



# SAFETY DATA SHEET SULPHURIC ACID ( $\geq 5$ - $<15\%$ ) REVISION 4, DATE 20 APR 21

## 1. IDENTIFICATION

Product Name	Sulphuric acid ( $\geq 5$ - $<15\%$ )
Other Names	Sulphuric acid 10% w/w; Sulphuric acid 5% v/v
Uses	Industrial use.
Chemical Family	No Data Available
Chemical Formula	H <sub>2</sub> SO <sub>4</sub> .H <sub>2</sub> O
Chemical Name	Sulphuric acid, 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)

Schedule 6



## Globally Harmonised System

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

**Hazard Categories** Corrosive to Metals - Category 1  
Skin Corrosion/Irritation - Category 2  
Serious Eye Damage/Irritation - Category 2A

**Pictograms**

**Signal Word** Warning

**Hazard Statements**

<b>H290</b>	May be corrosive to metals.
<b>H315</b>	Causes skin irritation.
<b>H319</b>	Causes serious eye irritation.

<b>Precautionary Statements</b>	Prevention	<b>P280</b>	Wear protective gloves/eye protection/face protection.
	Response	<b>P390</b>	Absorb spillage to prevent material-damage.
		<b>P302 + P352</b>	IF ON SKIN: Wash with plenty of water.
		<b>P337 + P313</b>	If eye irritation persists: Get medical advice.
		<b>P332 + P313</b>	If skin irritation occurs: Get medical advice.
		<b>P305 + P351 + P338</b>	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		<b>P362 + P364</b>	Take off contaminated clothing and wash it before reuse.
Storage	<b>P406</b>	Store in corrosive resistant container with a resistant inner liner.	

**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)

**Environmental Protection Authority (New Zealand)**

Hazardous Substances and New Organisms Amendment Act 2015

**HSNO Classifications** Health Hazards **6.7A** Substances that are known or presumed human carcinogens

**3. COMPOSITION/INFORMATION ON INGREDIENTS***Ingredients*

Chemical Entity	Formula	CAS Number	Proportion
Sulphuric acid	H <sub>2</sub> SO <sub>4</sub>	7664-93-9	$\geq 5$ - $<15\%$
Water	H <sub>2</sub> O	7732-18-5	Balance %

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

<b>Swallowed</b>	IF SWALLOWED: Rinse mouth, then drink plenty of water. Do NOT induce vomiting. Get medical advice/attention. Never give anything by mouth to an unconscious person.
<b>Eye</b>	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 flushing until advised to stop by a Poisons Information Centre or a doctor, or for at least 15 minutes. If eye irritation persists, get medical advice/attention.
<b>Skin</b>	IF ON SKIN (or hair): Remove contaminated clothing immediately. Flush skin and hair with running water for at least 15 minutes. If skin irritation occurs, get medical advice/attention. Wash contaminated clothing and shoes before reuse.
<b>Inhaled</b>	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If respiratory symptoms persist, get medical advice/attention. Apply resuscitation if victim is not breathing - Do not use direct mouth-to-mouth method if victim ingested or inhaled the substance; use alternative respiratory method or proper respiratory device; Administer oxygen if breathing is difficult.
<b>Advice to Doctor</b>	Treat symptomatically. Keep victim calm and warm - Obtain immediate medical care. Ensure that attending medical personnel are aware of the identity and nature of the product(s) involved, and take precautions to protect themselves.
<b>Medical Conditions Aggravated by Exposure</b>	No information available.

**5. FIRE FIGHTING MEASURES**

<b>General Measures</b>	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.
<b>Flammability Conditions</b>	Non-combustible; Material does not burn.
<b>Extinguishing Media</b>	If material is involved in a fire, use dry chemical, Carbon dioxide (CO2) foam or water spray for extinction - Do not use water jets.
<b>Fire and Explosion Hazard</b>	Containers may explode when heated. Contact with metals may evolve flammable hydrogen gas.
<b>Hazardous Products of Combustion</b>	Fire or heat will produce irritating, toxic and/or corrosive gases, including Sulfur oxides.
<b>Special Fire Fighting Instructions</b>	Contain runoff from fire control or dilution water - Runoff may be toxic and/or corrosive and may pollute waterways.
<b>Personal Protective Equipment</b>	Wear self-contained breathing apparatus (SCBA) and chemical splash suit. Fully-encapsulating, gas-tight suits should be worn for maximum protection. Structural firefighter's uniform is NOT effective for this material.
<b>Flash Point</b>	No Data Available
<b>Lower Explosion Limit</b>	No Data Available
<b>Upper Explosion Limit</b>	No Data Available
<b>Auto Ignition Temperature</b>	No Data Available
<b>Hazchem Code</b>	2R

