CHEMPROD NOMINEES PTY. LTD. A.C.N 005 032 744 T/A

OMEGA CHEMICALS

Manufacturers of Aluminium Sulphate – Suppliers of Industrial Chemicals

"THE ALUM PEOPLE"

Quality System
Quality Endorsed Company
ISO 9002 Lic 5552
Standards Australia

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Date of Issue Jan 2001
Approved by: L.C. FRIED

ALUMINIUM SULPHATE

MATERIAL SAFETY DATA SHEET

COMPANY DETAILS

COMPANY: CHEMPROD NOMINEES PTY. LTD.
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IDENTIFICATION

Hazardous according to the criteria of Worksafe Australia

Product Name:	**Aluminium Sulphate**
Other names:	Sulphate of Alumina Alum Papermakers Alum Filter Alum Liquid Alum Granular Alum
Manufacture's Product Code:	Aluminium Sulphate T.I.F Liquid Aluminium Sulphate T.I.F Liquid Ferric Alum B
CAS Register Number	10043-01-3
Other CAS Register Number	16828-11-8
UN Number	None Allocated
Dangerous Goods Class	None Allocated
Subsidiary Risk	None Allocated
Packaging Group	None Allocated
Hazchem Code:	None Allocated
Chemical family	Inorganic aluminium compound
Molecular formula	$Al_2(SO_4)_3 \cdot 14H_20$

Uses:

Treatment of municipal water supplies, sewage, industrial effluents
Paper manufacturing
Tanning
Chemical intermediate for other aluminium compounds
Food additive
Catalyst manufacture for oil refining
Preparation of viscose rayon, antiperspirant and pesticide
Decontamination of radio contaminated metal surfaces

PHYSICAL PROPERTIES:

Appearance:

a) Solid: White-off white granules, powder or lumps.
b) Liquid (T.I.F.): Clear, colourless to pale straw colour.
c) Liquid B: Light brown sludge.

Boiling point:
(a) Solid: Melts at 770°C with decomposition
(b) Liquid: Approx. 120°C

Solubility in water by weight:
(a) Solid: 50%
(b) Liquid: miscible with water in any proportion

Solubility in other liquids:
Insoluble in alcohol

Flash point ºC:
Not applicable

Flammability limits:
Non combustible

pH value:
(a) Solid (1% solution): 3.7
(b) Liquid: 2.0 - 2.7

Corrosiveness:
Aqueous solution is mildly corrosive to metals and concrete.

Reactivity data:

Stability: Stable compound, but in very dilute aqueous solutions hydrolyses to form some sulphuric acid.

Incompatibility: Strong aqueous solutions of Aluminium Sulphate will readily react with sodium hydroxide and other alkali to form a thick slippery paste or jell.

Hazardous decomposition products:
Solid: Fumes of SO_2 and SO_3
Liquid: dilute sulphuric acid

Hazardous polymerisation: will not occur

HEALTH HAZARD INFORMATION

No adverse health effects are expected if the product is handled in accordance with this Material Safety Data Sheet.

Acute exposure:

Inhalation: Dust forms sulphuric acid in moist air or in contact with tissues and can cause sore throat, coughing and irritation of nose and throat. High concentration may cause congestion and restriction of airways.

Skin: Dust or liquid can cause stingy irritation to open cuts and wounds. Dust can cause moderate to severe skin irritation depending on dust concentration and length of exposure.

Eye: Can cause moderate to severe irritation and inflammation to the eyes.

Ingestion: May cause abdominal pain, nausea, vomiting, bleeding stomach, incoordination, muscle spasm and kidney injury.

Long term (chronic) exposure:

Inhalation: No known long term effect.

Skin: Prolonged and repeated exposure can cause numbing of fingers.

Ingestion: Repeated ingestion of this material may cause phosphate deficiency which can weaken bones.

Eye: No known long term effect.

Carcinogenicity:

No human data. Probably not carcinogenic. May have anti-cancer effects.

Note: The International Agency for Research on Cancer (IARC) has determined that occupational exposure to strong inorganic acid mist containing sulphuric acid is carcinogenic to humans. This classification is for inorganic acid mist only and does not apply to sulphuric acid or sulphuric acid solutions.

Teratogenicity and embriotoxicity

No human data.

Mutanogenicity:

No specific data. Aluminium salts are not known to be mutanogenic.

