avantor!2"

Material No.: 9079-05
Batch No.: 0000213495
Manufactured Date: 2018/10/17
Retest Date: 2023/10/16
Revision No: 1

## Certificate of Analysis

| Test | Specification | Result |
| :--- | :---: | :---: |
| Assay (CH3 ${ }^{\prime} \mathrm{CHOHCH}_{3}$ ) | $>=99.5 \%$ | 100.0 |
| Color (APHA) | $<=10$ | 5 |
| Residue after Evaporation | $<=4 \mathrm{ppm}$ | $<1$ |
| Solubility in $\mathrm{H}_{2} \mathrm{O}$ | Passes Test | PT |
| Water (H2O)(by Karl Fischer titrn) | $<=0.05 \%$ | 0.01 |
| Acidity ( $\mu \mathrm{eq} / \mathrm{g}$ ) | $<=0.2$ | 0.1 |
| Alkalinity ( $\mu \mathrm{eq} / \mathrm{g}$ ) | $<=0.1$ | $<0.1$ |
| Chloride (CI) | $<=0.1 \mathrm{ppm}$ | $<0.1$ |
| Phosphate (PO4) | $<=0.3 \mathrm{ppm}$ | $<0.3$ |
| Trace Impurities - Aluminum (Al) | $<=50.0 \mathrm{ppb}$ | $<5.0$ |
| Arsenic and Antimony (as As) | $<=10 \mathrm{ppb}$ | $<10$ |
| Trace Impurities - Barium (Ba) | $<=20.0 \mathrm{ppb}$ | $<1.0$ |
| Trace Impurities - Beryllium (Be) | $<=100.0 \mathrm{ppb}$ | $<1.0$ |
| Trace Impurities - Bismuth (Bi) | $<=100.0 \mathrm{ppb}$ | $<10.0$ |
| Trace Impurities - Boron (B) | $<=10.0 \mathrm{ppb}$ | $<5.0$ |
| Trace Impurities - Cadmium (Cd) | $<=20.0 \mathrm{ppb}$ | $<1.0$ |
| Trace Impurities - Calcium (Ca) | $<=50.0 \mathrm{ppb}$ | 1.1 |
| Trace Impurities - Chromium (Cr) | $<=20.0 \mathrm{ppb}$ | $<1.0$ |
| Trace Impurities - Cobalt (Co) | $<=20.0 \mathrm{ppb}$ | $<1.0$ |
| Trace Impurities - Copper (Cu) | $<=10.0 \mathrm{ppb}$ | $<1.0$ |
| Trace Impurities - Gallium (Ga) | $<=50.0 \mathrm{ppb}$ | $<1.0$ |
| Trace Impurities - Germanium (Ge) | $<=50.0 \mathrm{ppb}$ | $<10.0$ |
| Trace Impurities - Gold (Au) | $<=20.0 \mathrm{ppb}$ | $<5.0$ |
| Heavy Metals (as Pb) | $<=200 \mathrm{ppb}$ | $<100$ |
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| Test | Specification | Result |
| :---: | :---: | :---: |
| Trace Impurities - Iron (Fe) | $<=50.0 \mathrm{ppb}$ | < 1.0 |
| Trace Impurities - Lead (Pb) | < $=20.0 \mathrm{ppb}$ | $<10.0$ |
| Trace Impurities - Lithium (Li) | $<=50.0 \mathrm{ppb}$ | < 1.0 |
| Trace Impurities - Magnesium (Mg) | <= 20.0 ppb | < 1.0 |
| Trace Impurities - Manganese (Mn) | < $=15.0 \mathrm{ppb}$ | < 1.0 |
| Trace Impurities - Molybdenum (Mo) | $<=100.0 \mathrm{ppb}$ | < 5.0 |
| Trace Impurities - Nickel (Ni) | <= 10.0 ppb | < 5.0 |
| Trace Impurities - Niobium ( Nb ) | <= 100.0 ppb | < 1.0 |
| Trace Impurities - Potassium (K) | $<=100.0 \mathrm{ppb}$ | $<10.0$ |
| Trace Impurities - Silicon (Si) | < $=50.0 \mathrm{ppb}$ | $<10.0$ |
| Trace Impurities - Silver (Ag) | < $=20.0 \mathrm{ppb}$ | $<1.0$ |
| Trace Impurities - Sodium (Na) | $<=100.0 \mathrm{ppb}$ | < 5.0 |
| Trace Impurities - Strontium (Sr) | < $=20.0 \mathrm{ppb}$ | < 1.0 |
| Trace Impurities - Tantalum ( Ta ) | <= 100.0 ppb | < 5.0 |
| Trace Impurities - Thallium (TI) | < $=10.0 \mathrm{ppb}$ | < 5.0 |
| Trace Impurities - Tin (Sn) | < $=100.0 \mathrm{ppb}$ | $<10.0$ |
| Trace Impurities - Titanium (Ti) | < $=20.0 \mathrm{ppb}$ | < 1.0 |
| Trace Impurities - Vanadium (V) | $<=100.0 \mathrm{ppb}$ | < 1.0 |
| Trace Impurities - Zinc (Zn) | $<=50.0 \mathrm{ppb}$ | < 1.0 |
| Trace Impurities - Zirconium (Zr) | $<=100.0 \mathrm{ppb}$ | < 1.0 |
| Particle Count - $0.2 \mu \mathrm{~m}$ and greater | <= $5000 \mathrm{par} / \mathrm{ml}$ | 242 |
| Particle Count - $0.3 \mu \mathrm{~m}$ and greater | <= $5000 \mathrm{par} / \mathrm{ml}$ | 44 |
| Particle Count - $0.5 \mu \mathrm{~m}$ and greater | < $=50 \mathrm{par} / \mathrm{ml}$ | 6 |
| Particle Count - $1.0 \mu \mathrm{~m}$ and greater | < $=8 \mathrm{par} / \mathrm{ml}$ | 2 |

For Microelectronic Use

Country of Origin:
Packaging Site:

US
Paris Mfg Ctr \& DC

