Aluminum Sulfate Solution, 7 % Acid

Safety Data Sheet

IDENTIFICATION

Product Identifier
Product Name Aluminum Sulfate Solution
Other means of identification
USALCO SDS # 013
UN/ID No UN3264
Synonyms Acid Alum

Recommended use of the chemical and restrictions on use
Recommended Use Water treatment coagulant, flocculent, alumina source for catalyst, pH control in papermaking/water treatment.

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

2. HAZARDS IDENTIFICATION

Appearance Colorless to clear amber or clear light green liquid  
Physical State Liquid  
Odor Negligible

Signal Word Danger

Hazard Statements
Causes skin severe skin burns and serious eye damage

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

Precautionary Statements - Response
If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. 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.

Precautionary Statements - Storage
Store in corrosive resistant plastic or FRP container or container with corrosive resistant inner liner.

Precautionary Statements – Disposal
Dispose in accordance with all applicable regulations. Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D002 (Corrosive) if the pH is <2. May be D002 under §261.22(a)(2) due to the rate of corrosion of metal.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Family Inorganic Salt.

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS No</th>
<th>Weight-%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>50-55</td>
</tr>
<tr>
<td>Aluminum sulfate</td>
<td>10043-01-3</td>
<td>41-45</td>
</tr>
<tr>
<td>Sulfuric acid</td>
<td>7664-93-9</td>
<td>7</td>
</tr>
</tbody>
</table>
4. FIRST-AID MEASURES

First Aid Measures

Eye Contact  If in eyes: Rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor/physician if irritation continues.

Skin Contact  Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse.

Inhalation  If adverse effects occur, remove to fresh air and observe. If not breathing, give artificial respiration. Seek immediate medical attention/advice.

Ingestion  If swallowed, do not induce vomiting. Rinse mouth. Get immediate medical attention.

Most important symptoms and effects

Symptoms  Harmful if swallowed, will cause skin burns, eye burns, mucous membrane burns, respiratory system damage.

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. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Small Fire  Move containers from fire area if you can do it without risk. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

Large Fire  Same procedures as for small fires.

Specific Hazards Arising from the Chemical  Negligible fire hazard.

Hazardous Decomposition Products  Oxides of sulfur.

Sensitivity to Mechanical Impact  Not sensitive.

Sensitivity to Static Discharge  Not sensitive.

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 protection recommended in Section 8. Keep unnecessary people away, isolate hazard area and deny entry.

Environmental Precautions  Do not release into sewers or waterways. For spills in excess of allowable limits (RQ) notify the National Response Center (800) 424-8802; refer to SARA Title III, Section 313 40 CFR 372, and CERCLA 40 CFR 302 for detailed instructions concerning reporting requirements. Notify Local Emergency Planning Committee (LEPC) and State Emergency Response Commission (SERC) for
Methods and material for containment and clean up

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

Methods for Clean-Up  Small Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling  Avoid contact with skin, eyes or clothing. Handle in accordance with good industrial hygiene and safety practice. Wash face, hands and any exposed skin thoroughly after handling. Store and handle in accordance with all current regulations and standards.

Conditions for safe storage, including any incompatibilities

Storage Conditions  Keep container tightly closed and store in a cool, dry and well-ventilated place. Store with acids. See original container for storage recommendations. Store away from incompatible materials.


8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines  No exposure limits noted for aluminum sulfate

Sulfuric acid, ACGIH: 0.2 mg/m³ TWA
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  Apply technical measures to comply with the occupational exposure limits. Ensure adequate ventilation, especially in confined areas. Maintain eye wash fountain and quick-drench facilities in work area.

Individual protection measures, such as personal protective equipment

Eye/Face Protection  Wear chemical tight goggles and full face shield.

Skin and Body Protection  Wear appropriate chemical resistant clothing including chemical resistant gloves.

