

1. IDENTIFICATION

Product Name	Aluminium Sulphate Solution
Other Names	Aluminium sulfate [CAS#10043-01-3]; Aluminium Sulfate Solution
Uses	Flocculating agent.
Chemical Family	No Data Available
Chemical Formula	Unspecified
Chemical Name	Sulphuric acid, aluminium salt, aqueous solution
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION**Poisons Schedule (Aust)**

Not Scheduled

SAFETY DATA SHEET ALUMINIUM SULPHATE SOLUTION REVISION 6, DATE 21 MAR 2021

Globally Harmonised System

Hazard Classification Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

Hazard Categories Skin Corrosion/Irritation - Category 2
Serious Eye Damage/Irritation - Category 1
Specific Target Organ Toxicity (Single Exposure) - Category 3

Pictograms



Signal Word Danger

Hazard Statements

H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

Precautionary Statements	Prevention	P280	Wear protective gloves/eye protection/face protection.
		P261	Avoid breathing mist/vapours/spray.
		P271	Use only outdoors or in a well-ventilated area.
	Response	P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTRE/doctor.
		P302 + P352	IF ON SKIN: Wash with plenty of water.
		P312	Call a POISON CENTER or doctor if you feel unwell.
		P332 + P313	If skin irritation occurs: Get medical advice.
	Storage	P362	Take off contaminated clothing.
		P304 + P340	IF INHALED: Remove victim to fresh air and keep comfortable for breathing.
		P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
Disposal	P405	Store locked up.	
	P501	Dispose of contents/container in accordance with local / regional / national / international regulations.	

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Safe Work Australia

National Guide for Classifying Hazardous Chemicals under the Model WHS Regulations

Hazard Classification Hazardous according to the criteria of Safe Work Australia under Model WHS Regulations

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Water	H ₂ O	7732-18-5	40 - 70 %
Aluminium sulfate, hydrated (octadecahydrate)	Unspecified	7784-31-8	30 - 60 %

4. FIRST AID MEASURES**Description of necessary measures according to routes of exposure**

Swallowed	IF SWALLOWED: Rinse mouth, then drink plenty of water. Do not induce vomiting. Call a Poison Centre or doctor/physician if you feel unwell. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Never give anything by mouth to an unconscious person.
Eye	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. Immediately call a Poison Centre or doctor/physician for advice. Can cause corneal burns - Transport to hospital or doctor without delay! *Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin	IF ON SKIN: Remove and isolate contaminated clothing and shoes. Immediately flush skin with running water for several minutes (and soap, if available). If skin irritation occurs, get medical advice/attention. Wash contaminated clothing and shoes before reuse.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a Poison Centre or doctor/physician for advice. Give artificial respiration if victim is not breathing (preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained). Administer oxygen if breathing is difficult.
Advice to Doctor	Treat symptomatically. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
Medical Conditions Aggravated by Exposure	No information available.

5. FIRE FIGHTING MEASURES

General Measures	Alert Fire Brigade and tell them location and nature of hazard. If safe to do so, move undamaged containers from fire area. Do NOT approach containers suspected to be hot. Cool containers with water spray until well after fire is out.
Flammability Conditions	Non-combustible; Material itself does not burn.
Extinguishing Media	If material is involved in a fire, use dry chemical, Carbon dioxide (CO ₂), foam or water spray for extinction. There is no restriction on the type of extinguisher which may be used. *Use extinguishing media suitable for surrounding area.
Fire and Explosion Hazard	Containers may explode when heated.
Hazardous Products of Combustion	Fire or heat may produce irritating, toxic and/or corrosive fumes, including Sulfur oxides (SO _x), Aluminium oxides.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may pollute waterways.
Personal Protective Equipment	Wear positive pressure self-contained breathing apparatus (SCBA) and chemical splash suit. SCBA and structural firefighter's uniform may provide limited protection.
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. Do not touch or walk through spilled material. Clean up all spills immediately! Avoid breathing vapours and contact with eyes, skin and clothing.
Clean Up Procedures	Collect recoverable product into labelled containers for recycling. Pick up minor spills/residue with sand or other non-combustible absorbent material and place in a suitable, labelled container for waste disposal (see SECTION 13).
Containment	Stop leak if you can do it without risk – Prevent entry into waterways, drains or confined areas. Dike far ahead of large spill for later disposal.
Decontamination	Neutralise/decontaminate residue. Wash area and prevent runoff into drains. *After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
Environmental Precautionary Measures	Prevent entry into drains and waterways. If contamination of drains or waterways occurs, advise emergency services.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Stay upwind and/or uphill.
Personal Precautionary Measures	Control personal contact with the substance by using protective equipment (see SECTION 8). *Major spills: Wear breathing apparatus plus protective gloves.

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation - Use only outdoors or in a well-ventilated area. Handle in accordance with good industrial hygiene and safety practice. Avoid breathing mist/vapours/aerosols and contact with eyes, skin and clothing. Do not ingest. Wear protective clothing when risk of exposure occurs (see SECTION 8). Avoid contact with incompatible materials.
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep containers securely sealed when not in use. Avoid physical damage to containers. Keep away from heat and sources of ignition - No smoking. Keep away from incompatible materials (see SECTION 10). Store locked up.
Container	Keep in the original or suitable (Polyethylene or polypropylene) container. Do NOT use aluminium, galvanised or tin-plated containers. *Check all containers are clearly labelled and free from leaks.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No value assigned for this specific material by Safe Work Australia. For Aluminium, soluble salts (as Al): - Safe Work Australia Exposure Standard: TWA = 2 mg/m ³ - New Zealand Workplace Exposure Standard [Next review 2022]: TWA = 5 mg/m ³ COMPONENT: Sulfuric acid (CAS No. 7664-93-9): - Safe Work Australia Exposure Standard: TWA = 1 mg/m ³ ; STEL = 3 mg/m ³ - New Zealand Workplace Exposure Standard [Adopted 2018]: TWA = 0.1 mg/m ³ (carcinogen category 1).
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	Provide adequate ventilation in warehouses and enclosed storage areas. General exhaust is adequate under normal operating conditions; Local exhaust ventilation may be required in special circumstances.
Personal Protection Equipment	- Respiratory protection: In case of inadequate ventilation or if a risk of overexposure exists, wear approved respirator. Recommended: Suitable mist respirator (refer to AS/NZS 1715 & 1716). Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection. - Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Safety glasses with side-shields or Chemical goggles. - Hand protection: Wear protective gloves. Recommended: Impervious, chemical-protective gloves, e.g. PVC. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Overalls. Wear safety footwear or safety gumboots, e.g. Rubber.
Special Hazards Precautions	Aluminium sulfate forms sulfuric acid in water; reacts violently with bases and many other materials.

Work Hygienic Practices	When handling, Do not eat, drink or smoke. Always wash hands with soap and water after handling. Work clothes should be laundered separately. Launder contaminated clothing before re-use. Do NOT allow clothing wet with material to stay in contact with skin.
--------------------------------	--

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Clear liquid
Odour	No information available.
Colour	Pale, straw
pH	2.10 - 2.50 (as supplied)
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	No Data Available
Freezing Point	No Data Available
Solubility	Miscible with water
Specific Gravity	1.315 - 1.318 (Water = 1)
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	No information available.
Potential for Dust Explosion	Not applicable.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	Non-combustible; Material itself does not burn.

SAFETY DATA SHEET ALUMINIUM SULPHATE SOLUTION REVISION 6, DATE 21 MAR 2021

Reactions That Release Gases or Vapours	Fire or heat may produce irritating, toxic and/or corrosive fumes, including Sulfur oxides (SO _x), Aluminium oxides.
Release of Invisible Flammable Vapours and Gases	Aqueous solution attacks aluminium and other metals forming hydrogen gas; the material is corrosive to aluminium, zinc and tin producing highly flammable hydrogen gas.

10. STABILITY AND REACTIVITY

General Information	Aluminium sulfate forms sulfuric acid in water; reacts violently with bases and many other materials. Aqueous solution attacks aluminium and other metals forming hydrogen gas; the material is corrosive to aluminium, zinc and tin producing highly flammable hydrogen gas.
Chemical Stability	Product is considered stable. *Unstable in the presence of incompatible materials.
Conditions to Avoid	Avoid contact with incompatible materials.
Materials to Avoid	Incompatible/reactive with alkalis, metals.
Hazardous Decomposition Products	Fire or heat may produce irritating, toxic and/or corrosive fumes, including Sulfur oxides (SO _x), Aluminium oxides.
Hazardous Polymerisation	Hazardous polymerisation will not occur.

11. TOXICOLOGICAL INFORMATION

General Information	<ul style="list-style-type: none">- Acute toxicity: May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea.- Skin corrosion/irritation: Causes skin irritation.- Eye damage/irritation: Causes serious eye damage. When applied to the eye(s) of animals, the material produces severe ocular lesions which are present twenty-four hours or more after instillation.- Respiratory/skin sensitisation: The available data do not provide any evidence of skin sensitisation (Aluminium sulfates).- Germ cell mutagenicity: The weight of evidence does not support classification of (Aluminium sulfates) for genotoxicity.- Carcinogenicity: The available data do not support classification of (Aluminium sulfates) as carcinogens.- Reproductive toxicity: No information available.- STOT (single exposure): May cause respiratory irritation.- STOT (repeated exposure): Aluminium has been shown to have neurotoxic effects.- Aspiration toxicity: No information available.
Acute	
Ingestion	Acute toxicity (Oral): COMPONENT: Aluminium sulphate, hydrated: - LD50, Rat: 370 mg/kg [Supplier's SDS].
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic toxicity: COMPONENT: Aluminium sulphate, hydrated: - LC50, Fish: 0.112 mg/L (96 h) [Supplier's SDS]. - EC50, Crustacea: 0.33 mg/L (48 h) [Supplier's SDS]. - EC50, Algae/other aquatic plants: 0.04 mg/L (72 h) [Supplier's SDS].
Persistence/Degradability	COMPONENT: Aluminium sulphate, hydrated: - High persistence in water/soil; High persistence in air.
Mobility	COMPONENT: Aluminium sulphate, hydrated: - Low mobility in soil (KOC = 6.124).

SAFETY DATA SHEET ALUMINIUM SULPHATE SOLUTION REVISION 6, DATE 21 MAR 2021

Environmental Fate	Prevent entry into drains and waterways.
Bioaccumulation Potential	COMPONENT: Aluminium sulphate, hydrated: - Low bioaccumulative potential (LogKOW = -2.2002).
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	This material may be recycled if unused or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. Recycle wherever possible or dispose of by burial in a landfill specifically licensed to accept chemical and/or pharmaceutical wastes or incinerate in a licensed apparatus (after admixture with suitable combustible material) and in accordance with local/regional/national regulations.
Special Precautions for Land Fill	Contaminated packaging: Decontaminate empty containers. Observe all label safeguards until containers are cleaned and destroyed.

14. TRANSPORT INFORMATION

Land Transport (Australia)

ADG Code

Proper Shipping Name	Aluminium Sulphate Solution
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (Malaysia)

ADR Code

Proper Shipping Name	Aluminium Sulphate Solution
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (New Zealand)

NZS5433

SAFETY DATA SHEET ALUMINIUM SULPHATE SOLUTION REVISION 6, DATE 21 MAR 2021

Proper Shipping Name	Aluminium Sulphate Solution
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Land Transport (United States of America)

US DOT

Proper Shipping Name	Aluminium Sulphate Solution
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for LAND transport.

