

### 1. IDENTIFICATION

<b>Product Name</b>	<b>Sulphuric acid (15-51%)</b>
<b>Other Names</b>	Battery fluid, acid; SULPHURIC ACID with not more than 51% acid; Sulphuric acid, 50%
<b>Uses</b>	Industrial use.
<b>Chemical Family</b>	No Data Available
<b>Chemical Formula</b>	H <sub>2</sub> SO <sub>4</sub>
<b>Chemical Name</b>	Sulphuric acid, aqueous solution
<b>Product Description</b>	No Data Available

### 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)** Schedule 6

### Globally Harmonised System

<b>Hazard Classification</b>	Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)
<b>Hazard Categories</b>	Corrosive to Metals - Category 1 Skin Corrosion/Irritation - Category 1A Serious Eye Damage/Irritation - Category 1 Specific Target Organ Toxicity (Single Exposure) - Category 3



## Pictograms



## Signal Word

Danger

## Hazard Statements

**H290** May be corrosive to metals.**H314** Causes severe skin burns and eye damage.**H335** May cause respiratory irritation.

## Precautionary Statements

Prevention

**P260** Do not breathe mist/vapour/spray.**P280** Wear protective gloves/protective clothing/eye protection/face protection.**P271** Use only outdoors or in a well-ventilated area.

Response

**P303 + P361 + P353** IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.**P310** Immediately call a POISON CENTER or doctor/physician.**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 at rest in a position comfortable for breathing.

Storage

**P403 + P233** Store in a well-ventilated place. Keep container tightly closed.**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.

## Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

## HSNO Classifications

Health  
Hazards**6.1E** Substances that are acutely toxic –May be harmful, Aspiration hazard**8.1A** Substances that are corrosive to metals**8.2B** Substances that are corrosive to dermal tissue UN PGII**8.3A** Substances that are corrosive to ocular tissue

## 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	>=15 - <=51 %
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 1 - 2 glasses of water. Do NOT induce vomiting. Immediately call a Poison Centre or doctor/physician for advice.
<b>Eye</b>	IF IN EYES: Immediately flush eyes continuously with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Immediately call a Poison Centre or doctor/physician for a advice. 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.
<b>Skin</b>	IF ON SKIN (or hair): Remove contaminated clothing and shoes immediately. Flush skin and hair with running water for at least 15 minutes. In case of gross contamination, drench contaminated clothing and shoes with plenty of water before removing clothes. Immediately call a Poison Centre or doctor/physician for advice. For minor skin contact, avoid spreading material on unaffected skin. 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. Immediately call a Poison Centre or doctor/physician for advice. 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; Does not burn but may produce toxic and/or corrosive fumes upon heating.
<b>Extinguishing Media</b>	If material is involved in a fire, use dry chemical, Carbon dioxide (CO <sub>2</sub> ), foam or water spray for extinction (do not use water on material itself).
<b>Fire and Explosion Hazard</b>	Risk of violent reaction or explosion: Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated or contaminated with water. Will react exothermically on dilution with water which may cause violent spattering - Reaction with water may generate heat which will increase the concentration of fumes in the air.
<b>Hazardous Products of Combustion</b>	Fire will produce irritating, toxic and/or corrosive gases, including oxides of Sulfur.
<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. 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. Do not breathe fume/vapours and prevent contact with eyes, skin and clothing.
<b>Clean Up Procedures</b>	Use clean, non-sparking tools to collect absorbed material and place it into suitable, properly labelled containers 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 dry earth, sand or other non-combustible material followed by plastic sheet to minimise spreading. Vapours may accumulate in confined areas. Vapour-suppressing foam may be used to control vapours; Water spray may be used to knock down or divert vapour clouds.
<b>Decontamination</b>	Neutralise residues with lime or soda ash. After cleaning, flush away any residual traces with water.
<b>Environmental Precautionary Measures</b>	Small spillages and decontamination runoff may be washed to drains with large quantities of water. Due care must still be exercised to avoid unnecessary pollution of watercourses.
<b>Evacuation Criteria</b>	Spill or leak area should be isolated immediately. 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). Large spill: Wear SCBA and chemical splash suit.

