

#### **1. IDENTIFICATION**

Product Name	Sulphuric acid >51%
Other Names	SULPHURIC ACID with more than 51% acid
Uses	Chemical intermediate; fertilisers; processing aid; catalyst; dehydrating agent; pH regulation; extractions and processing of minerals and ores; surface treatments; purification and etching; electrolytic processes; gas purification; flue gas scrubbing; production of sulphuric acid batteries; industrial cleaning.
Chemical Family	No Data Available
Chemical Formula	H2SO4
Chemical Name	Sulfuric acid >51%
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

# 2. HAZARD IDENTIFICATION

Poisons Schedule (Aust)

Schedule 6

#### **Globally Harmonised System**

**Hazard Classification** 

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

Redox Ltd Melbourne Office ABN 92 000 762 345 ♦ +61 3 9369 3355
♦ +61 3 9369 3733





Hazard Categories		Corrosive to Metals - Ca	ategory 1
		Skin Corrosion/Irritatior	n - Category 1A
		Serious Eye Damage/Irr	ritation - Category 1
Pictograms			
Signal Word		Danger	
Hazard Statements		H290	May be corrosive to metals.
		H314	Causes severe skin burns and eye damage.
		AUH071	Corrosive to the respiratory tract
Precautionary Statements	Prevention	P260	Do not breathe fume/mist/vapours/spray.
		P280	Wear protective gloves/protective clothing/eye protection/face protection.
	Response	P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
		P310	Immediately call a POISON CENTER or doctor.
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P390	Absorb spillage to prevent material-damage.
		P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
		P363	Wash contaminated clothing before reuse.
		P304 + P340	IF INHALED: Remove victim to fresh air and keep comfortable for breathing.
	Storage	P406	Store in corrosive resistant container with a resistant inner liner.
		P405	Store locked up.
	Disposal	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	Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
<b>Safe Work Australia</b> National Guide for Classifying Hazardous Che	emicals 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
Sulfuric acid	H2SO4	7664-93-9	>51 %
Water	H2O	7732-18-5	Balance %



#### 4. FIRST AID MEASURES

#### Description of necessary measures according to routes of exposure

Swallowed	IF SWALLOWED: Rinse mouth with water, then drink plenty of water. Do NOT induce vomiting. For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor. Never give anything by mouth to an unconscious person. Get immediate medical attention!
Eye	IF IN EYES: Do not rub affected area! 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 flushing until advised to stop by a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor, or for at least 15 minutes. Get immediate medical attention!
Skin	IF ON SKIN (or hair): Remove and isolate contaminated clothing and shoes. Immediately flush skin and hair with running water for at least 15 minutes. Immediately call a Poison Centre or doctor/physician for advice. Wash contaminated clothing and shoes before reuse. Get immediate medical attention! *For minor skin contact, avoid spreading material on unaffected skin.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a Poison Centre or doctor/physician for advice. Give artificial respiration if victim is not breathing. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Administer oxygen if breathing is difficult. Get immediate medical attention!
Advice to Doctor	Treat symptomatically. Keep victim calm and warm. Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. *Most important symptoms and effects, both acute and delayed: Causes severe skin burns and eye damage. Corrosive to the respiratory tract.
Medical Conditions Aggravated by Exposure	No information available.

#### **5. FIRE FIGHTING MEASURES General Measures** Move containers from fire area if you can do it without risk. Cool containers with water spray until well after fire is out. Do not get water inside containers. **Flammability Conditions** Non-combustible material. **Extinguishing Media** If material is involved in a fire, use dry chemical, Carbon dioxide (CO2), foam or water spray for extinction (do not use water on material itself). **Fire and Explosion Hazard** Risk of violent reaction or explosion! Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated or if contaminated with water. **Hazardous Products of** Fire will produce irritating, corrosive and/or toxic gases, including oxides of Sulfur. Combustion **Special Fire Fighting Instructions** Contain runoff from fire control or dilution water - Runoff may cause pollution. **Personal Protective Equipment** Wear positive pressure self-contained breathing apparatus (SCBA). Wear chemical protective clothing - It may provide little or no thermal protection. Structural firefighters' protective clothing provides limited protection in fire situations ONLY; it is not effective in spill situations where direct contact with the substance is possible. **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 2P



## 6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation - Ventilate enclosed spaces before entering. ELIMINATE all ignition sources. Do not touch or walk through spilled material - Slippery when spilt. Avoid accidents, clean up immediately! Do not breathe mist/vapours and prevent contact with eyes, skin and clothing.
Clean Up Procedures	Use clean, non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal (see SECTION 13).
Containment	Stop leak if you can do it without risk. Prevent entry into waterways, sewers, basements or confined areas. Cover with DRY earth, DRY sand or other non-combustible material followed with plastic sheet to minimise spreading or contact with rain. *Use water spray to reduce vapours; do not put water directly on leak, spill area or inside container.
Decontamination	Neutralise residues with lime or soda ash. After cleaning, flush away any residual traces with water.
Environmental Precautionary Measures	Prevent entry into drains and waterways.
Evacuation Criteria	Spill or leak area should be isolated immediately. Evacuate personnel to safe areas. Keep unauthorised personnel away. Keep upwind and to higher ground.
Personal Precautionary Measures	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (see SECTION 8). *Fully encapsulating, vapor-protective clothing should be worn for spills and leaks with no fire.

