

Material No.: 2204-01 Batch No.: 0000244029

Manufactured Date: 2019/10/25 Expiration Date: 2021/04/24

Revision No: 1

Certificate of Analysis

| Test | Specification | Result |
|-----------------------------------|---------------|--------|
| Assay (H2O2) | 30.0 - 32.0 % | 31.6 |
| Color (APHA) | <= 10 | < 5 |
| Free Acid (µeq/g) | <= 0.2 | < 0.2 |
| Residue after Evaporation | <= 15 ppm | 2 |
| Ammonium (NH ₄) | <= 3 ppm | < 3 |
| Chloride (CI) | <= 2 ppm | < 2 |
| Nitrate (NO ₃) | <= 2 ppm | < 2 |
| Phosphate (PO ₄) | <= 2 ppm | < 2 |
| ACS – Sulfate (SO ₄) | <= 5 ppm | < 5 |
| Trace Impurities - Aluminum (AI) | <= 200.0 ppb | 26.3 |
| Trace Impurities - Antimony (Sb) | <= 10.0 ppb | < 1.0 |
| Trace Impurities - Arsenic (As) | <= 10.0 ppb | < 2.0 |
| Arsenic and Antimony (as As) | <= 10 ppb | < 10 |
| Trace Impurities - Barium (Ba) | <= 20.0 ppb | 4.2 |
| Trace Impurities - Beryllium (Be) | <= 10.0 ppb | < 1.0 |
| Trace Impurities - Bismuth (Bi) | <= 20.0 ppb | < 10.0 |
| Trace Impurities - Boron (B) | <= 10.0 ppb | < 5.0 |
| Trace Impurities - Cadmium (Cd) | <= 10.0 ppb | < 1.0 |
| Trace Impurities - Calcium (Ca) | <= 50.0 ppb | 2.0 |
| Trace Impurities - Chromium (Cr) | <= 20.0 ppb | 2.5 |
| Trace Impurities - Cobalt (Co) | <= 10.0 ppb | < 1.0 |
| Trace Impurities - Copper (Cu) | <= 10.0 ppb | < 1.0 |
| Trace Impurities - Gallium (Ga) | <= 20.0 ppb | < 1.0 |
| Trace Impurities - Germanium (Ge) | <= 10.0 ppb | < 10.0 |

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| Trace Impurities – Gold (Au) | <= 10.0 ppb | < 5.0 |
| Heavy Metals (as Pb) | <= 500 ppb | < 250 |
| Trace Impurities – Iron (Fe) | <= 50.0 ppb | 5.9 |
| Trace Impurities - Lead (Pb) | <= 10.0 ppb | < 10.0 |
| Trace Impurities – Lithium (Li) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Magnesium (Mg) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Manganese (Mn) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Molybdenum (Mo) | <= 10.0 ppb | < 5.0 |
| Trace Impurities – Nickel (Ni) | <= 10.0 ppb | < 5.0 |
| Trace Impurities - Niobium (Nb) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Potassium (K) | <= 600.0 ppb | 200.9 |
| Trace Impurities – Silicon (Si) | <= 100.0 ppb | < 10.0 |
| Trace Impurities – Silver (Ag) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Sodium (Na) | <= 500.0 ppb | 8.0 |
| Trace Impurities – Strontium (Sr) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Tantalum (Ta) | <= 10.0 ppb | < 5.0 |
| Trace Impurities – Thallium (TI) | <= 50.0 ppb | < 5.0 |
| Trace Impurities – Tin (Sn) | <= 1000.0 ppb | 314.9 |
| Trace Impurities – Titanium (Ti) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Vanadium (V) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Zinc (Zn) | <= 50.0 ppb | 2.0 |
| Trace Impurities – Zirconium (Zr) | <= 10.0 ppb | < 1.0 |

For Microelectronic Use

Country of Origin: US

Packaging Site: Paris Mfg Ctr & DC

