SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier
Product Name  Magnesium Sulfate, 20-27% Aqueous Solution.

Other means of identification
Product Code  Magnesium Sulfate 20-27% Aqueous Solution
Synonyms

Recommended use of the chemical and restrictions on use
Recommended Use  Industrial Applications
Uses advised against  No information available

Details of the supplier of the safety data sheet
Manufacturer Address  Giles Chemical, 102 Commerce Street, Waynesville, NC 28786

Emergency telephone number
Company Phone Number  828-452-4784
24 Hour Emergency Phone Number  Chemtrec 1-800-424-9300
Emergency Telephone  Chemtrec 1-800-424-9300

2. HAZARDS IDENTIFICATION

Classification

OSHA Regulatory Status
Colorless or transparent liquid. Noncombustable. At very high temperatures, magnesium oxide, sulfur dioxide and sulfur trioxide may be generated. No known chronic hazards. Not listed by NTP, IARC or OSHA as a carcinogen.

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS).

Label elements

Emergency Overview

The product contains no substances which at their given concentration, are considered to be hazardous to health

Appearance  Colorless/Transparent  Physical state  Liquid  Odor  None

Causes mild irritation to the eyes
No known adverse effects.
Causes nausea, vomiting, abdominal cramps and diarrhea.
Spilled material can be slippery.

Hazards not otherwise classified (HNOC)

Other Information
Unknown Acute Toxicity  100% of the mixture consists of ingredient(s) of unknown toxicity
3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms
Magnesium sulfate 20-27% Aqueous Solution

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No.</th>
<th>Weight-%</th>
<th>Trade Secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesium Sulfate</td>
<td>7487-88-9</td>
<td>20-27</td>
<td></td>
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<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>80-73%</td>
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</tr>
</tbody>
</table>

4. FIRST AID MEASURES

First aid measures

Eye contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. (Call a physician if irritation persists).

Skin Contact
Not Applicable.

Inhalation
Remove to fresh air. Administer oxygen if breathing is difficult. If breathing has stopped, give artificial respiration. Get medical attention immediately.

Ingestion
If large quantities of this material are swallowed, call a physician immediately. Do NOT induce vomiting unless directed to do so by a physician. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Symptoms
No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
This material is compatible with all extinguishing media.

Unsuitable extinguishing media
None.

Specific hazards arising from the chemical
See Section 2 for information on hazards when this material is present in the area of a fire.

Explosion data
- Sensitivity to Mechanical Impact None.
- Sensitivity to Static Discharge None.

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions
Wear goggles. See Section 8.
Environmental precautions

Environmental precautions Sinks and mixes with water. No adverse effects known.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Mop up spilt liquid. Flush residue with water.

Prevention of secondary hazards For large spill cleanup: Keep unnecessary people away; isolate hazard area and deny entry. Do not touch or walk through spilled material. Stop leak if you can do so without risk. Prevent runoff from entering into storm sewers and ditches which lead to natural waterways. Isolate, dike and store discharged material, if possible. Use sand or earth to contain spilled material. If containment is impossible, flush with large quantities of water. Observe environmental regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Avoid breathing dust. Promptly clean up spills.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers closed and protected from extremes of temperature and humidity during storage. Recommended storage conditions 68-110°F and 54-87% relative humidity.

Incompatible materials Metal hydrides and other water reactive materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Appropriate engineering controls

Engineering Controls Ensure adequate ventilation, especially in confined areas. Showers. Eyewash stations.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear chemical goggles.

Skin and body protection Wear gloves if abrasion or irritation occurs.

Respiratory protection Provide workers with NIOSH approved respirators in accordance with requirements of 29 CFR 1910. 134 for level of exposure incurred.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.
9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Values</th>
<th>Remarks • Method</th>
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</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
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</tr>
<tr>
<td>Appearance</td>
<td>Colorless</td>
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<tr>
<td>Color</td>
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<tr>
<td>Odor</td>
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<tr>
<td>pH</td>
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<td>Flash point</td>
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<tr>
<td>Evaporation rate</td>
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<td>Flammability (solid, gas)</td>
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<td>Flammability Limit in Air</td>
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<td>Lower flammability limit:</td>
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<tr>
<td>Vapor pressure</td>
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</tr>
<tr>
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<tr>
<td>Specific Gravity</td>
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<tr>
<td>Water solubility</td>
<td>71g/100ml at 20°C 91g/100ml at 40°C</td>
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<td>Solubility in other solvents</td>
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<td>Kinematic viscosity</td>
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<td>Explosive properties</td>
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<tr>
<td>Oxidizing properties</td>
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<td>Other Information</td>
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<tr>
<td>Softening point</td>
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<td>Molecular weight</td>
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<td>VOC Content (%)</td>
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<tr>
<td>Density</td>
<td>1.34 g/cm³ at 20°C for 26% solution</td>
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<tr>
<td>Bulk density</td>
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</tbody>
</table>

10. STABILITY AND REACTIVITY

Reactivity
No data available

Chemical stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Conditions to avoid
Extremes of temperature and direct sunlight.

Incompatible materials
Metal hydrides and other water reactive materials.

Hazardous Decomposition Products
At very high temperatures, magnesium oxide, sulfur dioxide and sulfur trioxide may be generated.
11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information No data available

Inhalation No data available.

Eye contact Irritating to eyes.

Skin Contact No data available.

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity No information available.

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Aspiration hazard No information available.

Numerical measures of toxicity - Product Information

Unknown Acute Toxicity 100% of the mixture consists of ingredient(s) of unknown toxicity

12. ECOLOGICAL INFORMATION

Ecotoxicity

This material is not persistent in aquatic systems.

Persistence and degradability No information available.

Bioaccumulation Material does not bioaccumulate.

Mobility Sinks and mixes with water.

Other adverse effects No information available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of wastes This product does not exhibit any characteristics of a hazardous waste. The product is suitable for landfill disposal. Follow all applicable federal, state and local regulations for safe disposal.
Contaminated packaging

Do not reuse container.

14. TRANSPORT INFORMATION

DOT

Not regulated by DOT as a hazardous material. No hazard class, label or placard required, no UN or NA number assigned.

15. REGULATORY INFORMATION

International Inventories

<table>
<thead>
<tr>
<th>International Inventories</th>
<th>Complies</th>
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</thead>
<tbody>
<tr>
<td>TSCA</td>
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<tr>
<td>DSL/NDSL</td>
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<tr>
<td>EINECS/ELINCS</td>
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<tr>
<td>ENCS</td>
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<tr>
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<tr>
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<tr>
<td>AICS</td>
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</table>

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
AICS - Australian Inventory of Chemical Substances

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

SARA 311/312 Hazard Categories

<table>
<thead>
<tr>
<th>Hazard Category</th>
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<tbody>
<tr>
<td>Acute health hazard</td>
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<tr>
<td>Chronic Health Hazard</td>
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<tr>
<td>Fire hazard</td>
<td>No</td>
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<tr>
<td>Sudden release of pressure hazard</td>
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</tr>
<tr>
<td>Reactive Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)
CERCLA
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65
This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations
None

U.S. EPA Label Information

EPA Pesticide Registration Number  Not Applicable

16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical and Chemical Properties</th>
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<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health hazards</th>
<th>Flammability</th>
<th>Physical hazards</th>
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Issue Date  17-February 2015
Revision Date  17-February 2015
Revision Note  No information available

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet