

Safety Data Sheet **SULFURIC ACID 5-14.9%**

SDS no. C0A95BSX • Version 1.0 • Date of issue: 2023-03-21

SECTION 1: Identification

GHS Product identifier

Product name SULFURIC ACID 5-14.9%

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

Emergency phone number

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

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

May be corrosive to metals

H314

Causes severe skin burns and eye damage

Precautionary statement(s)

P260

Do not breathe dust/fume/gas/mist/vapors/spray.

P280

Wear protective gloves/protective clothing/eye protection/face protection.

P301+P330+P331

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P304+P340

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310

Immediately call a POISON CENTER/doctor/physician

P363

Wash contaminated clothing before reuse.

P390

Absorb spillage to prevent material-damage.

P406

Store in a corrosive resistant/... container with a resistant inner liner.

P501

Dispose of contents/container to an approved waste disposal facility

SECTION 3: Composition/information on ingredients

Mixtures

Molecular weight: 98.08

Other components either not classified as Hazardous under the GHS, or below cut-off concentrations to be classified as Hazardous.

Components

Component	Concentration
Sulfuric acid (CAS no.: 7664-93-9; EC no.: 231-639-5; Index no.: 016-020-00-8)	5 - 15 % (weight)
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 %	

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice

First Aid Facilities: Maintain eyewash fountain and drench 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

If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor.

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In case of eye contact	If 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. Protect your own hands and body.

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.

SECTION 5: Fire-fighting measures

Suitable extinguishing media

Small fire: Use dry chemical, CO₂ or water spray. If safe to do so, move undamaged containers from fire area.

Large fire: Use dry chemical, CO₂, foam or water spray - Do not use water jets.

Cool containers with flooding quantities of water until well after fire is out. Avoid getting water inside containers.

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. Concentrated solutions will react with carbonates to generate carbon dioxide gas, and with cyanides and sulfides to form poisonous hydrogen cyanide and hydrogen sulfide respectively. Contact with most metals causes formation of flammable and explosive hydrogen gas.

Material does not burn. Fire or heat will produce irritating, poisonous and/or corrosive gases. Containers may explode when heated. Some may ignite combustibles (wood, paper, clothing, etc.) Contact with metals may evolve flammable hydrogen gas.

Sulfuric acid: No data available.

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.

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

Small Spillages: Dilute with water and mop up, or absorb with an inert dry material or neutralize with sodium carbonate and then place in an appropriate waste disposal container.

SECTION 7: Handling and storage

Precautions for safe handling

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Avoid ingestion and inhalation of gas/fumes/vapour/spray mists. Avoid contact with skin, eyes, or clothing. Avoid prolonged or repeated exposure. Use with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep container dry. When diluting, always add the acid to water; never add water to the acid. May corrode metallic surfaces. Keep away from incompatibles such as metals, alkalis, moisture. Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. It is essential that all who come into contact with this material maintain high standards of personal hygiene ie. washing hands prior to eating, drinking, smoking or using toilet facilities.

Conditions for safe storage, including any incompatibilities

Corrosive materials should be stored in a separate safety storage cabinet or room. Store in tightly closed containers, in a cool, dry, well-ventilated area, with acid resistant floors and good drainage, away from incompatible substances. Protect from physical damage, freezing, heat, direct sunlight and moisture. May corrode metallic surfaces. Do not store together with alkalis (caustic solutions). Store away from oxidizing agents. Store away from reducing agents. Do not store near combustible materials. Do not wash out container and use it for other purposes. Inspect regularly for deficiencies such as damage or leaks. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

Extremely corrosive in presence of aluminium, of zinc. Highly corrosive in presence of steel, of copper. Slightly corrosive to corrosive in presence of stainless steel(304), of stainless steel(316).

Unsuitable Materials: Metal containers.

SECTION 8: Exposure controls/personal protection

Control parameters

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

Sulfuric acid

ACGIH (USA): 0.2 mg/m³, (Thor.) TLV® inhalation; 0.2 mg/m³ TWA inhalation; AU/SWA (Australia): 3 mg/m³ STEL inhalation; 1 mg/m³ TWA inhalation; NIOSH (USA): 1 mg/m³ 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 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	The lowest known value is >1 ppm (SULFURIC ACID).
Melting point/freezing point	-2 °C (5%); -5.7 °C (10%).
Boiling point or initial boiling point and boiling range	100.7 °C (5%); 101.6 °C (10%).
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. Containers may explode when heated or if contaminated with water.
Auto-ignition temperature	No data available.
Decomposition temperature	340 °C (sulfuric acid).
Oxidizing properties	No data available.
pH	Acidic. pH of 1.0 N solution (~5.0%): 0.3; pH of 0.1 N solution (~0.5%): 1.2;
Kinematic viscosity	No data available.
Solubility	Solubility in Water: Fully miscible. Exothermic reaction with water. [13] Solubility in Organic Solvents: Insoluble in methanol, diethyl ether, n-octanol (10%).
Partition coefficient n-octanol/water (log value)	No data available.
Vapor pressure	The highest known value is 0.1 kPa (1 mmHg) (@ 20 °C) (Sulfuric Acid). The highest known value is 17.535 mm of Hg (@ 20 °C) (Water). Weighted average: 15.82 mm of Hg (@ 20 °C) (10%).
Evaporation rate	0.36 (Water) compared to (n-Butyl Acetate=1).
Density and/or relative density	Specific Gravity: 1.03 (5%); 1.07 (10%).
Relative vapor density	The highest known value is 3.4 (Air = 1) (Sulfuric acid). Weighted average: 0.76 (Air = 1) (5%); 0.89 (Air = 1) (10%).

