

1. IDENTIFICATION

Product Name Sulphuric acid (15-51%)

Other Names Battery fluid, acid; SULPHURIC ACID with not more than 51% acid; Sulphuric acid, 50%

Uses Industrial use.

Chemical Family No Data Available

Chemical Formula H2SO4

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
 +61-2-97333000

Minto NSW 2566 Australia

Redox Ltd 11 Mayo Road +64-9-2506222

Wiri Auckland 2104 New Zealand

Redox Inc. 3960 Paramount Boulevard +1-424-675-3200

Suite 107

Lakewood CA 90712

USA

Redox Chemicals Sdn Bhd Level 2, No. 8, Jalan Sapir 33/7 +60-3-5614-2111

Seksyen 33, Shah Alam Premier Industrial Park

40400 Shah Alam Sengalor, Malaysia

Emergency Contact Details

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

Organisation	Location	гејерпопе
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

CHEMITRE USA & Callada 1500-424-5500 CN72542

+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 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): 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 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.

National Transport Commission (Australia)

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

Dangerous Goods ClassificationDangerous 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	H2SO4	7664-93-9	>=15 - <=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, then drink 1 - 2 glasses of water. Do NOT induce vomiting. Immediately call a Poison

Centre or doctor/physician for advice.

IF IN EYES: Immediately flush eyes continuously with running water for several minutes, holding eyelids open and Eve

> 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.

Skin 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.

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. 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.

Advice to Doctor 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.

Medical Conditions Aggravated by No information available.

Exposure

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.

Flammability Conditions Non-combustible; Does not burn but may produce toxic and/or corrosive fumes upon heating.

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).

Risk of violent reaction or explosion: Contact with metals may evolve flammable hydrogen gas. Containers may explode Fire and Explosion Hazard

> 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.

Hazardous Products of

Combustion

Fire will produce irritating, toxic and/or corrosive gases, including oxides of Sulfur.

Special Fire Fighting Instructions Contain runoff from fire control or dilution water - Runoff may be toxic and/or corrosive and may pollute waterways.

Personal Protective Equipment Wear self-contained breathing apparatus (SCBA) and chemical splash suit. Structural firefighter's uniform is NOT effective

for this material.

Flash Point No Data Available No Data Available **Lower Explosion Limit Upper Explosion Limit** No Data Available **Auto Ignition Temperature** No Data Available

Hazchem Code 2R

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. Do not breathe fume/vapours and prevent contact with eyes, skin and clothing.

Clean Up Procedures

Use clean, non-sparking tools to collect absorbed material and place it into suitable, properly labelled containers for

disposal (see SECTION 13).

Containment 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.

Decontamination Neutralise residues with lime or soda ash. After cleaning, flush away any residual traces with water.

Environmental Precautionary

Measures

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.

Evacuation Criteria 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/m3; STEL = 3 mg/m3
 - New Zealand Workplace Exposure Standard (WES): TWA = 1 mg/m3; STEL = 3 mg/m3

- NIOSH REL/OSHA PEL: TWA = 1 mg/m3

- Immediately dangerous to life or health (IDLH) concentration: 15 mg/m3

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, e.g. Vinyl gloves (excellent protection); Neoprene or Nitrile rubber gloves (good protection).
- Skin/body protection: Wear appropriate personal protective clothing to prevent skin contact. Recommended: Overalls, splash apron or equivalent, rubber boots.

Special Hazards Precaustions 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 StateLiquidAppearanceLiquidOdourSlight, acidic

Colour Colourless to brown

pH <

Vapour Pressure No Data Available
Relative Vapour Density No Data Available

Boiling Point 127 °C

Melting PointNo Data AvailableFreezing PointNo Data Available

Solubility Miscible with water and alcohol

Specific Gravity 1.25 - 1.40

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 No Data Available Density **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

Additional Characteristics No information available.

Potential for Dust Explosion Not applicable.

Fast or Intensely Burning

Characteristics

Volatile Percent

VOC Volume

No information available.

No Data Available

No Data Available

Flame Propagation or Burning

Rate of Solid Materials

No information available.

Non-Flammables That Could Contribute Unusual Hazards to a Fire 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.

Properties That May Initiate or Contribute to Fire Intensity

Non-combustible; Does not burn but may produce toxic and/or corrosive fumes upon heating.