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  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>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Colorless to clear amber or clear light green liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Negligible</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not determined</td>
</tr>
<tr>
<td>pH</td>
<td>1.9±0.4</td>
</tr>
<tr>
<td>Relative density; (specific gravity)</td>
<td>1.3± @15.5 °C</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>-13° C / 9° 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>5-25 centipoise</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not flammable</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>Not determined</td>
</tr>
<tr>
<td>Evaporation rate:</td>
<td>Similar to water</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>Similar to water</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Similar to water</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**
None under normal processing.

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

**Conditions to Avoid**
Protect from freezing. Keep separated from incompatible substances.

**Incompatible 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

- **Eye Contact**: Causes serious eye damage.
- **Skin Contact**: May cause severe skin burns.
- **Inhalation**: Avoid breathing vapors or mists.
- **Ingestion**: Do not taste or swallow. May be harmful if swallowed.

Component Information

<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>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sulfuric acid</td>
<td>2140 mg/kg; (Rat)</td>
<td>510 mg/m³ (Rat)</td>
<td></td>
</tr>
<tr>
<td>7664-93-9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>&gt; 90 mL/kg (Rat)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7732-18-5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Component Carcinogenicity

**Sulfuric acid (7664-93-9)**

- **ACGIH**: A2 - Suspected Human Carcinogen (contained in strong inorganic acid mists)
- **IARC**: Monograph 54 [1992] (Occupational exposure to mists and vapours from sulfuric acid and other strong inorganic acids) (Group 1 (carcinogenic to humans))
- **DFG**: Category 4 (no significant contribution to human cancer)

Numerical measures of toxicity

Not determined

12. ECOLOGICAL INFORMATION

Ecotoxicity

Component Information

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Algae/aquatic plants</th>
<th>Fish</th>
<th>Invertebrate</th>
<th>Crustacea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum Sulfate</td>
<td>10043-01-3</td>
<td>100: 96 h Carassius auratus mg/L LC50 37: 96 h Gambusia affinis mg/L LC50 static</td>
<td></td>
<td>136: 15 min Daphnia magna mg/L EC50</td>
</tr>
<tr>
<td>Sulfuric acid</td>
<td>(7664-93-9)</td>
<td>96 Hr LC50 Brachydanio rerio: &gt;500 mg/L [static]</td>
<td>24 Hr EC50 Daphnia magna: 29 mg/L</td>
<td></td>
</tr>
</tbody>
</table>

Persistence/Degradability

Not determined

Bioaccumulation

Not determined

Mobility

Not determined
13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes  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.

US EPA Waste Number
EPA Hazardous Waste Code: D002 (Corrosive) if the pH is <2. May be D002 per 40CFR261.22(a)(2) due to the rate of corrosion of steel. The U.S. EPA has not published waste codes for this product's components.

14. TRANSPORT INFORMATION

Note
Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances. Information also applies to TDG, ADR and RID.

DOT
UN/ID No  UN3264
Proper Shipping Name  Corrosive liquid, acidic, inorganic, n.o.s., (Aluminum Sulfate)
Hazard Class  8
Packing Group  III
Reportable Quantity (RQ)  5000 lb

IATA
UN/ID No  UN3264
Proper Shipping Name  Corrosive liquid, acidic, inorganic, n.o.s., (Aluminum Sulfate)
Hazard Class  8
Packing Group  III

IMDG
UN/ID No  UN3264
Proper Shipping Name  Corrosive liquid, acidic, inorganic, n.o.s., (Aluminum Sulfate)
Hazard Class  8
Packing Group  III
15. REGULATORY INFORMATION

International Inventories
Not determined

Component Analysis
U.S. Federal Regulations
This material contains one or more of the following chemicals required to be identified under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

ALUMINUM SULFATE (10043-01-3)
CERCLA: 5000 lb RQ; 2270 kg RQ
SULFURIC ACID (7664-93-9)
SARA 302: 1000 lb TPQ
SARA 313: 1.0 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)
CERCLA: 1000 lb RQ; 454 kg RQ

SARA 311/312 Hazardous Categories
Acute Health: Yes  Chronic Health: Yes  Fire: No  Pressure: No  Reactive: No

16. OTHER INFORMATION

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

Issue Date: 20-Sep-2011
Revision Date: 25 Jan 2019
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