SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Guanidine Nitrate

DATE of issue: 1-April, 2002

Emergency Phone No: 1-800-424-9300 (CHEMTREC)
Product Use: Automotive airbag manufacture.
Chemical family: Guanidine salt

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>INGREDIENTS</th>
<th>% (w/w)</th>
<th>ACGIH TWA</th>
<th>CAS NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guanidine Nitrate</td>
<td>95-99%</td>
<td>None*</td>
<td>506-93-4</td>
</tr>
</tbody>
</table>

* No occupational exposure limits established by OSHA, ACGIH, or NIOSH.

SECTION 3 - HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Can cause skin irritation, eye irritation, respiratory irritation, vomiting, headache, dizziness, bluish skin, skin burns and ulcerations, and convulsions. Strong Oxidizer. Contact with combustible material may cause fire.
SECTION 4 - FIRST AID MEASURES

General: If you feel unwell, seek medical advise immediately (show product label or MSDS where possible).

Inhalation: Move victim to fresh air. If victim is not breathing, give artificial respiration using a bag valve mask or similar device. Keep warm and at rest. Obtain medical attention immediately.

Skin contact: Wash with non-abrasive soap or mild detergent using copious amounts of water to ensure complete removal. Remove any articles of clothing that has any material on it. Cold water may be used. Cover the irritated skin with an emollient. With more serious skin contact, wash with a disinfectant soap and cover the contaminated skin with an antibacterial cream. Seek medical attention.

Ingestion: If victim is alert and not convulsing, rinse mouth out. If vomiting occurs spontaneously, have victim lean forward with head positioned to avoid breathing in of the vomitus. If vomiting did not occur, loosen tight clothing such as a collar, tie, belt, or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Obtain medical help immediately.

Eye contact: check for and remove and contact lenses. Immediately flush eye with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

Special note to treating physician:
Treat symptomatically. If cyanosis is apparent, or breathing is labored, consider administering oxygen. For ingestion, consider gastric lavage.

Antidote: intravenous application of methylene blue or ascorbic acid

SECTION 5  FIRE-FIGHTING MEASURES

Flash point: Not applicable
Flammable limits: May be combustible at high temperature.
Products of combustion: these products are carbon oxides (CO, CO2), nitrogen oxides (NO, NO2...).

Autoignition temperature: > 350 °C - starts to decompose at 214 °C
Decomposition temperature: starts at 214 °C

Hazardous Reactions: With strong acids, and bases, also see fire and explosion hazards.
Explosive hazards: extremely explosive in presence of open flames and sparks, of shocks, of heat, of reducing materials.

Extinguishing media: Use water or water foam, do not use water jet. Large fires: flood with water. Apply water from a protected location or a safe distance. Avoid contact with organic materials.

Special fire fighting procedures: Fight fires from a safe distance, use remote fire fighting techniques. Care should be taken as water steam directed into fire can cause frothing with subsequent spread of fire. Cool containers with unmanned hose holder until well after fire is out. If remote fire fighting is not possible, consider evacuation of the area and allowing the fire to burn. Full protective gear, including
supplier air apparatus should be used due to the potential presence of toxic fumes generated by the fire.

### SECTION 6 - ACCIDENTAL RELEASE MEASURES

**Small spill:** use appropriate tools to put the spilled solid in a convenient waste disposal container.

**Large spill:** Oxidizing material. Stop leak if without risk. Avoid contact with combustible materials. Do not touch the spilled material without protective clothing (gloves, goggles etc.). Avoid sparks or flame. Avoid dust formation keep substance damp using water spray. Do not tough spilled material. Prevent entry into sweaters, basements or confined areas; dike is needed. Eliminate all ignition sources. Call for assistance on disposal.

**Disposal:** If the material has to be disposed of it should be sent to an authorized hazardous waste disposal site.

### SECTION 7 - HANDLING AND STORAGE

**Handling:** Keep away from heat. Keep away from sources of ignition. Keep away from combustible material Empty containers pose a fire risk; evaporate the residue under a fume hood. Ground all equipment containing material. Do not breathe dust. Take precautionary measures against electrostatic discharges. Wear suitable protective clothing if you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes. Keep away from incompatibles such as reducing agents, combustible materials, organic materials.

**Storage requirements:** Keep container dry. Keep in a cool place. Ground all equipment containing material. Oxidizing materials should be stored in a separate safety storage cabinet or room.

### SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTIVE EQUIPMENT

**Engineering controls:** Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

**PERSONAL PROTECTIVE EQUIPMENT:**

- **Eye protection:** Use chemical safety goggles when there is a potential for eye contact.
- **Skin protection:** Gloves and protective clothing made from cotton should provide adequate protection under most conditions.
- **Respiratory protection:** Use a NIOSH/MSHA approved dust respirator if there may be dust in the air, use a NIOSH approved positive-pressure supplied-air if there is dust in enclosed areas.

