

Hydrogen Peroxide, 30%
CMOS
(Stabilized)



Material No.: 2190-23
Batch No.: 0000217577
Manufactured Date: 2018/12/14
Expiration Date: 2020/06/13
Revision No: 1

Certificate of Analysis

| Test | Specification | Result |
|--|---------------|--------|
| Assay (H ₂ O ₂) | 30.0 - 32.0 % | 31.6 |
| 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 | < 1 |
| Phosphate (PO ₄) | <= 1 ppm | < 1 |
| Sulfate (SO ₄) | <= 3 ppm | < 3 |
| Trace Impurities - Aluminum (Al) | <= 70.0 ppb | 5.1 |
| 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 |

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700
Avantor Performance Materials, LLC
100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

| Test | Specification | Result |
|-------------------------------------|-------------------|--------|
| Trace Impurities – Iron (Fe) | <= 50.0 ppb | 3.8 |
| Trace Impurities – Lead (Pb) | <= 10.0 ppb | < 1.0 |
| 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 | 237.0 |
| 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 | 3.7 |
| 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 | 358.7 |
| 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 | 60 |
| Particle Count – 1.0 µm and greater | <= 10 par/ml | 3 |

For Microelectronic Use

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

Phillipsburg, NJ 9001:2015, FSSC22000
 Paris, KY 9001:2008
 Mexico City, Mexico 9001:2008
 Gliwice, Poland 9001:2015, 13485:2012
 Selangor, Malaysia 9001:2008
 Dehradun, India, 9001:2008, 14001:2004, 13485:2003
 Mumbai, India, 9001:2015, 17025:2005
 Panoli, India 9001:2015

James Ethier
 Jamie Ethier
 Vice President Global Quality

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