

Infosafe No™	3CHCB	Issue Date : March 2016	RE-ISSUED by ACR
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Product Name : **SULFURIC ACID 0.1-4.9%**

Classified as hazardous

1. Identification

GHS Product Identifier SULFURIC ACID 0.1-4.9%

Company Name AUSTRALIAN CHEMICAL REAGENTS (ACR) (ABN 19 008 264 211)

Address 38 - 50 Bedford Street Gillman
S.A. 5013 Australia

Telephone/Fax Number Tel: (08) 8440 2000
Fax: (08) 8440 2001

Recommended use of the chemical and restrictions on use Laboratory reagent.

Other Names	<u>Name</u>	<u>Product Code</u>
	Sulphuric Acid 0.01N	0077
	Sulphuric Acid 0.02N	0078
	Sulphuric Acid 0.03N	0915
	Sulphuric Acid 0.04N	0822
	Sulphuric Acid 0.05N	5289
	Sulphuric Acid 0.125N	0080
	Sulphuric Acid 0.15N	2953
	Sulphuric Acid 0.16N	2774
	Sulphuric Acid 0.18N	4022
	Sulphuric Acid 0.1N	0079
	Sulphuric Acid 0.25N	3137
	Sulphuric Acid 0.2N	0081
	Sulphuric Acid 0.4N	3266
	Sulphuric Acid 0.5N	0082
	Sulphuric Acid 0.83%	5799

Other Information EMERGENCY CONTACT NUMBER: +61 08 8440 2000
Business hours: 8:30am to 5:00pm, Monday to Friday.

Australian Chemical Reagents (ACR) 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 Australian Chemical Reagents (ACR) 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 Australian Chemical Reagents (ACR) is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

2. Hazard Identification

GHS classification of the substance/mixture Corrosive to Metals: Category 1

Signal Word (s) WARNING

Hazard Statement (s) H290 May be corrosive to metals.

Pictogram (s) Corrosion



Precautionary statement – Prevention P234 Keep only in original container.

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Precautionary statement – Response	P390 Absorb spillage to prevent material damage.
Precautionary statement – Storage	P406 Store in corrosive resistant container with a resistant inner liner.
Precautionary statement – Disposal	P501 Dispose of contents/container to an approved waste disposal plant.

3. Composition/information on ingredients

Chemical Characterization	Liquid				
Ingredients	<u>Name</u>	<u>CAS</u>	<u>Proportion</u>	<u>Hazard Symbol</u>	<u>Risk Phrase</u>
	Water	7732-18-5	95-99.9 %		
	Sulphuric acid	7664-93-9	0.1-4.9 %	C	R35

4. First-aid measures

Inhalation	If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.
Ingestion	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek medical advice if effects persist.
Skin	If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Wash contaminated clothing before re-use. Seek medical advice.
Eye contact	If in eyes, hold eyelids apart and flush the eye continuously with running water. Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. Seek medical advice if effects persist.
First Aid Facilities	Maintain eyewash fountain and normal washroom facilities in work area.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of the patient.
Other Information	For advice, contact a Poisons Information Centre (Phone eg Australia 13 1126; New Zealand 0800 764 766) or a doctor.

5. Fire-fighting measures

Hazards from Combustion Products	Irritating and highly toxic fumes and gases, including toxic oxides of sulfur (SO _x). Contact with most metals (such as aluminium, tin, lead and zinc) causes formation of flammable and explosive hydrogen gas (H ₂). However, the risk is reduced due to the weaker concentration of sulfuric acid present.
Specific Methods	Use extinguishing media most appropriate for the surrounding fire. No limitations to the type of extinguishing media.
Specific hazards arising from the chemical	Material does not burn. Runoff may pollute waterways.
Hazchem Code	2R
Precautions in connection with Fire	Wear SCBA and structural firefighter's uniform.

