

## Safety Data Sheet **SULFURIC ACID 15-51%**

SDS no. 0DH7TSDY • Version 1.0 • Date of issue: 2023-05-31

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### SECTION 1: Identification

#### GHS Product identifier

Product name SULFURIC ACID 15-51%

#### Recommended use of the chemical and restrictions on use

Fertilizers, chemicals, dyes and pigments, etchant, alkylation catalyst, electroplating baths, iron and steel, rayon and film, industrial explosives, non-ferrous metallurgy, analytical reagent and laboratory reagent.

#### Supplier's details

Name ChemSupply Australia Pty Ltd  
Address 38-50 Bedford Street  
5013 Gillman South Australia  
Australia

Telephone 08 8440 2000  
email [www.chemsupply.com](http://www.chemsupply.com)

#### Emergency phone number

CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

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### SECTION 2: Hazard identification

#### General hazard statement

Classified as dangerous goods according to the Australian Dangerous Goods Code (ADG).

Classified as Hazardous according to the Globally Harmonised System of classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

#### Classification of the substance or mixture

#### GHS classification in accordance with: UN GHS revision 7

- Serious eye damage/eye irritation, Cat. 1
- Corrosive to metals, Cat. 1
- Skin corrosion/irritation, Cat. 1A

#### GHS label elements, including precautionary statements

#### Pictograms



**Signal word**

**Danger**

**Hazard statement(s)**

H290  
H314

May be corrosive to metals  
Causes severe skin burns and eye damage

**Precautionary statement(s)**

P260  
P280  
P301+P330+P331  
P303+P361+P353  
  
P304+P340  
P305+P351+P338

Do not breathe dust/fume/gas/mist/vapors/spray.  
Wear protective gloves/protective clothing/eye protection/face protection.  
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].  
IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Immediately call a POISON CENTER/doctor/physician  
Wash contaminated clothing before reuse.  
Absorb spillage to prevent material-damage.  
Store locked up.  
Store in a corrosive resistant/... container with a resistant inner liner.  
Dispose of contents/container to an approved waste disposal facility

P310  
P363  
P390  
P405  
P406  
P501

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**SECTION 3: Composition/information on ingredients**

**Mixtures**

Molecular weight: 98.08

**Components**

Component	Concentration
<b>Water (CAS no.: 7732-18-5; EC no.: 231-791-2)</b>	<b>49 - 85 % (weight)</b>
CLASSIFICATIONS: No data available. HAZARDS: No data available.	
<b>Sulfuric acid (CAS no.: 7664-93-9; EC no.: 231-639-5; Index no.: 016-020-00-8)</b>	<b>15 - 51 % (weight)</b>
CLASSIFICATIONS: Skin corrosion/irritation, Cat. 1A. HAZARDS: H314 - Causes severe skin burns and eye damage. [SCLs/M-factors/ATEs]: Skin Corr. 1A; H314: C ≥ 15 %; Skin Irrit. 2; H315: 5 % ≤ C < 15 %; Eye Irrit. 2; H319: 5 % ≤ C < 15 %	

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**SECTION 4: First-aid measures**

**Description of necessary first-aid measures**

General advice

First Aid Facilities: Maintain eyewash fountain and drench facilities and normal washroom facilities in work area.

For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor (at once).

If inhaled

If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

In case of skin contact

Immediately remove contaminated clothing and wash affected area with water for at least 15 minutes. Ensure contaminated clothing is washed before re-use. Seek immediate medical advice /attention.

In case of eye contact f in eyes, hold eyelids apart and flush eye continuously with running water. 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.

If swallowed If swallowed, do NOT induce vomiting.

Personal protective equipment for first-aid responders

WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive.

No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing or wear gloves.

#### **Most important symptoms/effects, acute and delayed**

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

#### **Indication of immediate medical attention and special treatment needed, if necessary**

For advice in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor at once.

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## **SECTION 5: Fire-fighting measures**

#### **Suitable extinguishing media**

When material is not involved in fire: Do not use water on material itself.

Use fire extinguishing media appropriate for surrounding environment. Use water spray, dry chemical, carbon dioxide, or appropriate foam.