**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 fume/mist/vapours/spray and prevent contact with eyes, skin and clothing. Do not ingest. Wear protective gloves/protective clothing/eye protection/face protection (see SECTION 8). Keep away from heat and sources of ignition - No smoking. Absorb spillage to prevent material damage (see SECTION 6).

**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 heat and sources of ignition - No smoking. Keep away from foodstuffs and incompatible materials (see SECTION 10). Store locked up.

**Container**

Keep only in the original container or corrosive resistant container. Contact with metals may evolve flammable hydrogen gas.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**General**

For 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>  
 - New Zealand Workplace Exposure Standard (WES): TWA = 1 mg/m<sup>3</sup>; STEL = 3 mg/m<sup>3</sup>  
 - NIOSH REL/OSHA PEL: TWA = 1 mg/m<sup>3</sup>  
 - Immediately dangerous to life or health (IDLH) concentration: 15 mg/m<sup>3</sup>

**Exposure Limits**

No Data Available

**Biological Limits**

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**

- Respiratory protection: Wear respiratory protection in case of inadequate ventilation or if an inhalation risk exists. Recommended: Acid gas/particulate (E/P) filter respirator (refer to AS/NZS 1715 & 1716).  
 - Eye/face protection: Wear appropriate eye protection to prevent eye contact. Recommended: Chemical goggles, face-shield.  
 - Hand protection: Wear protective gloves. Recommended: Elbow-length impervious gloves.  
 - Skin/body protection: Wear appropriate personal protective clothing to prevent skin contact. Recommended: Overalls, splash apron or equivalent, rubber boots.

**Special Hazards Precautions**

No information available.

**Work Hygienic Practices**

Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Remove contaminated clothing and shoes immediately and wash before reuse.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Physical State**

Liquid

**Appearance**

Liquid

**Odour**

Slight, acidic

**Colour**

Colourless to brown

**pH**

<1

**Vapour Pressure**

No Data Available

**Relative Vapour Density**

No Data Available

**Boiling Point**

127 °C

**Melting Point**

No Data Available

**Freezing Point**

No Data Available



<b>Solubility</b>	Miscible with water and alcohol
<b>Specific Gravity</b>	1.25 - 1.40
<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>	Will react exothermically on dilution with water which may cause violent spattering - Reaction with water may generate heat which will increase the concentration of fumes in the air.
<b>Properties That May Initiate or Contribute to Fire Intensity</b>	Non-combustible; Does not burn but may produce toxic and/or corrosive fumes upon heating.
<b>Reactions That Release Gases or Vapours</b>	Fire/decomposition will produce irritating, toxic and/or corrosive gases, including oxides of Sulfur.
<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>	Will react exothermically on dilution with water. Reacts exothermically with strong alkalis. May be corrosive to metals.
<b>Chemical Stability</b>	Stable under normal conditions.
<b>Conditions to Avoid</b>	To avoid thermal decomposition, do not overheat. Avoid contact with water/moisture.
<b>Materials to Avoid</b>	Incompatible/reactive with water, oxidising agents, alkalis, most metals, organic chemicals.
<b>Hazardous Decomposition Products</b>	Fire/decomposition will produce irritating, toxic, and/or corrosive gases, including oxides of Sulfur. Contact with metals may evolve flammable hydrogen gas.
<b>Hazardous Polymerisation</b>	Will not occur.

## 11. TOXICOLOGICAL INFORMATION

<b>General Information</b>	- Acute toxicity: Low toxicity; There is no evidence for the systemic toxicity of sulfuric acid in any study as effects are limited to the site of contact [NICNAS]. Corrosive on ingestion - swallowing can result in nausea, vomiting, diarrhoea,
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- abdominal pain and chemical burns to the gastrointestinal tract.
- Skin corrosion/irritation: Corrosive to skin; Causes severe skin burns.
- Eye damage/irritation: Corrosive to eyes; Causes serious eye damage.
- Respiratory/skin sensitisation: No information available.
- Germ cell mutagenicity: No information available.
- Carcinogenicity: "Acid mists, strong inorganic" are classified by the IARC Monographs as "Carcinogenic to humans" (Group 1); causing cancer of the larynx.
- Reproductive toxicity: No information available.
- STOT (single exposure): May cause respiratory irritation. Exposure to high concentrations of mist or aerosols may cause pulmonary odema and death.
- STOT (repeated exposure): Repeated exposure to high concentrations of mist or aerosol may cause chronic conjunctivitis, lung damage and dental erosion.
- Aspiration toxicity: No information available.

