Material Safety Data Sheet

Distributed by: The Science Company
Part Number: NC-2304
ID: C1-166

Material Name: Aluminum Sulfate

* * * Section 1 - Chemical Product and Company Identification * * *

Part Number: NSF Standard Ground or Iron Free
Chemical Name: Aluminum Sulfate, 14.3-Hydrate
Product Use: For Manufacturing Use Including Water Treatment
Synonyms: Sulfuric acid, aluminum salt (3:2); Sulfuric acid, aluminum salt (3:2); Aluminum sulfate; Aluminum sulphate; Aluminum (III) sulfate; Aluminum alum; Aluminum trisulfate; Cake alum; Dialuminum sulfate; Alum; Aluminum sesquisulfate.

Supplier Information

Chem One Ltd.
8017 Pinemont Drive, Suite 100
Houston, Texas 77040-6519

Phone #: (713) 896-9966
Fax #: (713) 896-7540
Emergency #: (800) 424-9300 or (703) 527-3887

General Comments: FOR COMMERCIAL USE ONLY; NOT TO BE USED AS A PESTICIDE.

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

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

CAS #	Component	Percent
10043-01-3	Aluminum Sulfate*	> 98

*Aluminum Sulfate, 14.3 Hydrate is the hydrated form. However, the CAS # 10043-01-3 is for the anhydrous form. Hydrated aluminum sulfate, A12(SO4)3*18H2O, is efflorescent and therefore may have approximately 14 molecules of water. The hydrate form may be indicated as "xH2O" and assigned CAS # 17927-65-0.

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Aluminum, soluble salts, Aluminum (7429-90-5).

Component Information/Information on Non-Hazardous Components

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

* * * Section 3 - Hazards Identification * * *

Emergency Overview

Aluminum Sulfate is an odorless, lustrous white to grayish-white crystalline, granular or powdered solid. This material can cause severe irritation and inflammation, or burns to the eyes and skin. Contact with high concentration or prolonged contact may cause permanent damage. Inhalation of high airborne concentrations may cause constriction of the airways. Dusts can form corrosive sulfuric acid when in contact with moisture in air or tissues. Concentrated solutions are corrosive to the eyes, skin and gastrointestinal tract. When heated to decomposition, Aluminum Sulfate may emit toxic and corrosive fumes of sulfur dioxide and/or sulfur trioxide.

Hazard Statements

WARNING! Causes eye, skin, respiratory tract, and gastrointestinal tract irritation or burns. Harmful if swallowed or inhaled. Do not get in eyes, on skin or on clothing. Do not breathe dusts. Wash thoroughly after handling. Keep container closed. Use only with adequate ventilation.

Potential Health Effects: Eyes

Aluminum Sulfate can cause severe irritation and inflammation of the eyes. Concentrated solutions may cause permanent damage or blindness.

Potential Health Effects: Skin

Aluminum Sulfate dusts can irritate the skin. Concentrated solutions are corrosive and may cause burns and permanent scarring. Prolonged exposure can cause numbing of the fingers. Prolonged contact can result in dermatitis (dry, red, itchy skin).

Potential Health Effects: Ingestion

May cause burns to the mouth, throat and stomach. Symptoms may include vomiting, nausea, bleeding stomach, and abdominal pain. Ingestion of small amounts of aluminum sulfate may cause a sensation of dryness in the mucous membranes of the mouth and throat. Adverse effects on muscle and kidneys, and gum necrosis have been reported after ingestion of large amounts of aluminum compounds. Repeated ingestion over prolonged period can result in phosphate deficiency, which can cause softening and bending of bones. The approximate fatal dose in humans by ingestion is 30 grams.

Material Name: Aluminum Sulfate

* * * Section 3 - Hazards Identification (Continued) * * *

Potential Health Effects: Inhalation

Dusts of this Aluminum Sulfate form sulfuric acid when in contact with moisture in air or tissues. Inhalation of dust or mist is irritating to respiratory tract and mouth. Symptoms of irritation may include coughing, congestion and sore throat. Inhalation of high airborne concentrations may cause constriction of the airways and can result in potentially fatal pulmonary edema (accumulation of fluid in lungs). Chronic inhalation may cause permanent lung damage and reduction of lung function, due to potential for the formation of sulfuric acid, which is corrosive.

HMIS Ratings: Health Hazard: 2* **Fire Hazard:** 0 **Physical Hazard:** 1

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

Immediately flush eyes with large amounts of room temperature water, occasionally lifting the lower and upper lids, for at least 15 minutes. If symptoms persist after 15 minutes of irrigation, seek medical attention.

First Aid: Skin

Remove all contaminated clothing. For skin contact, wash thoroughly with soap and water for at least 20 minutes. Seek immediate medical attention if irritation develops or persists.

First Aid: Inhalation

Remove source of contamination or move victim to fresh air. Apply artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Get immediate medical attention.