Sea Transport

IMDG Code

Proper Shipping Name	Aluminium Sulphate Solution
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
EMS	No Data Available
Marine Pollutant	No
Comments	NON-DANGEROUS GOODS: Not regulated for SEA transport.

Air Transport

IATA DGR

Proper Shipping Name	Aluminium Sulphate Solution
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
Comments	NON-DANGEROUS GOODS: Not regulated for AIR transport.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification

NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION**General Information** No Data Available**Poisons Schedule (Aust)** Not Scheduled**Environmental Protection Authority (New Zealand)**

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code HSR002491 -**National/Regional Inventories**

Australia (AIC)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	Not Determined
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

16. OTHER INFORMATION**Related Product Codes**

ALUSUD1900, ALUSUD2000, ALUSUI3000, ALUSUI3100, ALUSUL1000, ALUSUL1001, ALUSUL1002, ALUSUL1003, ALUSUL1004, ALUSUL1006, ALUSUL1400, ALUSUL1401, ALUSUL1500, ALUSUL1600, ALUSUL1800, ALUSUL1801, ALUSUL1802, ALUSUL1803, ALUSUL1804, ALUSUL1805, ALUSUL1806, ALUSUL1807, ALUSUL1808, ALUSUL1809, ALUSUL1810, ALUSUL1811, ALUSUL1812, ALUSUL1900, ALUSUL1901, ALUSUL2000, ALUSUL2001, ALUSUL2100,

SAFETY DATA SHEET ALUMINIUM SULPHATE SOLUTION REVISION 6, DATE 21 MAR 2021

ALUSUL2500, ALUSUL2501, ALUSUL3000, ALUSUL3100, ALUSUL3101, ALUSUL3102, ALUSUL3780, ALUSUL4000, ALUSUL5000, ALUSUL5100, ALUSUL5200, ALUSUL8100, ALUSUL8500

Revision	6
Revision Date	21 Mar 2021
Key/Legend	< Less Than > Greater Than AICS Australian Inventory of Chemical Substances atm Atmosphere CAS Chemical Abstracts Service (Registry Number) cm² Square Centimetres CO₂ Carbon Dioxide COD Chemical Oxygen Demand deg C (°C) Degrees Celcius EPA (New Zealand) Environmental Protection Authority of New Zealand deg F (°F) Degrees Farenheit g Grams g/cm³ Grams per Cubic Centimetre g/l Grams per Litre HSNO Hazardous Substance and New Organism IDLH Immediately Dangerous to Life and Health immiscible Liquids are insoluable in each other. inHg Inch of Mercury inH₂O Inch of Water K Kelvin kg Kilogram kg/m³ Kilograms per Cubic Metre lb Pound LC₅₀ LC stands for lethal concentration. LC ₅₀ is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours. LD₅₀ LD stands for Lethal Dose. LD ₅₀ is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals. ltr or L Litre m³ Cubic Metre mbar Millibar mg Milligram mg/24H Milligrams per 24 Hours mg/kg Milligrams per Kilogram mg/m³ Milligrams per Cubic Metre Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component present. mm Millimetre mmH₂O Millimetres of Water mPa.s Millipascals per Second N/A Not Applicable NIOSH National Institute for Occupational Safety and Health NOHSC National Occupational Heath and Safety Commission OECD Organisation for Economic Co-operation and Development Oz Ounce PEL Permissible Exposure Limit Pa Pascal ppb Parts per Billion ppm Parts per Million ppm/2h Parts per Million per 2 Hours ppm/6h Parts per Million per 6 Hours psi Pounds per Square Inch R Rankine RCP Reciprocal Calculation Procedure STEL Short Term Exposure Limit TLV Threshold Limit Value tne Tonne TWA Time Weighted Average ug/24H Micrograms per 24 Hours UN United Nations wt Weight