## 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 place. Handle in accordance with good industrial hygiene and safety practice. Do not breathe mist/vapours and prevent contact with eyes, skin and clothing. Do not ingest. Wear protective gloves/protective clothing/eye protection/face protection and suitable respirator (see SECTION 8). CORROSIVE TO METALS: Absorb spillage to prevent material damage (see SECTION 6). *Always add the acid to water, never the reverse.
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Avoid contact with water/moisture. Protect from freezing. Keep container tightly closed - Check regularly for leaks. Keep away from foodstuffs and incompatible materials (see SECTION 10). Store locked up.
Container	Keep only in the original, properly labelled containers.

# 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	For Sulphuric acid (CAS No. 7664-93-9): - Safe Work Australia Exposure Standard: TWA = 1 mg/m3; STEL = 3 mg/m3 - New Zealand Workplace Exposure Standard [Adopted 2018]: Ceiling = 0.1 mg/m3; Known or presumed human carcinogen (carcinogen category 1). - NIOSH REL/OSHA PEL: TWA = 1 mg/m3 - Immediately dangerous to life or health (IDLH) concentration: 15 mg/m3
Exposure Limits	No Data Available
<b>Biological Limits</b>	No information available.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	<ul> <li>Respiratory protection: Wear respiratory protection in case of inadequate ventilation or if an inhalation risk exists.</li> <li>Recommended: Full face-piece particulate/mist respirator (refer to AS/NZS 1715 &amp; 1716).</li> <li>Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Chemical goggles; face shield, if splashes are likely to occur.</li> <li>Hand protection: Wear appropriate personal protective clothing to prevent skin contact. Recommended: Overalls, splash apron or equivalent, and rubber boots.</li> </ul>



Special Hazards Precaustions Work Hygienic Practices

Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Take off immediately all contaminated clothing. Wash contaminated clothing before reuse.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

No information available.

Physical State	Liquid
Appearance	Liquid
Odour	Slight
Colour	Colorless to brown
pH	<1
Vapour Pressure	<0.011 kPa (@ 20 °C)
Relative Vapour Density	No Data Available
Boiling Point	~178 °C
Melting Point	No Data Available
Freezing Point	No Data Available
Solubility	Miscible with water
Specific Gravity	1.50 - 1.85
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	Risk of violent reaction or explosion!
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	Exothermic reaction with water which may cause violent spattering - Reaction with water may generate much heat that will increase the concentration of fumes in the air.
Properties That May Initiate or Contribute to Fire Intensity	Non-combustible material.

Reactions That Release Gases or<br/>VapoursDecomposes on heating emitting toxic fumes, including oxides of Sulfur.Release of Invisible FlammableContact with metals may evolve flammable hydrogen gas.

#### **10. STABILITY AND REACTIVITY**

Vapours and Gases

General Information	Will react exothermically on dilution with water. Reacts exothermically with strong alkalis. May be corrosive to metals.
Chemical Stability	Stable under normal conditions.
Conditions to Avoid	Avoid heat. Avoid contact with water/moisture.
Materials to Avoid	Incompatible/reactive with moisture/water, oxidising agents, alkalis, most metals, organic chemicals.
Hazardous Decomposition Products	Decomposes on heating emitting toxic fumes, including oxides of Sulfur. Contact with metals may evolve flammable hydrogen gas.
Hazardous Polymerisation	Hazardous polymerisation will not occur.

