

## Aluminum sulfate, solid

MSDS No. 010

2/5/2008

**Material Safety Data Sheet****Section 1 - Chemical Product and Company Identification**

|                               |  |  |   |             |  |          |          |          |          |          |          |             |  |          |  |
|-------------------------------|--|--|---|-------------|--|----------|----------|----------|----------|----------|----------|-------------|--|----------|--|
| <b>Product/Chemical Name:</b> | Aluminum Sulfate, Dry  | <b>Manufacturer:</b>                                   | <table border="1"> <tr> <td colspan="2"><b>HMIS</b></td> </tr> <tr> <td><b>H</b></td> <td><b>1</b></td> </tr> <tr> <td><b>F</b></td> <td><b>0</b></td> </tr> <tr> <td><b>R</b></td> <td><b>1</b></td> </tr> <tr> <td colspan="2"><b>PPE†</b></td> </tr> <tr> <td colspan="2">†Sec. 11</td> </tr> </table> | <b>HMIS</b> |  | <b>H</b> | <b>1</b> | <b>F</b> | <b>0</b> | <b>R</b> | <b>1</b> | <b>PPE†</b> |  | †Sec. 11 |  |
| <b>HMIS</b>                   |  |  |   |             |  |          |          |          |          |          |          |             |  |          |  |
| <b>H</b>                      | <b>1</b>   |  |   |             |  |          |          |          |          |          |          |             |  |          |  |
| <b>F</b>                      | <b>0</b>   |  |   |             |  |          |          |          |          |          |          |             |  |          |  |
| <b>R</b>                      | <b>1</b>   |  |   |             |  |          |          |          |          |          |          |             |  |          |  |
| <b>PPE†</b>                   |  |  |   |             |  |          |          |          |          |          |          |             |  |          |  |
| †Sec. 11                      |  |  |   |             |  |          |          |          |          |          |          |             |  |          |  |
| <b>Chemical Formula:</b>      | Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> •(14-18)(H <sub>2</sub> O) | Delta Chemical Corporation                             |   |             |  |          |          |          |          |          |          |             |  |          |  |
| <b>CAS Number:</b>            | 10043-01-3   | 2601 Cannery Avenue                                    |   |             |  |          |          |          |          |          |          |             |  |          |  |
| <b>General Use:</b>           | Water Treatment Chemical   | Baltimore, MD 21226-1595                               |   |             |  |          |          |          |          |          |          |             |  |          |  |
| <b>Emergency Contact:</b>     | <b>800-424-9300</b><br>Chemtrec  | Phone 410-354-0100 (7:00am 5:00pm)<br>FAX 410-354-1021 |   |             |  |          |          |          |          |          |          |             |  |          |  |

**Section 2 - Composition / Information on Ingredients**

| Ingredient Name             | CAS Number | % wt |
|-----------------------------|------------|------|
| Aluminum sulfate (hydrated) | 10043-01-3 | 100  |

| Ingredient       | OSHA PEL                                  |             | ACGIH TLV                                 |             | NIOSH REL                                 |             | NIOSH       |
|------------------|---|-------------|---|-------------|---|-------------|-------------|
|                  | TWA                                       | STEL        | TWA                                       | STEL        | TWA                                       | STEL        | IDLH        |
| Aluminum sulfate | 2 mg/m <sup>3</sup><br><i>as aluminum</i> | none estab. | 2 mg/m <sup>3</sup><br><i>as aluminum</i> | none estab. | 2 mg/m <sup>3</sup><br><i>as aluminum</i> | none estab. | none estab. |

**Section 3 - Emergency Overview**

**Description:** White granule or powder. Water soluble. Not volatile. Not flammable.  
**Hazards:** Harmful by ingestion. Irritating to eyes, respiratory system and skin. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

**Section 4 - First Aid Procedures**

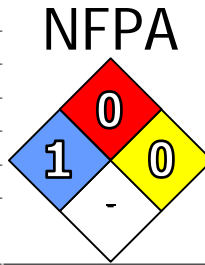
|                      |   |
|----------------------|---|
| <b>Eye Contact:</b>  | Immediately flush with large amounts of water for at least 15 minutes, occasionally lifting upper and lower lids. Seek medical attention. |
| <b>Skin Contact:</b> | Remove contaminated clothing and wash contaminated skin with water.   |
| <b>Ingestion:</b>    | Do not induce vomiting, drink milk or water and immediately seek medical attention. Ingestion may irritate gastrointestinal tract.        |