#### **Specific hazards arising from the chemical**

Irritating and highly toxic fumes and gases, including oxides of sulfur. Reaction with water or steam may generate much heat which will increase the concentration of fumes in the air, and may produce toxic and corrosive fumes.

Material does not burn. Fire or heat will produce irritating, poisonous and/or corrosive gases. Containers may explode when heated. Contact with metals may evolve flammable hydrogen gas.

#### **Special protective actions for fire-fighters**

Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure mode. Fight fire from safe location.

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## **SECTION 6: Accidental release measures**

#### **Personal precautions, protective equipment and emergency procedures**

Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection see section 8.

#### **Methods and materials for containment and cleaning up**

Neutralise with lime or sodium carbonate, adjust the pH to 6-10. For larger spills notify Emergency Services.

Small Spillages: Absorb or contain liquid with sand, earth or spill control material, or neutralize with sodium carbonate or other alkali material. Shovel up using non sparking tools and place in a labelled, sealable container for subsequent safe disposal. Put leaking containers in a labelled drum or overdrum.

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## **SECTION 7: Handling and storage**

### **Precautions for safe handling**

Corrosive liquid. May produce severe burns. Avoid ingestion and inhalation of gas/fumes/vapour/spray mist. Attacks skin and eyes. Avoid contact with eyes, skin, or clothing. Keep locked up. Keep containers tightly closed when not in use. Use only with adequate ventilation. If ingested, seek medical advice immediately and show the container or the label. Wear suitable protective clothing, gloves and eye/face protection when mixing and using. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Discard contaminated shoes. Ensure a high level of personal hygiene is maintained when using this product, that is, always wash hands before eating, drinking, smoking or using the toilet facilities. Keep away from incompatibles such as oxidizing agents, combustible materials, organic materials, metals, acids, alkalis, moisture/water. Contact with water will generate heat. When diluting, always add the acid to water; never add water to the acid. May corrode metallic surfaces.

### **Conditions for safe storage, including any incompatibilities**

Store in tightly closed containers, in a cool, dry, well-ventilated corrosives area with acid resistant floors. Store away from incompatible substances, such as water, alkaline substances, oxidizing agents, and reducing agents. Store away from combustible substances, sources of ignition and heat.

Extremely corrosive in presence of aluminium, of zinc (50% sulfuric acid). Concentrated acid is non-corrosive to lead and mild steel, but diluted acid attacks most metals. Highly corrosive in presence of steel, of copper (20% sulfuric acid). Slightly corrosive to extremely corrosive in presence of stainless steel(304), of stainless steel(316) (20-50% sulfuric acid). Corrosive to most metals in the presence of moisture, liberating explosive hydrogen gas.

Store at room temperature (15 to 23 °C recommended). Protect from freezing.

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## **SECTION 8: Exposure controls/personal protection**

### **Control parameters**

**CAS: 7664-93-9 (EC: 231-639-5)**

Sulfuric acid

ACGIH (USA): 0.2 mg/m<sup>3</sup>, (Thor.) TLV® inhalation; 0.2 mg/m<sup>3</sup> TWA inhalation; AU/SWA (Australia): 3 mg/m<sup>3</sup> STEL inhalation; 1 mg/m<sup>3</sup> TWA inhalation; NIOSH (USA): 1 mg/m<sup>3</sup> REL inhalation;

### **Appropriate engineering controls**

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

### **Individual protection measures, such as personal protective equipment (PPE)**

#### **Eye/face protection**

The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.

#### **Skin protection**

Clean impervious clothing should be worn. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Hand Protection: Normally not required but if in doubt ensure hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance.

#### **Body protection**

Suitable protective workwear, e.g. cotton overalls buttoned at neck and wrist is recommended. Chemical resistant apron is recommended where large quantities are handled.