Particle characteristics

No data available.

Supplemental information regarding physical hazard classes

No data available.

Further safety characteristics (supplemental)

No data available.

SECTION 10: Stability and reactivity

Reactivity

Reacts with incompatible materials

Chemical stability

Stable under normal temperatures, pressures and conditions of use and storage. Hygroscopic. Concentrated solutions react violently with water, splattering and liberating heat.

Possibility of hazardous reactions

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Hygroscopic. Exothermic reaction with water. Reacts violently with water and alcohol especially when water is added to the product. Highly reactive with reducing agents, combustible materials, organic materials, metals, oxidizing agents, acids, alkalis. Flammable hydrogen gas is generated by the action of the acid on most metals (i.e. lead, copper, tin, zinc, aluminium, etc.).

Hazardous Polymerization: Will not occur.

Conditions to avoid

Excess heat, extremes of temperature and direct sunlight, metals, combustible materials, organic materials, oxidizers, amines, bases and incompatible materials.

Incompatible materials

Alkali metals, alkaline earth metals, alkali compounds, ammonia, alkali hydroxide solutions, metals, metal alloys, organic solvents, permanganates.

Sulfuric acid: Bases, Halides, Organic materials, Carbides, fulminates, Nitrates, picrates, Cyanides, Chlorates, alkali halides, Zinc salts, permanganates, e.g. potassium permanganate, Hydrogen peroxide, Azides, Perchlorates., Nitromethane, phosphorous, Reacts violently with:., cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide, phosphorous(III) oxide, Powdered metals

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. Concentrated solutions will react with carbonates to generate carbon dioxide gas, and with cyanides and sulfides to form poisonous hydrogen cyanide and hydrogen sulfide respectively. Contact with most metals causes formation of flammable and explosive hydrogen gas.

Sulfuric acid: Hazardous decomposition products formed under fire conditions. - Sulphur oxides

Other decomposition products - No data available

In the event of fire: see section 5

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Ingestion: May be harmful if swallowed. Corrosive. Ingestion of this product may cause irritations of mucous membranes in the mouth, pharynx, oesophagus, and gastrointestinal tract, possible gastrointestinal tract burns, severe and permanent corrosion and tissue damage to the mouth, throat, oesophagus, stomach and digestive tract. Swallowing may lead to the danger of perforation of the oesophagus and stomach. May cause general feeling of sickness, sore throat, nausea, vomiting and diarrhoea. 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. Effects should be less severe than from exposure to higher concentrations of sulfuric acid.

Inhalation: May be harmful if inhaled. Inhalation of product vapours may cause severe irritation of the nose and throat, damage to the mucous membranes and upper respiratory tract, possible burns, burning sensation, coughing, wheezing, laryngitis, shortness of breath, labored breathing, headache, nausea, and vomiting. Inhalation may result in dental erosion, spasm, inflammation and oedema of the larynx and bronchi, chemical pneumonitis, and pulmonary oedema. Effects should be less severe than from exposure to higher concentrations of sulfuric acid.

Skin corrosion/irritation

Corrosive. Causes irritation to skin and mucous membranes, and possible skin burns and strong corrosive effect on skin and mucous membranes. Symptoms may include redness, itching, and pain. 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

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Corrosive. Causes eye irritation and possible severe eye burns and strong corrosive effect. Symptoms may include tearing, blurred vision, redness, stinging, pain, and burns to eye tissue. Concentrated solutions can cause blindness. Effects should be less severe than from exposure to higher concentrations of sulfuric acid.

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

May cause adverse reproductive effects based on animal data.

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

Chronic Effects: Chronic exposure may cause lung damage. Prolonged exposure to the skin or eyes may cause burns. Repeated or long term exposure to mist or vapours may cause erosion of teeth. Chronic exposure to mists containing sulfuric acid is a cancer hazard.

Sulfuric acid: Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin.,spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Pulmonary edema. Effects may be delayed., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Stomach - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

Toxicity

Damage of aquatic organisms. Harmful effect due to pH shift. Toxic effect for fishes and algal. 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.

Short Summary of Assessment of Environmental Impact: When released into the soil, this material may leach into groundwater. When released into the air, this material may be removed from the atmosphere to a moderate extent by wet deposition. When released into the air, this material may be removed from the atmosphere to a moderate extent by dry deposition.

Acute Toxicity - Fish: LC50 (flounder): 100 to 330 mg/l/48 hr aerated water.

Acute Toxicity - Daphnia: Daphnia toxicity: Daphnia magna EC50: 29 mg/l /24h. (pure substance)

Acute Toxicity - Other Organisms: LC50 (shrimp): 80 to 90 mg/l/48 hr aerated water;
LC50 (prawn): 42.5 ppm/48 hr salt water.

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.

Other disposal recommendations

Do not discharge this material into waterways, drains and sewers.

SECTION 14: Transport information

ADG (Road and Rail)

UN Number: 2796

Class: 8

Packing Group: II

Proper Shipping Name: SULFURIC ACID

Environmental Hazards: Harmful to aquatic organisms. Harmful effect due to pH shift. Toxic effect for fishes and algal. 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

UN Number: 2796

Class: 8

Packing Group: II

Proper Shipping Name: SULFURIC ACID

SECTION 15: Regulatory information

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

Australia SUSMP

Poison Schedule: S6

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

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