**6. ACCIDENTAL RELEASE MEASURES**

<b>General Response Procedure</b>	Ensure adequate ventilation - Ventilate enclosed spaces before entering. ELIMINATE all ignition sources. Do not touch or walk through spilled material. Avoid breathing vapours and contact with eyes, skin and clothing.
<b>Clean Up Procedures</b>	Absorb with earth, sand or other non-combustible material and transfer to a suitable container for disposal (see SECTION 13).
<b>Containment</b>	Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas. Cover with plastic sheet to prevent spreading.
<b>Decontamination</b>	Wash area down with excess water. Spillages and decontamination runoff should be prevented from entering drains and watercourses.

**Environmental Precautionary Measures**

<b>Evacuation Criteria</b>	Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind and to higher ground.
<b>Personal Precautionary Measures</b>	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (see SECTION 8).

**7. HANDLING AND STORAGE**

<b>Handling</b>	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 breathing mist/vapours/spray and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8). Avoid exposure to heat and sources of ignition - No smoking. Absorb spillage to prevent material damage (see SECTION 6).
<b>Storage</b>	Store in a cool, dry and well-ventilated place, out of direct sunlight. Avoid freezing temperatures. Keep container tightly closed. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Keep away from heat and sources of ignition - No smoking. Keep away from food/feedstuffs and incompatible materials (see SECTION 10).
<b>Container</b>	Keep only in the original container or corrosive-resistant container.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

<b>General</b>	COMPONENT: Sulphuric acid (CAS No. 7664-93-9): - Safe Work Australia (SWA) Exposure Standard: TWA = 1 mg/m <sup>3</sup> ; STEL = 3 mg/m <sup>3</sup> .
<b>Exposure Limits</b>	No Data Available
<b>Biological Limits</b>	No information available.
<b>Engineering Measures</b>	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.
<b>Personal Protection Equipment</b>	- Respiratory protection: In case of inadequate ventilation, wear respiratory protection. Recommended: Full-face respirator with multi-purpose combination (e.g. ABEK) cartridges or full-face supplied air respirator (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Chemical goggles. - Hand protection: Wear protective gloves. Recommended: Impervious gloves, e.g. Butyl rubber. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Long sleeved clothing or overalls, splash apron, rubber boots.
<b>Special Hazards Precautions</b>	No information available.
<b>Work Hygienic Practices</b>	Do not eat, drink or smoke when using this product. Wash hands before breaks and at the end of workday. Remove contaminated clothing and shoes immediately and wash before reuse.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical State</b>	Liquid
<b>Appearance</b>	Liquid
<b>Odour</b>	Mild
<b>Colour</b>	Colourless
<b>pH</b>	ca. 2
<b>Vapour Pressure</b>	No Data Available
<b>Relative Vapour Density</b>	No Data Available

<b>Boiling Point</b>	ca. 100 °C
<b>Melting Point</b>	No Data Available
<b>Freezing Point</b>	No Data Available
<b>Solubility</b>	Miscible with water
<b>Specific Gravity</b>	1.03 - 1.07
<b>Flash Point</b>	No Data Available
<b>Auto Ignition Temp</b>	No Data Available
<b>Evaporation Rate</b>	No Data Available
<b>Bulk Density</b>	No Data Available
<b>Corrosion Rate</b>	No Data Available
<b>Decomposition Temperature</b>	No Data Available
<b>Density</b>	No Data Available
<b>Specific Heat</b>	No Data Available
<b>Molecular Weight</b>	No Data Available
<b>Net Propellant Weight</b>	No Data Available
<b>Octanol Water Coefficient</b>	No Data Available
<b>Particle Size</b>	No Data Available
<b>Partition Coefficient</b>	No Data Available
<b>Saturated Vapour Concentration</b>	No Data Available
<b>Vapour Temperature</b>	No Data Available
<b>Viscosity</b>	No Data Available
<b>Volatile Percent</b>	No Data Available
<b>VOC Volume</b>	No Data Available
<b>Additional Characteristics</b>	No information available.
<b>Potential for Dust Explosion</b>	Not applicable.
<b>Fast or Intensely Burning Characteristics</b>	No information available.
<b>Flame Propagation or Burning Rate of Solid Materials</b>	No information available.
<b>Non-Flammables That Could Contribute Unusual Hazards to a Fire</b>	No information available.
<b>Properties That May Initiate or Contribute to Fire Intensity</b>	Non-combustible; Material does not burn.
<b>Reactions That Release Gases or Vapours</b>	Fire or heat will produce irritating, toxic and/or corrosive gases, including Sulfur oxides.
<b>Release of Invisible Flammable Vapours and Gases</b>	Contact with metals may evolve flammable hydrogen gas.