#### **Respiratory protection**

If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable vapor/ mist filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements. Reference should be

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made to Australian Standards AS/ NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

### SECTION 9: Physical and chemical properties

#### Basic physical and chemical properties

Physical state	Liquid
Appearance	Clear, colourless liquid.
Color	No data available.
Odor	Odourless.
Odor threshold	>1 ppm (Sulfuric Acid).
Melting point/freezing point	-8.6 °C (15%); -14 °C (20%); -46 °C (33%); -33 °C (51%).
Boiling point or initial boiling point and boiling range	102.6 °C (15%); 104 °C (20%); 109 °C (33%); 125 °C (51%).
Flammability	No data available.
Lower and upper explosion limit/flammability limit	No data available.
Flash point	No data available.
Explosive properties	Contact with most metals causes formation of flammable and explosive hydrogen gas. However, the risk is reduced due to the weaker concentration of Sulfuric Acid present. Exothermic reaction with water. Containers may explode when heated or if contaminated with water. Slightly explosive in presence of oxidizing materials. Mixtures of sulfuric acid and any of the following can explode: p-nitrotoluene, pentasilver trihydroxydiaminophosphate, perchlorates, alcohols with strong hydrogen peroxide, ammonium tetraperoxychromate, mercuric nitrite, potassium chlorate, potassium permanganate with potassium chloride. Nitramide decomposes explosively on contact with concentrated sulfuric acid. 1,3,5-Trinitrosohexahydro-1,3,5-triazine + sulfuric acid causes explosive decomposition.
Auto-ignition temperature	No data available.
Decomposition temperature	340 °C (sulfuric acid)
Oxidizing properties	No data available.
pH	<0.3 [Acidic]. pH of 1.0 N solution (~5.0%): 0.3; pH of 0.1 N solution (~0.5%): 1.2; pH of 0.01 N solution (~0.05%): 2.1.
Kinematic viscosity	Viscosity: 21 mPas @ 25 °C (Sulfuric Acid).
Solubility	Solubility in Water: Soluble in water in all proportions. CAUTION: Always add the acid to water. Heat evolution due to mixing may cause explosive spattering. Solubility in Organic Solvents: Insoluble in methanol, diethyl ether, n-octanol.
Partition coefficient n-octanol/water (log value)	No data available.
Vapor pressure	The highest known values are 2.3 kPa (17.535 mmHg) (@ 20 °C) (Water) and 0.1 kPa (1 mmHg) (@ 20 °C) (sulfuric acid). Weighted average: 14.03 mmHg (@ 20 °C) (20%).
Evaporation rate	No data available.
Density and/or relative density	Specific Gravity: 1.1 (15%); 1.142 (20%); 1.18 (25%); 1.25 (33.33%); 1.30 (40%); 1.40 (50%); 1.41 (51%).
Relative vapor density	The highest known value is 3.4 (Air = 1) (Sulfuric acid). Weighted average: 1.18 (Air = 1) (20%); 2.01 (Air = 1) (50%).

#### Particle characteristics

No data available.

**Supplemental information regarding physical hazard classes**

No data available.

**Further safety characteristics (supplemental)**

No data available.

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**SECTION 10: Stability and reactivity**

**Reactivity**

Stable under normal conditions of storage and handling.

Reacts with incompatible materials

**Chemical stability**

Stable under normal temperatures pressures and conditions of storage and handling. Concentrated solutions react violently with water, spattering and liberating heat.

**Possibility of hazardous reactions**

Concentrated solutions react violently with water, spattering and liberating heat. Corrosively attacks most metals liberating hydrogen gas, (potential explosion). Sulfuric acid reacts vigorously, violently or explosively with many organic and inorganic chemicals. Reacts with carbonates to generate carbon dioxide gas. Reacts with cyanides to form toxic hydrogen cyanide. Reacts with sulfides to form toxic hydrogen sulfide.

**Conditions to avoid**

Exposure to moist air, moisture, or water (Note: Use great caution in mixing with water due to heat evolution that causes explosive spattering. Always add the acid to water, never the reverse.), metals, excess heat, combustible materials, organic materials, oxidizers, amines, bases and incompatible materials.

