

Ammonium Hydroxide 29%
CMOS



Material No.: 9731-03
Batch No.: 0000124839
Manufactured Date: 2015/09/15
Retest Date: 2020/09/13

Certificate of Analysis

| Test | Specification | Result |
|------------------------------------|---------------|--------|
| Appearance | Passes Test | PT |
| Assay (as NH ₃) | 28.0 – 30.0 % | 29.4 |
| Color (APHA) | <= 7 | 5 |
| Insoluble Matter | <= 1 ppm | < 1 |
| Residue after Ignition | <= 3 ppm | < 3 |
| Carbon Dioxide (CO ₂) | <= 10 ppm | < 10 |
| Pyridine | Passes Test | PT |
| Substances Reducing Permanganate | Passes Test | PT |
| Chloride (Cl) | <= 0.3 ppm | < 0.2 |
| Phosphate (PO ₄) | <= 0.2 ppm | < 0.1 |
| Total Sulfur (as SO ₄) | <= 0.8 ppm | 0.2 |
| Trace Impurities – Aluminum (Al) | <= 10.0 ppb | < 5.0 |
| Trace Impurities – Arsenic (As) | <= 50.0 ppb | < 2.0 |
| Arsenic and Antimony (as As) | <= 30 ppb | < 5 |
| Trace Impurities – Barium (Ba) | <= 10.0 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) | <= 5.0 ppb | < 1.0 |
| Trace Impurities – Calcium (Ca) | <= 100.0 ppb | 2.0 |
| Trace Impurities – Chromium (Cr) | <= 5.0 ppb | < 1.0 |
| Trace Impurities – Cobalt (Co) | <= 1.0 ppb | < 1.0 |
| Trace Impurities – Copper (Cu) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Gallium (Ga) | <= 10.0 ppb | < 1.0 |

| Test | Specification | Result |
|-------------------------------------|---------------|--------|
| Trace Impurities – Germanium (Ge) | <= 50.0 ppb | < 10.0 |
| Trace Impurities – Gold (Au) | <= 10.0 ppb | < 5.0 |
| Heavy Metals (as Pb) | <= 200 ppb | < 100 |
| Trace Impurities – Iron (Fe) | <= 10.0 ppb | 2.0 |
| Trace Impurities – Lead (Pb) | <= 10.0 ppb | < 10.0 |
| Trace Impurities – Lithium (Li) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Magnesium (Mg) | <= 50.0 ppb | < 1.0 |
| Trace Impurities – Manganese (Mn) | <= 5.0 ppb | < 1.0 |
| Trace Impurities – Molybdenum (Mo) | <= 10.0 ppb | < 5.0 |
| Trace Impurities – Nickel (Ni) | <= 5.0 ppb | < 5.0 |
| Trace Impurities – Niobium (Nb) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Potassium (K) | <= 100.0 ppb | < 10.0 |
| Trace Impurities – Silicon (Si) | <= 150.0 ppb | < 10.0 |
| Trace Impurities – Silver (Ag) | <= 5.0 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) | <= 20.0 ppb | < 5.0 |
| Trace Impurities – Tin (Sn) | <= 20.0 ppb | < 10.0 |
| Trace Impurities – Titanium (Ti) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Vanadium (V) | <= 10.0 ppb | < 1.0 |
| Trace Impurities – Zinc (Zn) | <= 5.0 ppb | < 1.0 |
| Trace Impurities – Zirconium (Zr) | <= 10.0 ppb | < 1.0 |
| Particle Count – 0.5 µm and greater | <= 80 par/ml | 28 |
| Particle Count – 1.0 µm and greater | <= 10 par/ml | 5 |

For Microelectronic Use

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

Phillipsburg, NJ 9001:2008, 14001:2004, FSSC 22000
 Paris, KY 9001:2008
 Mexico City, Mexico 9001:2008
 Deventer, The Netherlands 9001:2008, 14001:2004, 13485:2003
 Gliwice, Poland 9001:2008
 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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