 ppb$ $<1.0 ppb$ Trace Impurities - Lindi m(Li) $<= 20.0 ppb$ $<1.0 ppb$ Trace Impurities - Lindi m(Li) $<= 50.0 ppb$ $<1.0 ppb$ Trace Impurities - Lindi m(Li) $<= 50.0 ppb$ $<1.0 ppb$ Trace Impurities - Nickel (Ni) $<= $	Test	Specification	Result
Residue after Evaporation<= 5 ppm<1 ppmAcidity (µeq/g)<= 0.3	Assay ((CH ₃) ₂ CO) (by GC, corrected forwater)	>= 99.5 %	99.9 %
Acidity (µeq/g)<= 0.30.1Alkalinity (µeq/g)<= 0.5	Color (APHA)	<= 10	5
Alkalinity (µeq/g) <= 0.5	Residue after Evaporation	<= 5 ppm	<1 ppm
Water (H2O) <= 0.5 % <0.1 % Solubility in H2O Passes Test Passes Test Chloride (Cl) <= 0.2 ppm	Acidity (µeq/g)	<= 0.3	0.1
Solubility in H2OPasses TestPasses TestChloride (Cl)<= 0.2 ppm	Alkalinity (µeq/g)	<= 0.5	0.1
Chloride (Cl) <= 0.2 ppm <0.2 ppm Phosphate (PO4) <= 0.05 ppm	Water (H ₂ O)	<= 0.5 %	<0.1 %
Phosphate (PO4)<= 0.05 pm<0.05 pmTrace Impurities - Aluminum (Al)<= 50.0 ppb	Solubility in H ₂ O	Passes Test	Passes Test
Trace Impurities - Aluminum (Al)<= 500 ppb<5.0 ppbArsenic & Antimony (as As)<= 5.0 ppb	Chloride (Cl)	<= 0.2 ppm	<0.2 ppm
Arsenic & Antimony (as As)<= 5.0 ppb<5.0 ppbTrace Impurities - Barium (Ba)<= 20.0 ppb	Phosphate (PO4)	<= 0.05 ppm	<0.05 ppm
Trace Impurities - Barium (Ba)<= 20.0 ppb<1.0 ppbTrace Impurities - Boron (B)<= 20.0 ppb	Trace Impurities – Aluminum (Al)	<= 50.0 ppb	<5.0 ppb
Trace Impurities - Boron (B)<= 20.0 ppb<5.0 ppbTrace Impurities - Calcium (Ca)<= 25.0 ppb	Arsenic & Antimony (as As)	<= 5.0 ppb	<5.0 ppb
Trace Impurities - Calcium (Ca)<= 25.0 ppb6.9 ppbTrace Impurities - Chromium (Cr)<= 20.0 ppb	Trace Impurities – Barium (Ba)	<= 20.0 ppb	<1.0 ppb
Trace Impurities - Chromium (Cr)<= 20.0 ppb<1.0 ppbTrace Impurities - Copper (Cu)<= 10.0 ppb	Trace Impurities – Boron (B)	<= 20.0 ppb	<5.0 ppb
Trace Impurities - Copper (Cu)<= 10.0 ppb<1.0 ppbTrace Impurities - Gold (Au)<= 20 ppb	Trace Impurities – Calcium (Ca)	<= 25.0 ppb	6.9 ppb
Trace Impurities - Gold (Au)<= 20 ppb<5 ppbTrace Impurities - Iron (Fe)<= 20.0 ppb	Trace Impurities – Chromium (Cr)	<= 20.0 ppb	<1.0 ppb
Trace Impurities - Iron (Fe)<= 20.0 ppb<1.0 ppbTrace Impurities - Lead (Pb)<= 20.0 ppb	Trace Impurities – Copper (Cu)	<= 10.0 ppb	<1.0 ppb
Trace Impurities - Lead (Pb)<= 20.0 ppb<10.0 ppbTrace Impurities - Lithium (Li)<= 50.0 ppb	Trace Impurities – Gold (Au)	<= 20 ppb	<5 ppb
Trace Impurities - Lithium (Li)<= 50.0 ppb<1.0 ppbTrace Impurities - Magnesium (Mg)<= 20 ppb	Trace Impurities – Iron (Fe)	<= 20.0 ppb	<1.0 ppb
Trace Impurities - Magnesium (Mg)<= 20 ppb<1 ppbTrace Impurities - Manganese (Mn)<= 10.0 ppb	Trace Impurities - Lead (Pb)	<= 20.0 ppb	<10.0 ppb
Trace Impurities - Manganese (Mn)<= 10.0 ppb<1.0 ppbTrace Impurities - Nickel (Ni)<= 10.0 ppb	Trace Impurities – Lithium (Li)	<= 50.0 ppb	<1.0 ppb
Trace Impurities - Nickel (Ni)<= 10.0 ppb<5.0 ppbTrace Impurities - Potassium (K)<= 50 ppb	Trace Impurities – Magnesium (Mg)	<= 20 ppb	<1 ppb
Trace Impurities - Potassium (K)<= 50 ppb<10 ppbTrace Impurities - Sodium (Na)<= 50.0 ppb	Trace Impurities – Manganese (Mn)	<= 10.0 ppb	<1.0 ppb
Trace Impurities - Sodium (Na)<= 50.0 ppb<5.0 ppbTrace Impurities - Tin (Sn)<= 50 ppb	Trace Impurities – Nickel (Ni)	<= 10.0 ppb	<5.0 ppb
Trace Impurities – Tin (Sn)<= 50 ppb<10 ppb	Trace Impurities – Potassium (K)	<= 50 ppb	<10 ppb
	Trace Impurities – Sodium (Na)	<= 50.0 ppb	<5.0 ppb
Trace Impurities – Titanium (Ti) <= 20 ppb <1 ppb	Trace Impurities – Tin (Sn)	<= 50 ppb	<10 ppb
	Trace Impurities – Titanium (Ti)	<= 20 ppb	<1 ppb
Trace Impurities - Zinc (Zn)<= 50 ppb3 ppb	Trace Impurities – Zinc (Zn)	<= 50 ppb	3 ppb

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

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Material No.: 5356-05 Batch No.: 24J2361026

Test	Specification	Result	
Particle Count - 0.5 µm and greater	<= 60 par/ml	3 par/ml	
Particle Count – 1.0 µm and greater	<= 8 par/ml	1 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: United States Packaging Site: Paris Mfg Ctr & DC

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