Hydrogen Peroxide, 30%
CMOS
(Stabilized)

Material No.: 2190-23
Batch No.: 0000064778
Manufactured Date: 2013/11/26
Expiration Date: 2015/05/27

# Certificate of Analysis

| Test | Specification | Result |
|---|---|---|
| Assay ($H_2O_2$) | 30.0 - 32.0 % | 31.7 |
| Color (APHA) | <= 10 | 5 |
| Free Acid (µeq/g) | <= 0.2 | < 0.2 |
| Residue after Evaporation | <= 10 ppm | 2 |
| Ammonium ($NH_4$) | <= 3 ppm | < 3 |
| Chloride (Cl) | <= 0.2 ppm | < 0.2 |
| Nitrate ($NO_3$) | <= 2 ppm | < 2 |
| Phosphate ($PO_4$) | <= 1 ppm | < 1 |
| Sulfate ($SO_4$) | <= 3 ppm | < 3 |
| Trace Impurities - Aluminum (Al) | <= 70.0 ppb | 9.7 |
| Arsenic and Antimony (as As) | <= 10 ppb | < 10 |
| Trace Impurities - Barium (Ba) | <= 20.0 ppb | < 1.0 |
| 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 | < 1.0 |
| Trace Impurities - Chromium (Cr) | <= 20.0 ppb | 2.0 |
| 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 |
| Trace Impurities - Gold (Au) | <= 10.0 ppb | < 5.0 |
| Heavy Metals (as Pb) | <= 500 ppb | < 250 |

| Test | Specification | Result |
|---|---|---|
| Trace Impurities – Iron (Fe) | <= 50.0 ppb | 3.0 |
| 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 | 240.7 |
| Trace Impurities – Silicon (Si) | <= 100.0 ppb | < 10.0 |
| Trace Impurities – Silver (Ag) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Sodium (Na) | <= 100.0 ppb | < 5.0 |
| 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) | 190.0 – 500.0 ppb | 342.7 |
| 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 | < 1.0 |
| Trace Impurities – Zirconium (Zr) | <= 10.0 ppb | < 1.0 |
| Particle Count – 0.5 µm and greater | <= 100 par/ml | 9 |
| Particle Count – 1.0 µm and greater | <= 10 par/ml | 2 |

For Microelectronic Use

| | |
|---|---|
| Country of Origin: | US |
| Packaging Site: | Paris Mfg Ctr & DC |

**ISO**

**Phillipsburg, NJ 9001:2008, 14001:2004**
**Paris, KY 9001:2008**
**Mexico City, Mexico 9001:2008**
**Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003**
**Gliwice, Poland 9001:2008, 17025:2005**
**Selangor, Malaysia 9001:2008**
**Dehradun, India, 9001:2008, 14001:2004, 13485:2003**
**Mumbai, India, 9001:2008, 17025:2005**
**Panoli, India 9001:2008**

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