



Giles Chemical, a division of Premier Magnesia, LLC.  
102 Commerce Street Waynesville, NC 28786  
Phone: 828-452-4784 Fax: 828-452-4786  
USP Certificate of Analysis

Release Date: 10/8/2016  
CUSTOMER :  
CUST. REF: SHIP DATE:  
PRODUCT: Magnesium Sulfate - USP TRAILER NUMBER:  
SHELF LIFE: 3 Years BILL OF LADING #:  
LOT NUMBER: 4016 PO NUMBER #:  
CARRIER: MANUFACTURED:  
CUST. CONTACT: EXPIRATION:

I certify that this material meets all the requirements of the Giles Chemical sales specifications and the United States Pharmacopeia. Periodic testing has shown the samples to be consistently free of volatile organic impurities. Giles Chemical magnesium sulfate is manufactured under the guidelines of Current Good Manufacturing Practices (cGMP).

**EPSOM SALT, Magnesium Sulfate - Heptahydrate, USP**

| METHOD                      | TEST                                   | LOWER | UPPER   | Test Results |
|-----------------------------|--|-------|---------|--------------|
| VISUAL                      | Appearance                             | ~~    | ~~      | Clear        |
| USP 39                      | Limit of Chloride <221>                | ~~    | 140 ppm | < 140 ppm    |
| USP 39                      | Limit of Iron <241>                    | ~~    | 20 ppm  | < 20 ppm     |
| USP 39                      | Selenium <291>                         | ~~    | 30 ppm  | < 30 ppm     |
| USP 39                      | Heavy Metals (as Pb) <231>             | ~~    | 10 ppm  | < 10 ppm     |
| USP 39                      | pH (5% Solution) <791>                 | 5.0   | 9.2     | 6.77         |
| USP 39                      | Loss on Ignition <733>                 | 40.0  | 52.0    | 51.14%       |
| USP 39                      | Assay, % MgSO <sub>4</sub> (Dry Basis) | 99.0  | 100.5   | 99.08%       |
| Calculated from Assay & LOI | % MgSO <sub>4</sub> (As is Basis)      | 47.52 | 60.3    | 48.41%       |
| USP 39                      | ID, Magnesium <191>                    | ~~    | ~~      | Present      |
| USP 39                      | ID, Sulfate <191>                      | ~~    | ~~      | Present      |

CONTACT:

Quality Assurance Laboratory

John Safi - Chemist

828-452-4784 ext. 31

ANALYST:

SIGNATURE ON FILE