

1. IDENTIFICATION

Product Name	Aluminium sulphate
Other Names	Aluminium sulfate, hydrate [CAS#17927-65-0]; Aluminium sulphate, hexadecahydrate [CAS#16828-11-8]; Aluminium sulphate, octadecahydrate [CAS#7784-31-8]; Aluminium sulphate, tetradecahydrate [CAS#16828-12-9]
Uses	Water purification; Sewage treatment; Deodoriser and decolouring in petroleum refinery processes; Water proofing agent for concrete; Sizing paper and pH control; Clarifying agent for fats and oil.
Chemical Family	No Data Available
Chemical Formula	Al ₂ (SO ₄) ₃
Chemical Name	Aluminium sulfate
Product Description	Inorganic salt.

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty 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
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) Not Scheduled

Globally Harmonised System

Hazard Classification	Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
Hazard Categories	Serious Eye Damage/Irritation - Category 2A



Pictograms



Signal Word

Warning

Hazard Statements

H319

Causes serious eye irritation.

Precautionary Statements

Prevention

P280

Wear eye protection/face protection.

Response

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313

If eye irritation persists: Get medical advice/attention.

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications

Health Hazards

6.3A

Substances that are irritating to the skin

6.1D

Substances that are acutely toxic - Harmful

6.4A

Substances that are irritating to the eye

8.1A

Substances that are corrosive to metals

Environmental Hazards

9.1B

Substances that are ecotoxic in the aquatic environment

9.3C

Substances that are harmful to terrestrial vertebrates

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Aluminium sulphate	Al ₂ (SO ₄) ₃	10043-01-3	<=100 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed

IF SWALLOWED: Rinse mouth, then drink 1 - 2 glasses of water. Do NOT induce vomiting. Get immediate medical advice/attention. 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. Get immediate medical advice/attention.

Skin

IF ON SKIN: Immediately wash with plenty of soap and water or flush skin with running water for at least 15 minutes. Take off contaminated clothing and wash before reuse. If skin irritation occurs, get medical advice/attention.

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 if you feel unwell. Apply resuscitation if victim is not breathing - Administer oxygen if breathing is difficult.

Advice to Doctor

Treat symptomatically. Ensure that attending medical personnel are aware of the identity and nature of the product(s) involved, and take precautions to protect themselves.

Medical Conditions Aggravated by Exposure

No information available.



5. FIRE FIGHTING MEASURES

General Measures	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out. Avoid getting water inside containers - The solid may corrode metals in presence of moisture.
Flammability Conditions	Non-combustible. Material itself does not burn.
Extinguishing Media	If material is involved in a fire, use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Fire and Explosion Hazard	Gives off irritating or toxic fumes (or gases) in a fire.
Hazardous Products of Combustion	Decomposes on heating, emitting toxic fumes, including Sulphur oxides and Aluminium oxides.
Special Fire Fighting Instructions	Prevent fire extinguishing water from contaminating surface water or the ground water system.
Personal Protective Equipment	Wear 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. Avoid breathing dust and contact with eyes, skin and clothing.
Clean Up Procedures	Sweep up and shovel into suitable, clean and dry, labelled containers for disposal (see SECTION 13). Take up dry. Prevent dispersion of dust!
Containment	Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas. Cover with plastic sheet to prevent spreading or contact with rain.
Decontamination	Clean contaminated surface thoroughly.
Environmental Precautionary Measures	Prevent entry into waterways and drains.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away.
Personal Precautionary Measures	Use personal protective equipment as required, incl. particulate filter respirator adapted to the airborne concentration of the substance (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Avoid generating dust. Avoid breathing dust/spray mist and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8).
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed when not in use. Protect from moisture. Keep away from heat and sources of ignition - No smoking. Keep away from foodstuffs and incompatible materials (see SECTION 10). Store locked up.
Container	Keep in the original container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product. 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
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Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	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. Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
Personal Protection Equipment	<ul style="list-style-type: none"> - Respiratory protection: Wear respiratory protection under conditions where exposure to the substance is apparent (e.g. generation of high concentration of dust (dust clouds), inadequate ventilation, development of respiratory tract irritation) and engineering controls are not feasible. Recommended: Dust mask or respirator with dust filter (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Goggles or Safety glasses with side-shields; and face shield (when eye/face contact is possible due to splashing or spraying of material). - Hand protection: Wear protective gloves. Recommended: Appropriate chemical-resistant gloves, e.g. Nitrile rubber. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Long sleeved clothing; Chemical resistant apron. Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substance handled.
Special Hazards Precautions	No information available.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Wash hands after working with substance. Take off contaminated clothing and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Powder or granules, flake
Odour	Odourless
Colour	White to brownish
pH	>3 (1% sol. @ 27 °C)
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	770 °C (decomposes)
Freezing Point	No Data Available
Solubility	Soluble in water (87 g/100 cc) 27°C
Specific Gravity	No Data Available
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	920 kg/m ³ (Powder)
Corrosion Rate	No Data Available
Decomposition Temperature	770 °C
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	HYGROSCOPIC - Absorbs moisture/water from surrounding air.



Potential for Dust Explosion	No information available.
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	Dissolves in water with evolution of heat; Creates acidic solutions.
Properties That May Initiate or Contribute to Fire Intensity	Non-combustible; Material itself does not burn.
Reactions That Release Gases or Vapours	Decomposes on heating, emitting toxic fumes, including Sulphur oxides and Aluminium oxides.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

General Information	Releases water of crystallization when heated. Aqueous solutions of ALUMINUM SULFATE are acidic. The solid may corrode metals in presence of moisture.
Chemical Stability	Stable under recommended storage conditions.
Conditions to Avoid	Avoid generating dust. Avoid exposure to air/moisture.
Materials to Avoid	Incompatible/reactive with strong bases, chlorites, hypochlorites, carbides, water, metals. Attacks many metals in the presence of water!
Hazardous Decomposition Products	Decomposes on heating, emitting toxic and corrosive fumes, including Sulphur oxides and Aluminium oxides.
Hazardous Polymerisation	Hazardous polymerization does not occur.

11. TOXICOLOGICAL INFORMATION

General Information	<ul style="list-style-type: none"> - Acute toxicity: Low toxicity. Swallowing may cause irritations of mucous membranes in the mouth, pharynx, esophagus and gastrointestinal tract. - Skin corrosion/irritation: Slight irritation (Rabbit) [OECD Guideline 404]. - Eye damage/irritation: Causes serious eye irritation [NICNAS assessment Aluminum sulfates (single and double salts)]. - Respiratory/skin sensitisation: The available data do not provide any evidence of skin sensitisation [NICNAS]. - Germ cell mutagenicity: The weight of evidence does not support classification for genotoxicity [NICNAS]. - Carcinogenicity: The available data do not support classification as a carcinogen [NICNAS]. - Reproductive toxicity: Neurodevelopmental effects have been observed in rats and mice at doses of 103 – 330 mg Al/kg bw/day, equivalent to 652 - 2090 mg Aluminium sulfate (CAS No. 10043-01-3). - STOT (single exposure): The substance or mixture is not classified as specific target organ toxicant, single exposure. Inhalation of dust in high concentration may cause irritation of respiratory system. - STOT (repeated exposure): The substance or mixture is not classified as specific target organ toxicant, repeated exposure. Results from human and animal studies suggest that the respiratory tract, particularly the lung, is a sensitive target of airborne aluminium toxicity (soluble and insoluble forms). The lung effects observed in humans and animals are suggestive of dust overload. In addition, neurotoxicity is a well-documented effect of aluminium in orally-exposed mice and rats. Although the neurotoxicity of aluminium has not been established in humans with normal renal function, the available data establish that the human nervous system is susceptible to aluminium toxicity [NICNAS]. - Aspiration toxicity: Based on available data the classification criteria are not met.
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Acute

Ingestion	Acute toxicity (Oral): - LD50, Rat: >2,000 mg/kg
Carcinogen Category	None

12. ECOLOGICAL INFORMATION



Ecotoxicity	Toxicity to fish: - LC50, Pimephales promelas (fathead minnow): 36.1 mg/l (96 h).
Persistence/Degradability	No information available.
Mobility	No information available.
Environmental Fate	Prevent entry into waterways and drains.
Bioaccumulation Potential	No information available.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of contents/container in accordance with local/regional/national regulations. DO NOT flush to surface water or sanitary sewer system.
Special Precautions for Land Fill	No information available.

14. TRANSPORT INFORMATION

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	Aluminium sulphate
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 LAND transport.

Sea Transport

IMDG Code

Proper Shipping Name	Aluminium sulphate
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
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.

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	HSR004337
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National/Regional Inventories

Australia (AICS)	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	ALSULP0500, ALSULP1000, ALSULP1001, ALSULP1002, ALSULP1003, ALSULP1004, ALSULP1005, ALSULP1006, ALSULP1007, ALSULP1008, ALSULP1009, ALSULP1010, ALSULP1011, ALSULP1012,
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ALSULP1013, ALSULP1014, ALSULP1015, ALSULP1016, ALSULP1100, ALSULP1200, ALSULP1250, ALSULP1251, ALSULP1300, ALSULP1400, ALSULP1500, ALSULP1600, ALSULP1800, ALSULP1801, ALSULP1802, ALSULP1803, ALSULP1804, ALSULP1805, ALSULP1806, ALSULP2000, ALSULP2040, ALSULP2100, ALSULP2200, ALSULP2201, ALSULP2202, ALSULP2203, ALSULP2205, ALSULP2210, ALSULP2211, ALSULP2212, ALSULP2213, ALSULP2300, ALSULP2310, ALSULP2400, ALSULP2410, ALSULP2411, ALSULP2500, ALSULP2501, ALSULP3000, ALSULP3100, ALSULP3200, ALSULP3500, ALSULP3550, ALSULP3700, ALSULP3701, ALSULP3702, ALSULP3710, ALSULP3711, ALSULP4000, ALSULP4900, ALSULP5000, ALSULP5100, ALSULP5101, ALSULP5105, ALSULP5200, ALSULP5201, ALSULP5205, ALSULP5300, ALSULP5400, ALSULP5500, ALSULP5600, ALSULP5700, ALSULP6000, ALSULP6500, ALSULP7000, ALSULP7100, ALSULP8001, ALSULP8002, ALSULP8005, ALSULP8020, ALSULP8030, ALSULP8031, ALSULP8040, ALSULP8881, ALSULP9001, ALSULP9010, ALSULP9011, ALSULP9200, ALSULP9310, ALSULP9311

Revision

4

Revision Date

01 Apr 2020

Reason for Issue

Updated SDS

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. LC50 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. LD50 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 Health 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