## 10. STABILITY AND REACTIVITY

<b>General Information</b>	Contact with metals may evolve flammable hydrogen gas.
<b>Chemical Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	Avoid exposure to heat. Avoid freezing temperatures.
<b>Materials to Avoid</b>	Incompatible/reactive with alkalis, metals, cyanides, sulphides.
<b>Hazardous Decomposition Products</b>	Fire or heat will produce irritating, toxic and/or corrosive gases, including Sulfur oxides.
<b>Hazardous Polymerisation</b>	Hazardous polymerization does not occur.

**11. TOXICOLOGICAL INFORMATION****General Information**

- Acute toxicity: Sulfuric acid is irritating (or corrosive) to the gastrointestinal tract at concentrations greater than 10 % [NICNAS].
- Skin corrosion/irritation: Causes skin irritation. Sulfuric acid is irritating (or corrosive) to the skin at concentrations greater than 10 % [NICNAS].
- Eye damage/irritation: Causes serious eye irritation. Sulfuric acid is irritating (or corrosive) to the eyes at concentrations greater than 10 % [NICNAS].
- Respiratory/skin sensitisation: Despite widespread human contact with dilute solutions, Sulfuric acid allergy has never been noted [NICNAS].
- Germ cell mutagenicity: No information available.
- Carcinogenicity: "Acid mists, strong inorganic" are classified by the IARC Monographs as Carcinogenic to humans (Group 1).
- Reproductive toxicity: No information available.
- STOT (single exposure): Acute exposure to the mist/aerosol may cause respiratory tract irritation. Sulfuric acid is irritating (or corrosive) to the respiratory tract at concentrations greater than 10 % [NICNAS].
- STOT (repeated exposure): Repeated dose inhalation toxicity tests with Sulfuric acid mists revealed treatment-related findings limited to the larynx, consistent with a local irritant effect [NICNAS]. Repeated exposure to higher concentrations of aerosol has been reported to cause damage to the incisors [NICNAS].
- Aspiration toxicity: No information available.

**Acute****Ingestion**

Acute toxicity (Oral):  
 COMPONENT: Sulphuric acid (CAS No. 7664-93-9):  
 - LD50, Rat: approx. 2,140 mg/kg bw. [NICNAS].

**Carcinogen Category**

None

**12. ECOLOGICAL INFORMATION****Ecotoxicity**

No information available.

**Persistence/Degradability**

No information available.

**Mobility**

No information available.

**Environmental Fate**

Prevent entry into drains and waterways.

**Bioaccumulation Potential**

No information available.

**Environmental Impact**

No Data Available

**13. DISPOSAL CONSIDERATIONS****General Information**

Dispose of contents/container via a licensed disposal company and in accordance with local/regional/national regulations.

**Special Precautions for Land Fill**

Contaminated packaging: Dispose of as unused product.

**14. TRANSPORT INFORMATION**

**Land Transport (Australia)**

ADG Code

<b>Proper Shipping Name</b>	SULPHURIC ACID with not more than 51% acid
<b>Class</b>	8 Corrosive Substances
<b>Subsidiary Risk(s)</b>	No Data Available
<b>EPG</b>	37 Toxic And/Or Corrosive Substances Non-Combustible
<b>UN Number</b>	2796
<b>Hazchem</b>	2R
<b>Pack Group</b>	II
<b>Special Provision</b>	No Data Available

**Land Transport (Malaysia)**

ADR Code

<b>Proper Shipping Name</b>	SULPHURIC ACID with not more than 51% acid
<b>Class</b>	8 Corrosive Substances
<b>Subsidiary Risk(s)</b>	No Data Available
<b>EPG</b>	37 Toxic And/Or Corrosive Substances Non-Combustible
<b>UN Number</b>	2796
<b>Hazchem</b>	2R
<b>Pack Group</b>	II
<b>Special Provision</b>	No Data Available