#### **11. TOXICOLOGICAL INFORMATION**

General Information	<ul> <li>Information on toxicological effects:</li> <li>Acute toxicity: No information available.</li> <li>Skin corrosion/irritation: Causes severe skin burns and eye damage.</li> <li>Serious eye damage/irritation: Causes serious eye damage.</li> <li>Respiratory/skin sensitisation: No information available.</li> <li>Germ cell mutagenicity: No information available.</li> <li>Carcinogenicity: The International Agency for Research on Cancer (IARC) have concluded that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to humans, causing cancer of the larynx and to a lesser extent, the lung. No direct link has been established with sulfuric acid, itself, and cancer in humans.</li> <li>Reproductive toxicity: No information available.</li> <li>STOT (single exposure): Corrosive to the respiratory tract.</li> <li>STOT (repeated exposure): No information available.</li> <li>Aspiration toxicity: No information available.</li> </ul>
Acute	<ul> <li>Information on likely routes of exposure:</li> <li>Ingestion: Corrosive to the gastrointestinal tract! Can burn mouth, throat, and stomach.</li> <li>Eye contact: Corrosive to the eyes! Causes serious eye damage, including blindness.</li> <li>Skin contact: Corrosive to the skin! Causes severe skin burns.</li> <li>Inhalation: Corrosive to the respiratory tract! Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Pulmonary edema can be fatal. Chronic effects: Repeated overexposure may lead to chronic conjunctivitis, lung damage and dental erosion.</li> </ul>
Ingestion	Acute toxicity (Oral): COMPONENT: Sulfuric acid (CAS No. 7664-93-9): - LD50, Rats: ~2,140 mg/kg bw. [NICNAS].
Inhalation	Acute toxicity (Inhalation): COMPONENT: Sulfuric acid (CAS No. 7664-93-9): - LC50, Rats: 0.375 mg/L (4 h) aerosols [NICNAS]. *The effects of sulfuric acid following inhalation are entirely due to local irritation of the respiratory tract, thus classification for acute inhalation toxicity is not recommended despite low LC50s [NICNAS].
Carcinogen Category	None



## **12. ECOLOGICAL INFORMATION**

Ecotoxicity	No information available.
Persistence/Degradability	No information available.
Mobility	No information available.
Environmental Fate	The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.
<b>Bioaccumulation Potential</b>	No information available.
Environmental Impact	No Data Available

#### **13. DISPOSAL CONSIDERATIONS**

General Information	Whatever cannot be saved for recovery or recycling should be disposed of as hazardous waste and in accordance with local/regional/national regulations.
Special Precautions for Land Fill	No information available.

#### **14. TRANSPORT INFORMATION**

#### Land Transport (Australia)

ADG Code	
Proper Shipping Name	SULPHURIC ACID with more than 51% acid
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
EPG	40 Toxic And/Or Corrosive Substances Non-Combustible - Water Reactive
UN Number	1830
Hazchem	2P
Pack Group	ll
Special Provision	No Data Available
Sea Transport IMDG Code	
Proper Shipping Name	SULPHURIC ACID with more than 51% acid
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
UN Number	1830
Hazchem	2P
Pack Group	I
Special Provision	No Data Available
EMS	F-A, S-B
Marine Pollutant	No

#### Air Transport IATA DGR



Proper Shipping Name	SULPHURIC ACID with more than $51\%$ acid
Class	8 Corrosive Substances
Subsidiary Risk(s)	No Data Available
UN Number	1830
Hazchem	2P
Pack Group	II
Special Provision	No Data Available

#### **National Transport Commission (Australia)**

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

Dangerous Goods Classification	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	SULFURIC ACID
Poisons Schedule (Aust)	Schedule 6

#### **National/Regional Inventories**

Australia (AIIC)	Listed
Canada (DSL)	Listed
Canada (NDSL)	Not Determined
China (IECSC)	Listed
Europe (EINECS)	231-639-5
Europe (REACh)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Listed
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Listed
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Listed
USA (TSCA)	Listed



Additional Information

# SAFETY DATA SHEET SULPHURIC ACID >51% REVISION 5, DATE 28 FEB 2024

ABBREVIATIONS: SAR = supplied-air respirator SCBA = self-contained breathing apparatus IDLH = Immediately Dangerous to Life or Health.

## **16. OTHER INFORMATION**

Related Product Codes	<ul> <li>SULACB1000, SULACB1001, SULACB1002, SULACB2000, SULACB2000, SULACB2000, SULACB5001, SULACB5001, SULACCB500, SULACCB500, SULACCB500, SULACCB500, SULACCB500, SULACC6900, SULACC5000, SULACC6900, SULACC5000, SULACC6900, SULACC5000, SULACC6000, SULACC6600, SULACC660, SULACC6600, SULACC6600, SULACC6600, SULACC6600, SULACC6600, SULACC</li></ul>
Revision	5
Revision Date	28 Feb 2024
Key/Legend	< Less Than < Greater Than AICS Australian Inventory of Chemical Substances atm Atmosphere CAS Chemical Abstracts Service (Registry Number) cm <sup>2</sup> 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/cm <sup>3</sup> Grams per Cubic Centimetre g/I 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 inH20 Inch of Water K Kelvin kg Kilogram kg/m<sup>3</sup> Kilograms per Cubic Metre Ib 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. Itr or L Litre m<sup>3</sup> Cubic Metre mbar Millibar mg Milligram mg/24H Milligrams per 24 Hours mg/kg Milligrams per Kilogram mg/m<sup>3</sup> Milligrams per Cubic Metre Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component present. mm Millimetre mmH20 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