**Acute**

**Ingestion** Acute toxicity (Oral):  
 COMPONENT: Sulfuric acid (CAS No. 7664-93-9):  
 - LD50, Rats: 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** The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.  
**Bioaccumulation Potential** 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 (New Zealand)**

NZS5433

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



**Sea Transport**

IMDG 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>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

**15. REGULATORY INFORMATION****General Information** No Data Available**Poisons Schedule (Aust)** Schedule 6**Environmental Protection Authority (New Zealand)**

Hazardous Substances and New Organisms Amendment Act 2015

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

<b>Australia (AICS)</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
<b>Japan (ENCS/METI)</b>	Not Determined
<b>Korea (KECI)</b>	Not Determined
<b>Malaysia (EHS Register)</b>	Not Determined



<b>New Zealand (NZIoC)</b>	Listed
<b>Philippines (PICCS)</b>	Not Determined
<b>Switzerland (Giftliste 1)</b>	Not Determined
<b>Switzerland (Inventory of Notified Substances)</b>	Not Determined
<b>Taiwan (NCSR)</b>	Not Determined
<b>USA (TSCA)</b>	Not Determined

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

## 16. OTHER INFORMATION

**Related Product Codes** SULACC1200, SULACC1300, SULACC2000, SULACC2001, SULACC2100, SULACC3500, SULACC5400, SULACD1400, SULACD1500, SULACD1501, SULACD1502, SULACD2600, SULACD2700, SULACD5400, SULACD5401, SULACD5402, SULACI1007, SULACI1200, SULACI1201, SULACI1400, SULACI1401, SULACI1500, SULACI1501, SULACI1550, SULACI1781, SULACI1804, SULACI1805, SULACI1806, SULACI1807, SULACI1808, SULACI1809, SULACI1810, SULACI1811, SULACI1812, SULACI1813, SULACI1814, SULACI1815, SULACI1816, SULACI1817, SULACI1818, SULACI1822, SULACI1823, SULACI1824, SULACI1848, SULACI1849, SULACI1850, SULACI1851, SULACI1857, SULACI1873, SULACI1874, SULACI1875, SULACI1876, SULACI1877, SULACI1878, SULACI1879, SULACI1880, SULACI1881, SULACI1882, SULACI1883, SULACI1884, SULACI1885, SULACI1886, SULACI1887, SULACI1888, SULACI1889, SULACI1892, SULACI1893, SULACI1894, SULACI1895, SULACI1901, SULACI1902, SULACI1903, SULACI1904, SULACI1906, SULACI1907, SULACI1908, SULACI1909, SULACI1910, SULACI1911, SULACI1912, SULACI1913, SULACI1914, SULACI1915, SULACI1916, SULACI1922, SULACI1923, SULACI1930, SULACI1939, SULACI1940, SULACI1941, SULACI1943, SULACI1964, SULACI1965, SULACI1966, SULACI1967, SULACI1968, SULACI1969, SULACI1970, SULACI1971, SULACI1979, SULACI1980, SULACI1983, SULACI1984, SULACI1991, SULACI1992, SULACI1996, SULACI1998, SULACI1999, SULACI2004, SULACI2005, SULACI2006, SULACI2008, SULACI2014, SULACI2016, SULACI2017, SULACI2018, SULACI2021, SULACI2024, SULACI2025, SULACI2026, SULACI2035, SULACI2036, SULACI2046, SULACI2047, SULACI2700, SULACI2800, SULACI3500, SULACI3501, SULACI3502, SULACI3503, SULACI4100, SULACI5000, SULACI5100, SULACI7500, SULACI7510

**Revision** 3

**Revision Date** 29 Jul 2019

**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

**CO<sub>2</sub>** 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/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

**inH<sub>2</sub>O** Inch of Water

**K** Kelvin

**kg** Kilogram

**kg/m<sup>3</sup>** 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

**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  
**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