**Incompatible materials**

Water, combustible materials, oxidizing agents, reducing agents, metals as powders, metals as non powders (yields hydrogen gas), metal alloys, metal compounds, acids, alkalis, organic materials, organic solvents, alkali metals, alkaline earth metals, alkaline earth compounds, alkali hydroxides solutions, chlorates, perchlorates, permanganates, carbides, cyanides, nitrides, sulfides, fulminates, picrates, nitrates, nitriles, halogens, halogen-halogen compounds, salts of oxyhalogenic acids, acetylides, oxides and hydrides, anilines, organic nitro compounds, peroxi compounds, acetic anhydride, acetone cyanhydrin, acetone + nitric acid, acetone + potassium dichromate, acrolein, allyl alcohol, allyl chloride, 2-aminoethanol, ammonia, ammonium triperchromate, n-butyraldehyde, diisobutylene, epichlorohydrin, ethylene cyanohydrin, ethylene diamine, ethylene glycol, ethylenimine, isoprene, lithium silicide, pentasilver trihydroxydiaminophosphate, phosphorus, phosphorus isocyanate, beta-propiolactone, and pyridine.

**Hazardous decomposition products**

Irritating and highly toxic fumes and gases, including oxides of sulfur. Reaction with water or steam may generate much heat which will increase the concentration of fumes in the air, and may produce toxic and corrosive fumes. Contact with most metals causes formation of flammable and explosive hydrogen gas.

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**SECTION 11: Toxicological information**

**Information on toxicological effects**

**Acute toxicity**

Ingestion: Corrosive. Harmful if swallowed. Ingestion of liquid or spray mist may produce severe burns to the mouth, throat and stomach, resulting in sore throat, immediate severe burning pain in the mouth, throat, abdomen, general feeling of sickness, vomiting, diarrhoea, and the risk of perforation of oesophagus and stomach, leading to death. Ingestion can cause severe swelling of the larynx and skeletal paralysis affecting the ability to breathe, circulatory shock and convulsions. Circulatory collapse with clammy skin, weak and rapid pulse, shallow respirations, and scanty urine may follow ingestion. Circulatory shock is often the immediate cause of death. Ingestion can possibly cause pyloric stenosis after a latency period of some weeks.

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Inhalation: Harmful if inhaled. Inhalation of the vapours/aerosols, spray mist or fumes may produce severe irritation and chemical burns to the nose, throat and respiratory tract, with burning sensation, sore throat, coughing, wheezing, choking, laboured breathing or shortness of breath, headache, nausea, and vomiting. Inhalation may result in dental erosion, laryngitis, bronchitis, spasm, inflammation and oedema of the larynx and bronchi, chemical pneumonitis, and delayed pulmonary oedema. Severe over-exposure can result in death.

Respiratory Irritation: Human volunteers exposed to sulfuric acid for 5-15 minutes noticed no odour, or irritation below 1 mg/m<sup>3</sup>. All volunteers noticed the exposure at 3 mg/m<sup>3</sup> and at 5 mg/m<sup>3</sup> some people found it objectionable. A deep breath usually produced coughing and respiratory changes were reported. Tolerance to sulfuric acid can occur.

In another study, volunteers exposed to high levels (39 mg/m<sup>3</sup> dry mist and 21 mg/m<sup>3</sup> wet mist sulfuric acid) for 1/2-1 hour reported severe symptoms of irritation of the upper airways and signs of bronchial obstruction. These symptoms persisted for several days in two volunteers. Occupational exposure to sulfuric acid fumes in a closed space, produced injury to the upper airways, and fluid accumulation and bleeding in the lungs to one worker. Most lung function tests had returned to normal after 6 weeks.

#### Skin corrosion/irritation

Skin contact may produce severe skin burns. Symptoms of redness, irritation, pain, scaling, or, occasionally, blistering can occur. May be harmful if absorbed through the skin. Circulatory collapse with clammy skin, weak and rapid pulse, shallow respirations, and scanty urine may follow skin contact. Circulatory shock is often the immediate cause of death.

#### Serious eye damage/irritation

Liquid or spray mist may produce severe tissue burns. Eye contact can cause watering, blurred vision, redness, irritation and pain. It can cause permanent eye/corneal damage and blindness.

