1. IDENTIFICATION

Product Identifier
Product Name Aluminum Sulfate

Other means of identification
SDS # 010

Recommended use of the chemical and restrictions on use
Recommended Use Water treatment chemical

Manufacturer
USALCO, LLC
2601 Cannery Ave
Baltimore, MD 21226

Emergency Telephone Number
Company Phone Number 410-918-2230
Emergency Telephone (24 hr) 800-282-5322

2. HAZARDS IDENTIFICATION

Appearance White granules or powder
Physical State Solid
Odor Negligible

Classification
Acute toxicity - Oral Category 4
Eye Damage/Irritation Category 2B

Signal Word Warning

Hazard Statements
-Causes serious eye irritation
-Harmfull if swallowed

Precautionary Statements – Prevention
-Wear eye/face protection. Wash hands and any exposed skin thoroughly after handling.
-Wear protective gloves.
-Avoid breathing dust.

Precautionary Statements - Response
-IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical attention.
-IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical attention.
-IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth.

Precautionary Statements – Disposal
Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, State, and local regulations.
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Sulfate</td>
<td>10043-01-3</td>
<td>100</td>
</tr>
</tbody>
</table>

4. FIRST-AID MEASURES

First Aid Measures

General Advice After first aid, get appropriate in-plant, paramedic, or community medical support.

Eye Contact If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

Skin Contact Wash off immediately with plenty of water. Take off contaminated clothing. Wash contaminated clothing before reuse.

Inhalation Remove to fresh air.

Ingestion Rinse mouth. Do not induce vomiting. Get medical attention if there are symptoms.

Most important symptoms and effects

Symptoms May cause eye burns and permanent eye damage. Contact may cause irritation and redness. Irritating to mouth, throat, and stomach if ingested. Vomiting. May cause shortness of breath, nausea, dizziness, and headache. May cause irritation to the mucous membranes and upper respiratory tract.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Aluminum Sulfate will not burn.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

If exposed to temperatures greater than 1400°F, Aluminum Sulfate will decompose generating toxic and corrosive gas.

Hazardous Combustion Products Oxides of sulfur.

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. Do not release runoff from fire control methods to sewers or waterways.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Use personal protective equipment as required. Ventilate affected area.

Other Information Aluminum Sulfate may absorb moisture, and powders or crystals can solidify into a single mass.

Environmental Precautions Do not discharge wastewaters to the environment or a wastewater treatment plant without authorization from the appropriate officials.
7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling
Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use personal protection recommended in Section 8. Minimize dust generation and accumulation. Avoid moisture contamination.

Conditions for safe storage, including any incompatibilities

Storage Conditions
Keep containers tightly closed in a dry, cool and well-ventilated place. Wet aluminum sulfate will corrode steel.

Incompatible Materials
Alkalis. Water-reactive materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines
No exposure limits noted for product. Exposure Limits for aluminum metal
NIOSH REL - TWA 10 mg/m3 (total) TWA 5 mg/m3 (resp)
OSHA PEL - TWA 15 mg/m3 (total) TWA 5 mg/m3 (resp)

Appropriate engineering controls

Engineering Controls
Showers. Eyewash stations. The best protection is to enclose operations and/or provide local exhaust ventilation at the site of the chemical release. Dust emission control may be required depending on the dust generation rate. Isolation operations can also reduce exposure.

Individual protection measures, such as personal protective equipment

Eye/Face Protection
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye & face protection regulations in 29 CFR 1910.133 or European Standard EN166. Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with, contact lenses.

Skin and Body Protection
Wear appropriate clothing to prevent repeated or prolonged skin contact.

