



Giles Chemical, a division of Premier Magnesia, LLC.
102 Commerce Street Waynesville, NC 28786
USP Certificate of Analysis

Release Date: 3/16/2012

CUSTOMER: _____

CUST. REF: _____ SHIP DATE: _____

PRODUCT: **Magnesium Sulfate - USP** TRAILER NUMBER: _____

SHELF LIFE: **3 Years** BILL OF LADING #: _____

LOT NUMBER: **0212** PO NUMBER #: _____

SHIPPER: _____ MANUFACTURED: _____

CUST. SERV.: _____ EXPIRATION: _____

I, certify that this material meets all the requirements of the Giles Chemical sales specification and the United States Pharmacopeia 34. Periodic testing has shown the samples to be consistently free of volatile organic impurities. Giles Chemical manufactured under the guidelines of Good Manufacturing Practices (GMP)

EPSOM SALT, Magnesium Sulfate - Heptahydrate, USP

| METHOD | TEST | LOWER | UPPER | Test Results |
|--------|---------------------------------------|-------|--------|--------------|
| VISUAL | Appearance | ~~ | ~~ | Clear |
| USP34 | Chloride as Cl (%) | ~~ | 0.014 | < 0.014% |
| USP34 | Heavy Metals As Pb (%) | ~~ | 0.001 | < 0.001% |
| USP34 | Ignition Loss (%) | 40.00 | 52.00 | 50.87% |
| USP34 | Iron (ppm) | ~~ | 20.00 | < 20.00 ppm |
| USP34 | MgSO ₄ (Anhydrous wt. %) | 99.00 | 100.50 | 99.90% |
| USP34 | MgSO ₄ (As is basis, %) | 48.30 | 52.00 | 48.75% |
| USP34 | pH 5% Solution | 5.00 | 9.20 | 6.08 |
| *USP34 | Selenium (%) | ~~ | 0.003 | < 0.003% |
| USP34 | Mg ²⁺ ID | | | Present |
| USP34 | SO ₄ ²⁻ ID | | | Present |

ATTN:

ANALYST: STEPHEN BALLEW

Stephen Ballew

*Selenium concentration was determined by CHEM-BAC Laboratories, Inc., Work Order: 1371-12