#### Respiratory or skin sensitization

No data available.

#### Germ cell mutagenicity

No data available

#### Carcinogenicity

Occupational exposure to strong-inorganic-acid mists containing sulfuric acid is evaluated in the IARC Monographs (Vol. 54; 1992) as Group 1: Carcinogenic to humans.

#### Reproductive toxicity

No data available

#### Specific target organ toxicity (STOT) - single exposure

No data available

#### Specific target organ toxicity (STOT) - repeated exposure

No data available

#### Aspiration hazard

No data available

#### Additional information

Repeated or prolonged contact with liquid, vapour or spray mist may produce harmful corrosive effects to skin and respiratory system, chronic eye irritation and severe skin irritation. Prolonged or repeated inhalation may cause nosebleeds, nasal congestion, erosion of the teeth, perforation of the nasal septum, chest pain and respiratory tract irritation leading to frequent attacks of bronchial infection.

Prolonged or repeated eye contact may cause conjunctivitis. Long-term exposure to mist or vapours may cause damage to teeth. May cause adverse reproductive effects. Chronic exposure to mists containing sulfuric acid is a cancer hazard.

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## SECTION 12: Ecological information

### Toxicity

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Damage of aquatic organisms. Harmful effect due to pH shift. Toxic effect for fishes and algeal. Caustic even in diluted form. Does not cause biological oxygen deficit. Endangers drinking-water supplies if allowed to enter soil and/or waters in large quantities. Neutralization possible in waste water treatment plants.

#### Persistence and degradability

No data available.

#### Bioaccumulative potential

No data available.

#### Mobility in soil

No data available.

#### Results of PBT and vPvB assessment

No data available.

#### Endocrine disrupting properties

No data available.

#### Other adverse effects

No data available.

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## SECTION 13: Disposal considerations

#### Disposal methods

#### Product disposal

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers.

#### Waste treatment

Neutralise remaining product with lime, soda ash or sodium bicarbonate, adjusting pH to 6-8. Flush to sewer as greatly diluted solution.

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## SECTION 14: Transport information

#### ADG (Road and Rail)

UN Number: 2796

Class: 8

Packing Group: II

Proper Shipping Name: SULFURIC ACID

Environmental Hazards: Damage of aquatic organisms. Harmful effect due to pH shift. Toxic effect for fishes and algeal. Caustic even in diluted form. Does not cause biological oxygen deficit. Endangers drinking-water supplies if allowed to enter soil and/or waters in large quantities. Neutralization possible in waste water treatment plants.

#### Hazchem emergency action code (EAC)

2R

#### IMDG

UN Number: 2796

Class: 8

Packing Group: II

EMS Number:

Proper Shipping Name: SULFURIC ACID

#### IATA



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**SECTION 15: Regulatory information**

**Safety, health and environmental regulations specific for the product in question**

**Australia SUSMP**

Poison Schedule: S6

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**SECTION 16: Other information**

**Further information/disclaimer**

ChemSupply Australia Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon ChemSupply Australia Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of ChemSupply Australia Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

**Preparation information**

All information provided in this data sheet or by our technical representatives is compiled from the best knowledge available to us. However, since data, safety standards and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, we make no warranty either expressed or implied, with respect to the completeness or accuracy to the information contained herein. ChemSupply Australia Pty Ltd accepts no responsibility whatsoever for its accuracy or for any results that may be obtained by customers from using the data and disclaims all liability for reliance on information provided in this data sheet or by our technical representatives.

Standard for the Uniform Scheduling of Medicines and Poisons, Commonwealth of Australia  
National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.'  
Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', July 2020.  
Safe Work Australia, 'National Guide for Classifying Hazardous Chemicals', July 2020.  
Safe Work Australia, Workplace Exposure Standards for Airborne Contaminants, December 2019  
Safe Work Australia, Hazardous Chemical Information System (HCIS), [hcis.safeworkaustralia.gov.au](http://hcis.safeworkaustralia.gov.au)  
IATA, Dangerous Goods Regulations (DGR)  
IMO, International Maritime Dangerous Goods Code (IMDG)