

## Giles Chemical, a division of Premier Magnesia, LLC. Repacking Facility 102 Commerce Street Waynesville, NC 28786

Phone: 828-452-4784 Fax: 828-452-4786 USP Certificate of Analysis

| 6/19/2015               |  |  |
|-------------------------|--|--|
|                         |  |  |
|                         | SHIP DATE:                             |  |
| Magnesium Sulfate - USP | TRAILER NUMBER:                        |  |
| 3 Years                 | BILL OF LADING #:                      |  |
| 15169                   | PO NUMBER #:                           |  |
|                         | MANUFACTURED :                         |  |
|                         | EXPIRATION:                            |  |
|                         | Magnesium Sulfate - <b>USP</b> 3 Years | SHIP DATE:  Magnesium Sulfate - USP  3 Years BILL OF LADING #: PO NUMBER #:  MANUFACTURED: |

I certify that this material meets all the requirements of the Giles Chemical sales specifications and the United States Pharmacopeia 35. 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        |
| USP35  | Chloride as Cl (%)                    | ~~    | 0.014  | < 0.014%     |
| USP35  | Heavy Metals As Pb (%)                | ~~    | 0.001  | < 0.001%     |
| USP35  | Ignition Loss (%)                     | 40.00 | 52.00  | 51.13%       |
| USP35  | Iron (ppm)                            | ~~    | 20.00  | < 20.00 ppm  |
| USP35  | MgSO <sub>4</sub> ( Anhydrous wt. % ) | 99.00 | 100.50 | 99.49%       |
| USP35  | MgSO <sub>4</sub> ( As is basis, % )  | 48.30 | 52.00  | 48.55%       |
| USP35  | pH 5% Solution                        | 5.00  | 9.20   | 7.08         |
| USP35  | Selenium (%)                          | ~~    | 0.003  | < 0.003%     |
| USP35  | Mg <sup>2+</sup> ID                   |       |        | Present      |
| USP35  | SO <sub>4</sub> <sup>2-</sup> ID      |       |        | Present      |

CONTACT: ANALYST:

Quality Assurance Laboratory

John Safi - Chemist

828-452-4784 ext. 31

SIGNATURE ON FILE