MATERIAL SAFETY DATA SHEET ALUMINUM SULFATE, HYDRATED (ACS & FCC) MSDS

1: Chemical Product and Company Identification

Product Name: Aluminium Sulphate, Hydrated (ACS & FCC)
Catalogue Codes: SLA1444
CAS#: 7784-31-8
RTECS: Not available.
TSCA: TSCA 8(b) inventory: No products were found.
CI#: Not applicable.
Synonym: Aluminium sulphate octadecahydrate;
Cake alum octadecahydrate; Dialuminium sulphate
octadecahydrate; Patent alum; Dialuminium tribulate
octadecahydrate; Aluminium sulphate (2:3) octadecahydrate;
Aluminium trisulfide octadecahydrate; Dialuminium sulphate
octadecahydrate
Chemical Name: Sulfuric acid, aluminium salt (3:2),
octadecahydrate
Chemical Formula: Al2(SO4)3. (14-18) H2O

2: Composition and Information on Ingredients
Composition:

Name	CAS #	% by Weight
Aluminium Sulphate Hydrated (ACS & FCC)	7784-31-8	100

Toxicological Data on Ingredients: Aluminium Sulphate, Hydrated (ACS & FCC): ORAL (LD50): Acute:
>9000 mg/kg [Mouse].
>9000 mg/kg [Rat].

3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of inhalation (lung irritant).
Slightly hazardous in case of ingestion.
Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED].
The substance may be toxic to the reproductive system, mucous membranes, skin, eyes, Urinary System. Repeated or prolonged exposure to the substance can produce target organs damage.

4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.
Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation: Not available.

Ingestion:

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

5: Fire and Explosion Data

Flammability of the Product:	Non-flammable.
Auto-Ignition Temperature:	Not applicable.
Flash Points:	Not applicable.
Flammable Limits:	Not applicable.
Products of Combustion:	Not available.
Fire Hazards in Presence of Various Substances:	Not applicable.

Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available.

Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:

It may burn, but it will not ignite. Fire may produce irritating, corrosive and/or toxic gases.

Special Remarks on Explosion Hazards: Not available.

6: Accidental Release Measures

Small Spill:

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

7: Handling and Storage

Precautions:

Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

8: Exposure Controls/Personal Protection

Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:

Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

TWA: 2 (mg (Al)/m) from ACGIH (TLV) [United States] TWA: 2 (mg (Al)/m) [United Kingdom (UK)] Consult local authorities for acceptable exposure limits.

9: Physical and Chemical Properties

Physical state and appearance:	Solid. (Crystals solid.)
Odour:	Odourless.
Taste: Sweet.	Mildly Astringent.
Molecular Weight:	342.14 g/mole + (14-18) H2O
Colour:	White.
pH (1% soln/water):	Not available.
Boiling Point:	Not available.
Melting Point:	Not available.
Critical Temperature:	Not available.
Specific Gravity:	Density: 1.69 @ 17 deg. C (Water = 1)
Vapor Pressure:	Not applicable.
Vapor Density:	Not available.
Volatility:	Not available.
Odour Threshold:	Not available.
Water/Oil Dist. Coeff.:	Not available.
Iconicity (in Water):	Not available.
Dispersion Properties:	See solubility in water.
Solubility:	Easily soluble in hot water. Soluble in cold water. It will hydrolyse in water to form sulfuric acid. Insoluble in alcohol.
Solubility in water:	86.9 g/ 100 ml @0 deg. C; 1104 g/100 ml @ 100 deg. C

10: Stability and Reactivity Data

Stability:	The product is stable.
Instability Temperature:	Not available.
Conditions of Instability:	Incompatible materials, moisture
Incompatibility with various substances:	Reactive with oxidizing agents.
Corrosivity:	Non-corrosive in presence of glass.

