ALUMINIUM SULPHATE

GHS Safety Data Sheet

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

ALUMINIUM SULFATE

OTHER NAMES

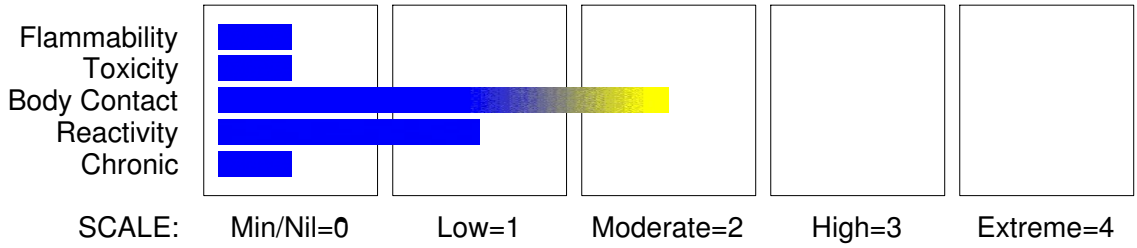
Al2-S3-O12, Al2(SO4)3, "patent alum", "aluminium sulfate sulphate", "aluminium trisulfate trisulphate", "dialuminium sulfate sulphate", "sulphuric acid, aluminium salt (3:2)", "alum kibbled", "sulfate of alumina",

PRODUCT USE

Hydrated grades as Alum are high volume commercial chemicals.
Sizing paper, lakes, alums, dyeing mordant, agent in fire fighting foams, cloth fireproofing, white leather tannage, pH control in paper industry, waterproofing agent for concrete, deodorizer and decolouriser in petroleum refining, sewage precipitating agent and for water purification.
Medical use: Astringent, treatment of jellyfish stings.

SUPPLIER
Company:S D FINE- CHEM LIMITED
Address:
315- 317, T.V. INDUSTRIALESTATE,
248, WORLI,
MUMBAI-400030.INDIA.
technical@sdfine.com
Telephone:91- 22- 24959898
Telephone:91- 22- 24959899
Fax: 91- 22- 24937232

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

GHS Classification

Eye Irritation Category 2A

EMERGENCY OVERVIEW

HAZARD WARNING

continued...

Determined using GHS criteria:
H319
Causes serious eye irritation

PRECAUTIONARY STATEMENTS

Prevention
Wash hands thoroughly after handling.

Response
If eye irritation persists, get medical advice/attention.
Wear eye/face protection.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
aluminium sulfate	10043-01-3	> 99

Section 4 - FIRST AID MEASURES

SWALLOWED
Rinse mouth out with plenty of water.
For advice, contact a Poisons Information Centre or a doctor.
· If swallowed do NOT induce vomiting.
· If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
· Observe the patient carefully.
· Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious
· Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.
· Seek medical advice.

EYE
If this product comes in contact with the eyes:
· Immediately hold eyelids apart and flush the eye continuously with running water.
· Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
· Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
· Transport to hospital or doctor without delay.
· Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

SKIN
If skin contact occurs:
· Immediately remove all contaminated clothing, including footwear.
· Flush skin and hair with running water (and soap if available).
· Seek medical attention in event of irritation.

INHALED
· If dust is inhaled, remove from contaminated area.
· Encourage patient to blow nose to ensure clear passage of breathing.
· If irritation or discomfort persists seek medical attention.

NOTES TO PHYSICIAN
· Manifestation of aluminium toxicity include hypercalcaemia, anaemia, Vitamin D refractory osteodystrophy and a progressive encephalopathy (mixed dysarthria-apraxia of speech, asterixis, tremulousness, myoclonus, dementia, focal seizures). Bone pain, pathological fractures and proximal myopathy can occur.
· Symptoms usually develop insidiously over months to years (in chronic renal failure patients) unless dietary aluminium loads are excessive.
· Serum aluminium levels above 60 ug/ml indicate increased absorption. Potential toxicity occurs above 100 ug/ml and clinical symptoms are present when levels exceed 200 ug/ml.
· Deferoxamine has been used to treat dialysis encephalopathy and osteomalacia. CaNa2EDTA is less effective in chelating aluminium.
[Ellenhorn and Barceloux: Medical Toxicology].

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
There is no restriction on the type of extinguisher which may be used.
· Use extinguishing media suitable for surrounding area.

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FIRE FIGHTING
Alert Fire Brigade and tell them location and nature of hazard.
· Wear breathing apparatus plus protective gloves for fire only.
· Prevent, by any means available, spillage from entering drains or water courses.
Cool fire exposed containers with water spray from a protected location.
If safe to do so, remove containers from path of fire.
Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD
· Non combustible.
· Not considered a significant fire risk, however containers may burn.
Decomposition may produce toxic fumes of:.
sulfur oxides (SOx).
and.
and oxides of.
aluminium.