Potential for accumulation:

Ingested material is not easily absorbed. It reacts with phosphate forming an insoluble compound which is easily passed out of the body. Inhaled dust may accumulate in the lungs until slowly cleared.

First Aid

Inhalation: Remove from exposure - seek medical aid

Skin: Wash with plenty of water.
Remove contaminated clothing.

Eye: Irrigate eyes with copious quantities of water, seek medical aid.

Ingestion: Drink plenty of water - do not induce vomiting.
Never give anything by mouth if victim is rapidly loosing consciousness. Quickly transport victim to medical emergency facility.

Notes to physician:

Treat symptomatically. Consult Poisons Information Centre.

PRECAUTIONS FOR USE:

Exposure standard: 2 mg Al/m^3 (soluble aluminium salts)

Engineering controls:

Maintain concentration below recommended exposure limits. Use in a well ventilated area. Dust collection system and local exhaust fans may be required.

Personal Protection:

Respiratory equipment:

Granular and fine product:	Particulate-dust respirator in accordance with AS 1716-1991, Respiratory Protection Devices.
Liquid:	none

Ventilation:

Granular and fine product:	Local exhaust fan or dust collector
Liquid:	none
Eye protection:	Safety goggles or face shield
Protective gloves:	PVC or rubber gloves
Other clothing requirements:	Same as dilute acids i.e. PVC suit, gum boots, etc.
Flammability:	The product is considered non-combustible. Its other hazardous properties must be considered if it is involved in a fire, i.e. Aluminium Sulphate will decompose to produce SO_2 and SO_3.

SAFE HANDLING INFORMATION

Storage and transport:

Granules and fines:	Use dust tight containers. Prevent accumulation of dust Avoid generating dust. Use smallest possible amount in designated area with adequate ventilation. Label containers. Keep containers closed when not in use.
Liquid:	Store and transport in corrosion resistant containers such as stainless steel, rubber lined steel, PVC, fibreglass, polyethylene, etc. Keep solution at manufacturer's recommended temperature to prevent crystallisation. Avoid generating mist.

Spills and disposal:

The disposal of this product must be in accordance with the relevant Federal, State, Local and environmental regulations. Generally, in case a spill the following measures to be taken.

Granules and fines:

Shovel into dry, clean, labelled containers and cover. Flush area with water with care to ensure that no water gets inside the container.

Liquid:

For large spillage refer to EPA or local waste management authority. Contain spillage with earth, sand or other absorbent material which does not react with the spilled material.
Contact emergency services and supplier for advice.

OTHER INFORMATION

Animal toxicity data:

Oral (mouse) LD_{50}: 6207 mg/kg
Oral (rat) LD_{50}: 1930 mg/kg
Intraperitoneal (mouse) LD_{50}: 270 mg/kg

Chronic inhalation: Prolonged inhalation of 2-4 mg/m^3 aluminium sulphate caused scarring of upper lung tissue.

Neurotoxicity: Injection of aluminium salts directly into the brain of animals cause functional and structural damage.

Carcinogenicity: No data for this material.
No evidence of carcinogenicity by various routes of exposure to other aluminium salts in rat and mice has been described.

References:

Chemical Rubber Co Handbook of Chemistry and Physics
Laport Ind, Ltd Aluminium Sulphate
Canadian Center for Occupational Health and Safety:
ALUMINIUM SULPHATE
ACGIH - Documentation of the Threshold Limit Values and Biological Indices.
5th Edition American Conference of Governmental Industrial Hygienist. Cincinnati, Ohio. (1986)
National Occupational Health and Safety Commission (Work safe Australia):
Exposure Standards for Atmospheric Contaminants in the Occupational Environment.
Pasminco Metals: Material Safety Data Sheet-Sulphuric Acid

Contact person:

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Company disclaimer:

This Material Safety Data Sheet is offered solely for information, consideration and investigation to determine the suitability of various health and safety precautions as may be required under the users specific conditions and processes. All such conditions and processes are beyond the control of Omega Chemicals.

The information contained herein is based on data available to Omega Chemicals from both our own technical sources and recognised published references and is believed to be both accurate and reliable. Omega Chemicals however provides no warranties, either expressed or implied, and assumes no responsibility for the accuracy or completeness of this information.

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Prepared by: L.C. FRIED Title: Chemist/Manager
Date: 1st January 2001