**EXPOSURE GUIDELINES:** There are no specific exposure guidelines established for this product. Good Industrial Hygiene practice related to exposures to 'nuisance' dusts indicate an exposure guideline of 10 mg/m³ (time weighted average). Due to the irritant nature of this material, it would be prudent to control exposures to below 1 mg/m³.
### SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

**Alternate names:** Guanidine mononitrate, Carbamidine nitrate, Iminourea nitrate, Guanidin nitrat, nitrate de guanidine, Guanidinium nitrate, UN 1467, STCC 4918415, OHS10580
**Chemical name:** Guanidine nitrate
**Chemical family:** Guanidine salt

**Molecular formula:** \( \text{CH}_5\text{N}_3\cdot\text{HNO}_3 \) (empirical formula \( \text{CH}_6\text{N}_4\text{O}_3 \))

**Appearance:** White granules
**Odor:** Odorless
**pH:** 7 (neutral)

**Vapor pressure:** not applicable.

**Vapor density:** not available

**Boiling point:** starts to decompose after melting

**Melting point:** 214 °C

**Freezing point:** 214 °C

**Solubility (water):** 17 % by weight (30 °C)

**Solubility other:** ethanol acetone

**Specific gravity:** 1.44

**Evaporation rate:** not available

**% Volatiles by volume:** < 2% (water)

**% Volatile Organic Components:** none

**Molecular weight:** 122.08 g/mol

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### SECTION 10 - STABILITY AND REACTIVITY

**Hazardous decomposition products:** Oxides of nitrogen, ammonia, nitric acid fumes

**Chemical stability:** stable under normal conditions

**Conditions to avoid:** heat, sparks, flames,

**Incompatibilities:** strong acids, strong bases, combustible materials, organic materials.

**Corrosivity:** non corrosive in presence of glass.

**Special remarks on reactivity:** explodes when heated. Explosion hazard. May explode by detonation, heat or shock.

**Hazardous polymerization:** will not occur

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### SECTION 11 - TOXICOLOGICAL INFORMATION

**Summary:** May cause irritation, headaches, vomiting, dizziness, bluish skin (methemoglobinemia), and convulsions.

**TOXICOLOGICAL DATA:**

Toxicity Data: 730 mg/kg oral-rat LD50; 1028 mg/kg oral-mouse LD50; >2 gm/kg skin-rabbit.

Irritation Data: 500 mg skin-rabbit severe; 92 mg eyes-rabbit mild.

**POTENTIAL HEALTH EFFECTS:**

**Inhalation:** May cause headache, flushing of the skin, vomiting, dizziness, collapse, hypotension,
cyanosis, convulsions, coma and respiratory paralysis.

**Skin contact:** Direct contact may cause irritation.

**Chronic effects:** May cause dermatitis.

**Eye contact:** Direct contact may cause irritation. In addition the product may be absorbed through the mucus membranes resulting in the same effects as inhalation (see above).

**Ingestion:** May cause headache, flushing of the skin, vomiting, dizziness, collapse, hypotension, cyanosis, convulsions, coma and respiratory paralysis.

**Carcinogenicity:** This material is not currently classified as a carcinogen by ACGIH (American Conference of Governmental Industrial Hygienists), IARC (International Agency for Research on Cancer), not regulated as carcinogens by OSHA (Occupational Safety and Health Administration) and not listed as a carcinogen by NTP (National Toxicology Program).

**Mutagenicity:** There is no evidence of mutagenic potential, negative in AMES test.

**Reproductive effects:** no data available.

**Teratogenicity and Fetotoxicity:** no data available.

**Synergistic materials:** no data available.

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**SECTION 12 - ECOLOGICAL INFORMATION**

**Ecotoxicological information:** May be toxic to aquatic life.

**Environmental effects:** May be dangerous if allowed to enter waterways. Do not contaminate domestic or irrigation supplies, lakes, ponds streams, or rivers.

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**SECTION 13 - DISPOSAL INFORMATION**

Dispose of waste material in an approved waste treatment facility in accordance with Federal, State, Provincial, and local legislative requirements. Do not dispose of waste with normal garbage or to water/sewer systems.

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**SECTION 14 - TRANSPORTATION INFORMATION**

**Proper shipping name:** Guanidine Nitrate

**Class/Division:** 5.1

**Product Identification Number (PIN):** UN 1467

**Packing group:** III

**Labeling requirements:** Oxidizer

**Transportation Emergency Response Telephone:** 1-800-424-9300 (Chemtrec)

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**SECTION 15 - REGULATORY INFORMATION**

**OSHA Classification:**

**Physical:** Oxidizer, **Health:** Irritant, **Target Organ:** no data available

**Ozone protection and 40 CFR 42:** This product does not contain nor is it manufactured with ozone depleting substances.
SECTION 16 - OTHER INFORMATION

Revision: Oct 4th, 2010
REFERENCES:
The Merck Index, 12th edition Merck & Co. Inc. Rathway New Jersey

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