First Aid: Ingestion

DO NOT INDUCE VOMITING, unless directed by medical personnel. Have victim rinse mouth thoroughly with water, if conscious. Never give anything by mouth to a victim who is unconscious or having convulsions. Contact a physician or poison control center immediately.

First Aid: Notes to Physician

Treatment is largely symptomatic. If contamination of eyes has occurred, administer anesthetic drops to facilitate eye irrigation. Be observant for pulmonary edema after inhalation exposure.

* * * Section 5 - Fire Fighting Measures * * *

Flash Point: Not combustible
Method Used: Not applicable
Upper Flammable Limit (UFL): Not applicable
Lower Flammable Limit (LFL): Not applicable
Auto Ignition: Not applicable
Flammability Classification: Not applicable
Rate of Burning: Not applicable

General Fire Hazards

Product will not ignite, but may burn. Caution: Sufficient heat may produce toxic gases. Product will decompose at its melting point [770°C (1418°F)]. In contact with water and metals, flammable hydrogen gas can be generated which can result in a fire hazard. Sealed containers can rupture violently in the heat of a fire.

Hazardous Combustion Products

When heated above 650-770°C (1200-1418°F) Aluminum Sulfate forms sulfur dioxide, sulfur trioxide, aluminum oxide and sulfuric acid.

Extinguishing Media

Dry chemical, foam, carbon dioxide. Do not use water; corrosive sulfuric acid will form.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing. Move container from fire area, if this is without risk. Fight fire from a safe distance. Cool containers with fine water spray, taking care to avoid wetting product.

NFPA Ratings: Health: 2 **Fire:** 0 **Instability:** 1 **Other:**

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

* * * Section 6 - Accidental Release Measures * * *

Containment Procedures

Stop the flow of material, if this can be done without risk. Contain the discharged material. If sweeping of a contaminated area is necessary use a dust suppressant agent, which does not react with product (see Section 10 for incompatibility information).

Clean-Up Procedures

Wear appropriate protective equipment and clothing during clean-up. Shovel the material into waste container. Thoroughly wash the area after a spill or leak clean-up. Solutions of the compound can be neutralized with lime or similar compound. Avoid contamination of soil, and prevent spill residue from running to groundwater or storm drains.

Evacuation Procedures

Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. Keep materials that burn away from spilled material. In case of large spills, follow all facility emergency response procedures.

Special Procedures

Remove soiled clothing and launder before reuse. Avoid all skin contact with the spilled material. Have emergency equipment readily available.

* * * Section 7 - Handling and Storage * * *

Handling Procedures

All employees who handle this material should be trained to handle it safely. Do not breathe dust. Avoid all contact with skin and eyes. Use this product only with adequate ventilation. Wash thoroughly after handling.

Storage Procedures

Keep container tightly closed when not in use. Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Storage areas should be made of fire-resistant materials. Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Use corrosion-resistant structural materials, lighting, and ventilation systems in the storage area. Floors should be sealed to prevent absorption of this material. Have appropriate extinguishing equipment in the storage area (i.e., sprinkler system, portable fire extinguishers).

Empty containers may contain residual particulates; therefore, empty containers should be handled with care. Do not cut, grind, weld, or drill near this container. Never store food, feed, or drinking water in containers that held this product. Keep this material away from food, drink and animal feed. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged. Do not store this material in open or unlabeled containers. Limit quantity of material stored. Store in suitable containers that are corrosion-resistant. Keep containers closed-material is hygroscopic.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Exposure Guidelines

A: General Product Information

Follow the applicable exposure limits.

B: Component Exposure Limits

Aluminum Sulfate (10043-01-3)

ACGIH: as Al; 2 mg/m^3 TWA (related to Aluminum, soluble salts)

OSHA: as Al: 2 mg/m^3 TWA (Listed under 'Aluminum') (related to Aluminum, soluble salts) [1989 Vacated 1989 PEL]

NIOSH: total: 2 mg/m^3 TWA (related to Aluminum, soluble salts and alkyls); respirable dust: 5 mg/m^3 TWA; pyro powders and welding fumes: 5 mg/m^3 TWA

Engineering Controls

Control airborne dusts and use mechanical ventilation. Local exhaust methods are suggested, where possible, in enclosed or confined spaces. Use a corrosion-resistant ventilation system. Supply ample air replacement. Treatment of exhaust gases may be required to prevent environmental contamination.

PERSONAL PROTECTIVE EQUIPMENT

The following information on appropriate Personal Protective Equipment is provided to assist employers in complying with OSHA regulations found in 29 CFR Subpart I (beginning at 1910.132). Please reference applicable regulations and standards for relevant details.

Personal Protective Equipment: Eyes/Face

Wear chemical safety goggles. If necessary, refer to U.S. OSHA 29 CFR 1910.133.