Reactions That Release Gases or Vapours

Fire/decomposition will produce irritating, toxic and/or corrosive gases, including oxides of Sulfur.

Release of Invisible Flammable Vapours and Gases

Contact with metals may evolve flammable hydrogen gas.

10. STABILITY AND REACTIVITY

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 To avoid thermal decomposition, do not overheat. Avoid contact with water/moisture.

Materials to Avoid Incompatible/reactive with water, oxidising agents, alkalis, most metals, organic chemicals.

Hazardous Decomposition

Products may e

Fire/decomposition will produce irritating, toxic, and/or corrosive gases, including oxides of Sulfur. Contact with metals

may evolve flammable hydrogen gas.

Hazardous Polymerisation Will not occur.

11. TOXICOLOGICAL INFORMATION

General Information

- 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, 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 FateThe 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 (Australia)

ADG Code

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

Land Transport (Malaysia)

ADR Code

Proper Shipping NameSULPHURIC 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

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

Land Transport (United States of America)

US DOT

Proper Shipping Name SULPHURIC ACID with not more than 51% acid

Class 8 Corrosive Substances
Subsidiary Risk(s) No Data Available

ERG 157 Substances - Toxic and/or Corrosive (Non-Combustible / Water-Sensitive)

 UN Number
 2796

 Hazchem
 2R

 Pack Group
 II

Special Provision No Data Available

Sea Transport

IMDG Code

Proper Shipping Name SULPHURIC ACID with not more than 51% acid

Class 8 Corrosive Substances
Subsidiary Risk(s) No Data Available

 UN Number
 2796

 Hazchem
 2R

 Pack Group
 II

Special Provision No Data Available

EMS F-A, S-B Marine Pollutant No

Air Transport

IATA DGR

Proper Shipping Name SULPHURIC ACID with not more than 51% acid

Class 8 Corrosive Substances
Subsidiary Risk(s) No Data Available

UN Number 2796 Hazchem 2R 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 ClassificationDangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by

Road & Rail (ADG Code)

15. REGULATORY INFORMATION

General InformationNo Data AvailablePoisons Schedule (Aust)Schedule 6

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code HSR001572

National/Regional Inventories

Australia (AIIC) 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

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, SULACD1501, SULACD1501, SULACD1502, SULACD2600, SULACD2700, SULACD5400, SULACD5401, SULACD5402, SULACI1007, SULACI1200, SULACI1201, SULACI1400, SULACI1401, SULACI1500, SULACI1501, SULACI1550, SULACI1781, SULACI1804, SULACI1805, SULACI1806, SULACI1807, 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, SULACI1887, SULACI1888, SULACI1888, SULACI1889, SULACI1882, SULACI1883, SULACI1884, SULACI1885, SULACI1886, SULACI1887, SULACI1888, SULACI1888, SULACI1893, SULACI1893, SULACI1894, SULACI1901, SULACI1902, SULACI1903, SULACI1904, SULACI1904, SULACI1904, SULACI1904, SULACI1914, SULACI1915, SULACI1916, SULACI1922, SULACI1923, SULACI1930, SULACI1939, SULACI1940, SULACI1941, SULACI1943, SULACI1943, SULACI1964, SULACI1965, SULACI1966, SULACI1967, SULACI1968, SULACI1996, SULACI1970, SULACI1971, SULACI1970, SULACI1970, SULACI1970, SULACI1970, SULACI1970, SULACI1970, SULACI1970, SULACI1970, SULACI1970, SULACI2004, SULACI2005, SULACI2006, SULACI2008, SULACI2014, SULACI2017, SULACI2018, SULACI2024, SULACI2025, SULACI2026, SULACI2035, SULACI2036, SULACI2046, SULACI2047, SULACI2060, SULACI2061, SULACI2061, SULACI2060, SULACI2061, SULACI2007, SULACI2000,

SULACI3851, SULACI3500, SULACI3501, SULACI3502, SULACI3503, SULACI3601, SULACI3602, SULACI3610, SULACI4100, SULACI5000, SULACI5100, SULACI7500, SULACI7510, SULACI7520, SULACI8200

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)

cm² Square CentimetresCO2 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/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 inH2O Inch of Water

K Kelvin **kg** Kilogram

kg/m³ 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 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 Hoursppm/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

SAFETY DATA SHEET SULPHURIC ACID (15-51%) REVISION 3, DATE 29 JUL 19