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

**Section 5 - Physical and Chemical Properties**

|                               |                         |                                |                      |
|-------------------------------|-------------------------|--------------------------------|----------------------|
| <b>Physical State:</b>        | solid                   | <b>Water Solubility:</b>       | Complete             |
| <b>Appearance:</b>            | White granule or powder | <b>Density:</b>                | varies, <98 lb/cu ft |
| <b>Odor:</b>                  | negligible odor         | <b>Boiling Point:</b>          | 117° C/242° F        |
| <b>Vapor Pressure:</b>        | None                    | <b>Freezing/Melting Point:</b> | 105° C/221° F        |
| <b>Vapor Density (Air=1):</b> | Not applicable          | <b>% Volatile:</b>             | 0.0                  |
| <b>pH of 1% solution:</b>     | 3.3 ± 0.5               |                                |                      |

### Section 6 - Fire-Fighting Measures

|   |   |   |
|---|---|---|
| <b>Flash Point:</b>                       | Not applicable  |  |
| <b>Burning Rate:</b>                      | Not applicable  |   |
| <b>Autoignition Temperature:</b>          | Not applicable  |   |
| <b>LEL:</b>                               | Not applicable  |   |
| <b>UEL:</b>                               | Not applicable  |   |
| <b>Flammability Classification:</b>       | Non-flammable   |   |
| <b>Unusual Fire or Explosion Hazards:</b> | If exposed to temperatures greater than 1400°F, Aluminum sulfate will decompose generating toxic and corrosive gas. |   |
| <b>Hazardous Combustion Products:</b>     | See Section 7.  |   |
| <b>Fire-Fighting Instructions:</b>        | Do not release runoff from fire control methods to sewers or waterways.   |   |

### Section 7 - Stability and Reactivity

|  |   |
|--|---|
| <b>Stability:</b>                        | Stable at room temperature in closed containers under normal storage and handling conditions.                                 |
| <b>Polymerization:</b>                   | Hazardous polymerization does not occur.  |
| <b>Chemical Incompatibilities:</b>       | Contact with alkalis and water-reactive materials causes exothermic reactions.  |
| <b>Conditions to Avoid:</b>              | None  |
| <b>Hazardous Decomposition Products:</b> | Thermal oxidative decomposition of Aluminum sulfate occurs at temperatures greater than 1400°F and can produce sulfur oxides. |

### Section 8 - Health Hazard Information

|   |   |
|---|---|
| <b>Primary Entry Routes:</b>                                | Ingestion, inhalation, eye or skin contact  |
| <b>Target Organs:</b>                                       | None  |
| <b>Acute Effects:</b>                                       | No unusual  |
| <b>Eye:</b>   | May cause a burning feeling.  |
| <b>Skin:</b>  | May cause a skin rash or burning feeling.   |
| <b>Ingestion:</b>   | May cause irritation of stomach and intestines. May cause nausea, vomiting or purging.  |
| <b>Inhalation:</b>  | Breathing aluminum sulfate can irritate the nose, throat and lungs causing coughing, wheezing and/or shortness of breath.                 |
| <b>Carcinogenicity:</b>                                     | IARC, NTP, and OSHA do not list Aluminum Sulfate as a carcinogen.   |
| <b>Medical Conditions Aggravated by Long-Term Exposure:</b> | Aluminum sulfate can irritate the lungs. Repeated exposure may cause bronchitis to develop with cough, phlegm, an/or shortness of breath. |
| <b>Chronic Effects:</b>                                     | IARC, NTP, and OSHA list no evidence showing that any of the ingredients cause cancer or affect reproduction.                             |

### Section 9 - Spill, Leak, and Disposal Procedures

|                                |  |
|--------------------------------|--|
| <b>Spill /Leak Procedures:</b> | Spill procedures are dictated by site wastewater flow controls and will vary from site to site. General procedures are provided in this document, but authorization for any wastewater discharge must be obtained prior to the discharge.  |
| <b>Large and Small Spills:</b> | <p>Sweep and shovel up dry chemical and place in a covered container. Wash down residue with large amounts of water and neutralize with soda ash or lime if necessary. Aluminum sulfate solutions can have a pH less than two. The neutralization of aluminum sulfate can generate carbon dioxide. Adequate ventilation must be provided.</p> <p>Do not discharge wastewaters to the environment or a wastewater treatment plant without authorization from the appropriate officials.</p> |

|   |   |
|---|---|
| <b>Containment:</b>                     | Aluminum sulfate may absorb moisture and powders or crystals can solidify into a single mass. Protect aluminum sulfate from moisture. |
| <b>Cleanup:</b>                         | Wash impacted areas with water to remove residues.  |
| <b>Regulatory Requirements:</b>         | Follow applicable OSHA regulations (29 CFR 1910.120).   |
| <b>Disposal:</b>                        | Contact your supplier or a licensed contractor for detailed recommendations. Follow applicable Federal, state, and local regulations. |
| <b>Container Cleaning and Disposal:</b> | Make sure bags are completely empty and dispose of as industrial/commercial waste.  |