Respiratory Protection
Seek professional advice prior to respirator selection and use. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. WARNING!: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

General Hygiene Considerations
Do not eat, drink or smoke when using this product. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Contaminated Equipment: Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.
### 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Solid, white granules or powder</td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not relevant</td>
</tr>
<tr>
<td>pH</td>
<td>3.3 ± 0.5 (1% solution)</td>
</tr>
<tr>
<td>Density</td>
<td>&lt;98 lb/cu ft</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>105° C / 221° F</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>Not relevant</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>±1,400° F</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not relevant</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Evaporation rate;</td>
<td>Will not evaporate</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Flash point</td>
<td>Will not burn</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>Will not burn</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not relevant</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water</td>
</tr>
<tr>
<td>Vapor density</td>
<td>None</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>None</td>
</tr>
</tbody>
</table>

### 10. STABILITY AND REACTIVITY

**Reactivity**
Not reactive under normal conditions.

**Chemical Stability**
Stable under recommended storage conditions.

**Possibility of Hazardous Reactions**
Contact with incompatible materials causes exothermic reactions.

**Hazardous Polymerization**
Hazardous polymerization does not occur.

**Conditions to Avoid**
Contact with incompatible materials.

**Incompatible Materials**
Alkalis. Water-reactive materials.

**Hazardous Decomposition Products**
Thermal oxidative decomposition of Aluminum Sulfate occurs at temperatures greater than 1400°F and can produce sulfur oxides.

### 11. TOXICOLOGICAL INFORMATION

**Information on likely routes of exposure**

- **Product Information**
  - **Eye Contact**
    - Causes serious eye damage.
  - **Skin Contact**
    - Avoid contact with skin.
  - **Inhalation**
    - Avoid inhalation of dust.
  - **Ingestion**
    - Harmful if swallowed.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Oral LD50</th>
<th>Dermal LD50</th>
<th>Inhalation LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Sulfate</td>
<td>1930 mg/kg ( Rat )</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10043-01-3</td>
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<td></td>
</tr>
</tbody>
</table>

**Revision Date:** 3-Mar-2015
Information on physical, chemical and toxicological effects

Symptoms
Please see section 4 of this SDS for symptoms.

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

Carcinogenicity
This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Numerical measures of toxicity
Not determined

12. ECOLOGICAL INFORMATION

Ecotoxicity
Harmful to aquatic life with long lasting effects.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Toxicity to microorganisms</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Sulfate 10043-01-3</td>
<td>100: 96 h Carassius auratus mg/L LC50 37: 96 h Gambusia affinis mg/L LC50 static</td>
<td>136: 15 min Daphnia magna mg/L EC50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Persistence/Degradability
Not determined

Bioaccumulation
Not determined

Mobility
Not determined

Other Adverse Effects
Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Waste
Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated Packaging
Disposal should be in accordance with applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION

Note
Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOT
UN/ID No
UN3077 if shipped in a single container with a weight greater than the RQ, 5.000 lbs.
Proper Shipping Name
Environmentally hazardous substance, solid, n.o.s. (Aluminum Sulfate)
Hazard Class
9
Packing Group
III
Reportable Quantity (RQ)
5000 lbs

IATA
Not regulated

IMDG
Marine Pollutant
This material may meet the definition of a marine pollutant
15. REGULATORY INFORMATION

International Inventories
Not determined

US Federal Regulations

CERCLA

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Hazardous Substances RQs</th>
<th>CERCLA/SARA RQ</th>
<th>Reportable Quantity (RQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Sulfate</td>
<td>5000 lb</td>
<td>RQ 5000 lb final RQ</td>
<td>RQ 2270 kg final RQ</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazard Categories

- Acute Health Hazard: Yes
- Chronic Health Hazard: No
- Fire Hazard: No
- Sudden Release of Pressure Hazard: No
- Reactive Hazard: No

SARA 313
Not listed.

CWA (Clean Water Act)

<table>
<thead>
<tr>
<th>Component</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
<th>CWA - Hazardous Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Sulfate</td>
<td>5000 lb</td>
<td></td>
<td></td>
<td>X</td>
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16. OTHER INFORMATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Instability</th>
<th>Special Hazards</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>0</td>
<td>0</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HMIS</th>
<th>Health Hazards</th>
<th>Flammability</th>
<th>Physical Hazards</th>
<th>Personal Protection</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>0</td>
<td>0</td>
<td>Not determined</td>
</tr>
</tbody>
</table>

Issue Date: 30-Apr-2013
Revision Date: 3/9/2015
Revision Note: New format

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