FIRE INCOMPATIBILITY
Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.
In presence of moisture, the material is corrosive to aluminium, zinc and tin producing highly flammable hydrogen gas.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS
Clean up all spills immediately.
Avoid contact with skin and eyes.
Use dry clean up procedures and avoid generating dust.
Sweep up.
Place in suitable containers for disposal.

MAJOR SPILLS
Clear area of personnel.
Control personal contact by using protective equipment.
Prevent, by any means available, spillage from entering drains or water courses.
Stop leak if safe to do so.
Avoid generating dust.
Collect recoverable product into labelled containers for recycling.
Collect residues and seal in labelled drums for disposal.
Wash spill area with large quantities of water.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
Avoid generating and breathing dust.
· Limit all unnecessary personal contact.
· Wear protective clothing when risk of exposure occurs.
· Use in a well-ventilated area.
· Avoid contact with incompatible materials.
· When handling, DO NOT eat, drink or smoke.
· Keep containers securely sealed when not in use.
· Avoid physical damage to containers.
· Always wash hands with soap and water after handling.
· Work clothes should be laundered separately.
· Use good occupational work practice.
· Observe manufacturer's storing and handling recommendations.
· Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER
Multi-ply paper bag with sealed plastic liner or heavy gauge plastic bag.
NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse. Check that all containers are clearly labelled and free from leaks. Packing as recommended by manufacturer.

STORAGE INCOMPATIBILITY
Segregate from alkalies, oxidising agents and chemicals readily decomposed by acids, i.e. cyanides, sulfides, carbonates.
Keep dry.

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Segregate from.
combustible materials.
DO NOT use aluminium, galvanised or tin-plated containers.

STORAGE REQUIREMENTS

- **Store in original containers.**
- **Keep containers securely sealed.**
- **Store in a cool, dry, well-ventilated area.**
- **Store away from incompatible materials and foodstuff containers.**
- **Protect containers against physical damage and check regularly for leaks.**
- **Observe manufacturer's storing and handling recommendations.**

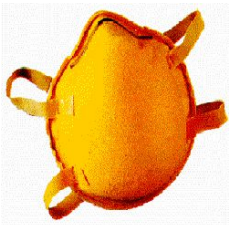
Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

The following materials had no OELs on our records

• aluminium sulfate: CAS:10043- 01- 3 CAS:22515- 37- 3 CAS:121739- 79- 5 CAS:19239- 71- 5 CAS:124027- 27- 6 CAS:139939- 73- 4

PERSONAL PROTECTION

RESPIRATOR
Particulate

EYE
· Safety glasses with side shields; or as required,
· Chemical goggles.
· Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

HANDS/FEET
· Barrier cream with polyethylene gloves.
or.
Rubber Gloves.
Safety footwear.

OTHER
· Overalls.
· Eyewash unit.

ENGINEERING CONTROLS

Use in a well-ventilated area.
None required when handling small quantities.
OTHERWISE:.
· Local exhaust ventilation is required where solids are handled as powders or crystals; even when particulates are relatively large, a certain proportion will be powdered by mutual friction.
· Exhaust ventilation should be designed to prevent accumulation and recirculation of particulates in the workplace.
· If in spite of local exhaust an adverse concentration of the substance in air could occur, respiratory protection should be considered. Such protection might consist of:
(a): particle dust respirators, if necessary, combined with an absorption cartridge;
(b): filter respirators with absorption cartridge or canister of the right type;
(c): fresh-air hoods or masks
· Build-up of electrostatic charge on the dust particle, may be prevented by bonding and grounding.
· Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting.

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

**White lustrous crystals, pieces, granules or powder. Acidic reaction.
Soluble in water. Readily hydrolyses in water to form acidic solutions.
In contact with atmospheric moisture or skin tissue forms irritant and
corrosive sulfuric acid. Insoluble in alcohol. Hygroscopic.
Available as commercial, technical, pure and BP grades.
Commercial may contain traces of free sulfuric acid.
Decomposes when heated to 770 C**

PHYSICAL PROPERTIES
Solid.
Mixes with water.