Special Remarks on Reactivity:	It melts when gradually heated; At 250 deg. C, it loses its water.
Special Remarks on Corrosivity:	May corrode metals in the presence of moisture
Polymerization:	Will not occur.

11: Toxicological Information

Routes of Entry: Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): >9000 mg/kg [Rat].

Chronic Effects on Humans:

DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male [SUSPECTED]. May cause damage to the following organs: the reproductive system, mucous membranes, skin, eyes, Urinary System.

Other Toxic Effects on Humans:

Hazardous in case of skin contact (irritant), of inhalation (lung irritant). Slightly hazardous in case of ingestion.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

May affect genetic material (mutagenic). May cause adverse reproductive effects based on animal test data

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects:

Skin: Causes skin irritation, particularly if moisture is present. Symptoms include redness, itching, and pain

Eyes: Causes eye irritation. Symptoms include redness and pain.

Inhalation: Causes mouth and respiratory tract irritation. Symptoms may include coughing, shortness of breath. It may cause airway constricting in rare instances. Symptoms are usually transient.

Ingestion: May cause irritation to the gastrointestinal tract. Symptoms may include cramping, nausea, vomiting, diarrhea. Ingestion also produces a feeling of dryness and puckering of the mucous membranes of the mouth and throat. It may affect behaviour/central nervous system and cause ataxia and seizures. High blood concentrations of aluminium may cause aluminium-induced encephalopathy with confusion, lethargy, respiratory depression, cognitive impairment, dysarthria, asterixis, seizure, coma. It may also affect the liver. Individuals with renal failure may more readily accumulate toxic levels of aluminium which can result in encephalopathy and seizures.

Chronic Potential Health Effects: Skin:

Repeated or prolonged skin contact may cause irritation, especially if moisture is present. Ingestion: Repeated or prolonged ingestion may affect metabolism, urinary system, blood (changes in serum composition - e.g. TP, bilirubin, cholesterol), skeletal system, and brain (degenerative changes). High blood concentrations of aluminium may cause aluminium to be deposited in the bones. Accumulation of aluminium in the bone appears to reduce the positive effects of vitamin D and may prevent calcium deposition into the bones. The prevention of calcium deposition leads to the return of the calcium to the blood.

This may cause bone/skeletal abnormalities, osteomalacia, painful joints. The elevated serum calcium levels in turn inhibit the release of parathyroid hormone by the parathyroid glands.

12: Ecological Information

Ecotoxicity: Not available.
BOD5 and COD: Not available.
Products of Biodegradation:
Possibly hazardous short-term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.
Special Remarks on the Products of Biodegradation: Not available.

13: Disposal Considerations
Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

14: Transport Information
DOT Classification: Not a DOT controlled material (United States).
Identification: Not applicable.
Special Provisions for Transport: Not applicable.

15: Other Regulatory Information
Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator
when ventilation is inadequate. Splash goggles.

16: Other Information
References: Not Available
Other Special Considerations: Not available.

EXCLUSION OF LIABILITY
All information and instructions provided in this Material Safety Data Sheet in respect of the substance is given solely in terms of the provisions of the Occupational Health and Safety Act No 85 of 1993
and Regulations ("the Act"), is based on scientific and technical knowledge as at the date indicated on this MS Material Safety Data Sheet and is presented in good faith to be correct.
The information and instructions provided in this MSDS apply only to the substance in its present form and not to any formulation or mix, in which event it is the sole responsibility of the user of the substance as formulated and/or mixed to investigate and establish any danger which may arise out of its use, wherever such user may be situated.

It is the sole responsibility of the person in receipt of this Material Safety Data Sheet wherever such recipient may be situated, to ensure that the information provided is communicated to and understood by any person who may come in contact with the substance in any place and in any manner whatsoever. If such recipient produces formulations or mixes using the substance, then it is such recipient's sole responsibility to comply with the provisions of the Act in respect of the

provision of the necessary Material Safety Data Sheet, or to comply with any other applicable legislation.