



USP - CERTIFICATE OF ANALYSIS

10/27/2009

CUSTOMER: _____
CUST. REF: _____ SHIP DATE: _____
PRODUCT: Magnesium Sulfate - USP TRAILER NUMBER: _____
SHELF LIFE: 3 Years BILL OF LADING #: _____
LOT NUMBER: 1309 PO NUMBER #: _____
SHIPPER: _____ MANUFACTURED: _____
CUST. SERV.: _____

I, certify that this material meets all the requirements of the PQ Corporation sales specification 600546 and the United States Pharmacopeia 31. All organic volatile impurities listed in General Chapter 467, USP 29 NF 20 are below the USP limits.

EPSOM SALT, Magnesium Sulfate - Heptahydrate, USP; CAS Registry #: 10034-99-8

| METHOD | TEST | LOWER | UPPER | Test Results |
|--------|---------------------------------------|-------|--------|--------------|
| VISUAL | Appearance | ~~ | ~~ | Clear |
| USP31 | Arsenic (PPM) | ~~ | 3.00 | < 3 ppm |
| USP31 | Chloride as Cl (%) | ~~ | 0.014 | 0.003% |
| USP31 | Heavy Metals As Pb (%) | ~~ | 0.001 | <.001% |
| USP31 | ignition Loss (%) | 40.00 | 52.00 | 51.13% |
| USP31 | Iron | ~~ | 20.00 | < 0.05 ppm |
| USP31 | MgSO ₄ (Anhydrous wt. %) | 99.00 | 100.50 | 99.64% |
| USP31 | MgSO ₄ (As is basis, %) | 48.30 | 52.00 | 48.62% |
| USP31 | pH 5% Solution | 5.00 | 9.20 | 5.59 |
| USP31 | Selenium (%) | ~~ | 0.003 | < 0.003% |
| USP31 | Mg ²⁺ ID | | | Present |
| USP31 | SO ₄ ²⁻ ID | | | Present |

ATTN:

ANALYST:

SIGNATURE ON FILE

PQ - CORPORATION - UTICA, IL

(815) 667-4241