Molecular Weight: 342.14
Melting Range (°C): 770
Solubility in water (g/L): Miscible
pH (1% solution): Not available.
Volatile Component (%vol): Not applicable
Relative Vapour Density (air=1): Not applicable
Lower Explosive Limit (%): Not applicable
Autoignition Temp (°C): Not available.
State: Divided solid

Boiling Range (°C): Not available.
Specific Gravity (water=1): 2.710
pH (as supplied): Not applicable
Vapour Pressure (kPa): Not applicable
Evaporation Rate: Not applicable
Flash Point (°C): Non flammable.
Upper Explosive Limit (%): Not applicable
Decomposition Temp (°C): 770
Viscosity: Not available

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- **Presence of incompatible materials.**
- **Product is considered stable.**
- **Hazardous polymerisation will not occur.**

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED
Although ingestion is not thought to produce harmful effects (as classified under EC Directives), the material may still be damaging to the health of the individual, following ingestion, especially where pre-existing organ (e.g liver, kidney) damage is evident. Present definitions of harmful or toxic substances are generally based on doses producing mortality rather than those producing morbidity (disease, ill-health). Gastrointestinal tract discomfort may produce nausea and vomiting. In an occupational setting however, ingestion of insignificant quantities is not thought to be cause for concern.
Considered an unlikely route of entry in commercial/industrial environments.
The material is corrosive.
to the gastro-intestinal tract.
and is.
capable of causing burns to mouth, throat, oesophagus, with extreme discomfort, pain.
if swallowed.
Ingestion may result in nausea, abdominal irritation, pain and vomiting.

EYE
Evidence exists, or practical experience predicts, that the material may cause eye irritation in a substantial number of individuals and/or may produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals.
Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.
The dust may be highly discomforting.
to the eyes.
and may cause.
burns.
if exposure is prolonged.
This material when in solution is.
highly discomforting.
and is.
capable of causing pain and severe conjunctivitis. Corneal injury may develop, with possible permanent impairment of vision, if

continued...

not promptly and adequately treated.

SKIN
The material is not thought to produce adverse health effects or skin irritation following contact (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable gloves be used in an occupational setting.
The material is moderately discomforting.
to the skin.
and may cause.
blisters or burns.
if exposure is prolonged.
This material when in solution is.
discomforting.
and may cause drying of the skin, which may lead to dermatitis.

INHALED
The material is not thought to produce adverse health effects or irritation of the respiratory tract (as classified by EC Directives using animal models). Nevertheless, good hygiene practice requires that exposure be kept to a minimum and that suitable control measures be used in an occupational setting.
Not normally a hazard due to non-volatile nature of product.
The dust may be highly discomforting.
and may be.
corrosive.
if inhaled.
Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

CHRONIC HEALTH EFFECTS
Principal routes of exposure are usually by.
skin contact.
with the material.
or.
with the material in solution.
and.
inhalation of generated dust.
As with any chemical product, contact with unprotected bare skin; inhalation of vapour, mist or dust in work place atmosphere; or ingestion in any form, should be avoided by observing good occupational work practice.
Repeated minor skin contact may result in numbing of fingers.
Repeated minor ingestion may cause phosphate deficiency; weakening bones.

TOXICITY AND IRRITATION

TOXICITY	IRRITATION
Oral (mouse) LD50: 6207 mg/kg	Eye (rabbit): 10 mg/24h SEVERE
Oral (rat) TDLo: 10138 mg/kg/8D- C	

Section 12 - ECOLOGICAL INFORMATION

No data

Section 13 - DISPOSAL CONSIDERATIONS

Consult manufacturer for recycling options.
Consult State Land Waste Management Authority for disposal.
Decontaminate empty containers.
For small quantities:
- **Neutralise an aqueous solution of the material.**
- **Filter solids for disposal to approved land fill.**
- **Flush solution to sewer (subject to local regulation)**
- **Heat and fumes evolved during reaction may be controlled by rate of addition.**

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM: None

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN, IATA, IMDG

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Section 15 - REGULATORY INFORMATION

REGULATIONS

aluminium sulfate (CAS: 10043-01-3) is found on the following regulatory lists;
IMO MARPOL 73/78 (Annex II) - List of Other Liquid Substances
International Council of Chemical Associations (ICCA) - High Production Volume List
OECD Representative List of High Production Volume (HPV) Chemicals
United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances - Table II

No data available for aluminium sulfate as CAS: 22515-37-3, CAS: 121739-79-5, CAS: 19239-71-5, CAS: 124027-27-6, CAS: 139939-73-4.

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

Ingredient Name	CAS
aluminium sulfate	10043- 01- 3, 22515- 37- 3, 121739- 79- 5, 19239- 71- 5, 124027- 27- 6, 139939- 73- 4

The above information is believed to be accurate and represent the best information currently available to us, but does not represent any warranty expressed or implied of the properties of the product. User should make their own investigation to determine the suitability of the information for their particular purpose.

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