### Section 10 - Regulatory Information

|  |  |
|--|--|
| <b>EPA Regulations:</b>                                |  |
| RCRA Hazardous Waste Number:                           | Not listed (40 CFR 261.33)   |
| RCRA Hazardous Waste Classification:                   | (40 CFR 261.): Not classified  |
| CERCLA Hazardous Substance (40 CFR 302.4):             | Listed CWA, Sec. 311 (b)(4)  |
| CERCLA Reportable Quantity (RQ):                       | 5,000 lbs (2,270 kg) as Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub><br>8,870 lbs (4,023 kg) as Al <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> •14(H <sub>2</sub> O) |
| SARA 311/312 Codes:                                    | Immediate (acute) health hazard  |
| SARA Toxic Chemical (40 CFR 372.65):                   | Not listed   |
| SARA EHS (Extremely Hazardous Substance) (40 CFR 355): | Not listed   |
| <b>OSHA Regulations:</b>                               |  |
| Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A):  | Not listed   |
| OSHA Specifically Regulated Substance (29CFR 1910.):   | Not listed   |
| <b>State Regulations:</b>                              | Delta Chemical Corporation has not investigated state specific requirements.   |

### Section 11 - Exposure Controls / Personal Protection

|                                       |  |
|---------------------------------------|--|
| <b>Engineering Controls:</b>          | 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.   |
| <b>Ventilation:</b>                   | Can be used to control dust exposure but may require emission controls.  |
| <b>Administrative Controls:</b>       | Good work practices can help to reduce exposures. Train employees to minimize dust while handling this material.   |
| <b>Respiratory Protection:</b>        | Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen. For emergency or non-routine operations (cleaning spills, or storage tanks), wear an SCBA. <i>Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.</i> If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas. |
| <b>Protective Clothing/Equipment:</b> | Wear protective gloves, boots, long pants and long sleeve shirts to prevent prolonged or repeated skin contact. Wear protective chemical safety glasses, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.  |
| <b>Safety Stations:</b>               | Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.   |
| <b>Contaminated Equipment:</b>        | Separate contaminated work clothes from street clothes. Launder before reuse. Remove this material from your shoes and clean personal protective equipment.  |

**Comments:** Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

### Section 12 - Special Precautions and Comments

**Handling Precautions:** Minimize and/or control dust while handling.  
**Storage Requirements:** Store in a cool, dry place. Wet aluminum sulfate will corrode steel.

### Section 13 - DOT Transportation Data (49 CFR 172.101)

|   |  |  |          |
|---|--|--|----------|
| <b>Shipping Name:</b>                     | UN3077, Environmentally Hazardous Substance, solid, n.o.s. (Aluminum sulfate), 9, PG III | <b>Packaging Authorizations</b>            |          |
| <b>CERCLA RQ:</b>                         | 5,000 lbs (2,270 kg)   | <b>a) Exceptions:</b>                      | 173.155  |
| <b>Hazard Class:</b>                      | 9  | <b>b) Non-bulk Packaging:</b>              | 173.213  |
| <b>DOT No.:</b>                           | UN3077   | <b>c) Bulk Packaging:</b>                  | 173.240  |
| <b>Packing Group:</b>                     | III  | <b>Quantity Limitations</b>                |          |
| <b>Special Provisions (172.102):</b>      | 8, 146, B54, IB8, IP3, N20, T1, TP33   | <b>a) Passenger, Aircraft, or Railcar:</b> | no limit |
| <b>2004 Emergency Response Guidebook:</b> | Guide 171  | <b>b) Cargo Aircraft Only:</b>             | no limit |
|   |  | <b>Vessel Stowage Requirements</b>         |          |
|   |  | <b>a) Vessel Stowage:</b>                  | A        |
|   |  | <b>b) Other:</b>                           |          |

**Prepared By:** Craig T. Owen

**Effective Date:** 12/10/01

**Revision Notes:** 2/5/08-DOT shipping name updated. 9/15/04, 4/12/04- Formatting changed

**Disclaimer:** The information presented herein is believed to be accurate and reliable, but is given without guaranty or warranty, expressed or implied. The user should not assume that all safety measures are indicated so that other measures may not be required. The user is responsible for assuring that the product and equipment are used in a safe manner that complies with all appropriate legal standards and regulations.