**Land Transport (New Zealand)**

NZS5433

<b>Proper Shipping Name</b>	SULPHURIC ACID with not more than 51% acid
<b>Class</b>	8 Corrosive Substances
<b>Subsidiary Risk(s)</b>	No Data Available
<b>EPG</b>	37 Toxic And/Or Corrosive Substances Non-Combustible
<b>UN Number</b>	2796
<b>Hazchem</b>	2R
<b>Pack Group</b>	II
<b>Special Provision</b>	No Data Available

**Land Transport (United States of America)**

US DOT

<b>Proper Shipping Name</b>	SULPHURIC ACID with not more than 51% acid
<b>Class</b>	8 Corrosive Substances
<b>Subsidiary Risk(s)</b>	No Data Available
<b>ERG</b>	157 Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)
<b>UN Number</b>	2796
<b>Hazchem</b>	2R
<b>Pack Group</b>	II
<b>Special Provision</b>	No Data Available

**Sea Transport**

IMDG Code

<b>Proper Shipping Name</b>	SULPHURIC ACID with not more than 51% acid
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<b>Class</b>	8 Corrosive Substances
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	2796
<b>Hazchem</b>	2R
<b>Pack Group</b>	II
<b>Special Provision</b>	No Data Available
<b>EMS</b>	F-A, S-B
<b>Marine Pollutant</b>	No

**Air Transport**

IATA DGR

<b>Proper Shipping Name</b>	SULPHURIC ACID with not more than 51% acid
<b>Class</b>	8 Corrosive Substances
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	2796
<b>Hazchem</b>	2R
<b>Pack Group</b>	II
<b>Special Provision</b>	No Data Available

**National Transport Commission (Australia)**

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

<b>Dangerous Goods Classification</b>	Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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**15. REGULATORY INFORMATION**

<b>General Information</b>	SULFURIC ACID
<b>Poisons Schedule (Aust)</b>	Schedule 6

**Environmental Protection Authority (New Zealand)**

Hazardous Substances and New Organisms Amendment Act 2015

<b>Approval Code</b>	HSR001572 (Reissued)
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**National/Regional Inventories**

<b>Australia (AIC)</b>	Listed
<b>Canada (DSL)</b>	Not Determined
<b>Canada (NDSL)</b>	Not Determined
<b>China (IECSC)</b>	Not Determined
<b>Europe (EINECS)</b>	Not Determined
<b>Europe (REACH)</b>	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

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

## 16. OTHER INFORMATION

<b>Related Product Codes</b>	SULACD7600, SULACI1705, SULACI1706, SULACI1707, SULACI1800, SULACI1801, SULACI1802, SULACI1803, SULACI1819, SULACI1820, SULACI2221, SULACI2222
<b>Revision</b>	4
<b>Revision Date</b>	20 Apr 2021
<b>Reason for Issue</b>	Updated SDS
<b>Key/Legend</b>	<p>&lt; Less Than &gt; Greater Than  <b>AICS</b> Australian Inventory of Chemical Substances  <b>atm</b> Atmosphere  <b>CAS</b> Chemical Abstracts Service (Registry Number)  <b>cm<sup>2</sup></b> Square Centimetres  <b>CO<sub>2</sub></b> Carbon Dioxide  <b>COD</b> Chemical Oxygen Demand  <b>deg C (°C)</b> Degrees Celcius  <b>EPA (New Zealand)</b> Environmental Protection Authority of New Zealand  <b>deg F (°F)</b> Degrees Fahrenheit  <b>g</b> Grams  <b>g/cm<sup>3</sup></b> Grams per Cubic Centimetre  <b>g/l</b> Grams per Litre  <b>HSNO</b> Hazardous Substance and New Organism  <b>IDLH</b> Immediately Dangerous to Life and Health  <b>immiscible</b> Liquids are insoluble in each other.  <b>inHg</b> Inch of Mercury  <b>inH<sub>2</sub>O</b> Inch of Water  <b>K</b> Kelvin  <b>kg</b> Kilogram  <b>kg/m<sup>3</sup></b> Kilograms per Cubic Metre  <b>lb</b> Pound  <b>LC50</b> 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.  <b>LD50</b> 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.  <b>ltr or L</b> Litre  <b>m<sup>3</sup></b> Cubic Metre  <b>mbar</b> Millibar  <b>mg</b> Milligram</p>

**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

**mmH<sub>2</sub>O** 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