6. Accidental release measures

Spills & Disposal	Neutralize with dilute sodium hydroxide, lime or sodium carbonate.
Personal Precautions	Avoid inhalation, contact with skin, eyes and clothing.
Personal Protection	Wear protective clothing specified for normal operations (see Section 8)
Clean-up Methods - Small Spillages	Absorb or contain liquid with sand, earth or spill control 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.
Environmental Precautions	Prevent from entering into drains, ditches, rivers or the sea.

7. Handling and storage

Precautions for Safe Handling	Avoid contact with eyes, skin, or clothing. May corrode metallic surfaces.
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Conditions for safe storage, including any incompatibilities	Store in tightly closed containers, in a cool, dry, well-ventilated area away from incompatible substances.
Corrosiveness	Corrosive in presence of aluminium, zinc, stainless steel(304), stainless steel(316), copper. Moderate corrosive effect on bronze.
Storage Regulations	Refer Australian Standard AS 3780-1994 'The storage and handling of corrosive substances'.
Storage Temperatures	Store at room temperature (15 to 25 °C recommended).

8. Exposure controls/personal protection

Occupational exposure limit values	Name	STEL		TWA		Footnote
		mg/m ³	ppm	mg/m ³	ppm	
	Sulphuric acid	3		1		
Other Exposure Information	A time weighted average (TWA) has been established for Sulphuric acid (Safe Work Aust) of 1 mg/m ³ . The corresponding STEL level is 3 mg/m ³ . The STEL (Short Term Exposure Limit) is an exposure value that should not be exceeded for more than 15 minutes and should not be repeated for more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The exposure value at the TWA is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week.					
Appropriate engineering controls	Provide sufficient ventilation to ensure that the working environment is below the TWA (time weighted average). Where vapours or mists are generated, particularly in enclosed areas, and natural ventilation is inadequate, a flame proof exhaust ventilation system is required. Refer to AS 1940-The storage and handling of flammable and combustible liquids and AS 2430-Explosive gas atmospheres for further information concerning ventilation requirements.					
Respiratory Protection	Where ventilation is not adequate, respiratory protection may be required. Avoid breathing vapours or mists. Select and use respirators in accordance with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. When mists or vapours exceed the exposure standards then the use of the following is recommended: Approved respirator with organic vapour and dust/mist filters. Filter capacity and respirator type depends on exposure levels.					
Eye 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.					
Hand Protection	Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance. Recommendation: Excellent: NR latex, vinyl and nitrile. Good: Neoprene gloves					
Personal Protective Equipment	Final choice of personal protective equipment will depend on individual circumstances and/or according to risk assessments undertaken.					
Footwear	Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.					
Body Protection	Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.					
Hygiene Measures	Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.					

9. Physical and chemical properties

Form	Liquid
Appearance	Clear, colourless liquid.
Odour	Odourless.
Melting Point	May start to solidify at -0.1 °C based on data for: water.
Boiling Point	~100°C
Solubility in Water	Miscible.
Solubility in Organic Solvents	Insoluble in methanol, diethyl ether, n-octanol (0.5%).
Specific Gravity	Approx. 1
pH	Acidic; pH of 0.01 N solution (~0.05%): 2.1; pH of 0.1 N solution (~0.5%): 1.2; pH of 1.0 N solution

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Flammability	(~5.0%): 0.3. Non combustible material.
Molecular Weight	Sulfuric acid 98.08

10. Stability and reactivity

Chemical Stability	Stable under normal temperatures, pressures and conditions of use and storage.
Conditions to Avoid	Metals, excess heat, extremes of temperature, direct sunlight, 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.
Hazardous Decomposition Products	Irritating and highly toxic fumes and gases, including toxic oxides of sulfur (SOx). Contact with most metals (such as aluminium, tin, lead and zinc) causes formation of flammable and explosive hydrogen gas (H2). However, the risk is reduced due to the weaker concentration of sulfuric acid present.
Possibility of hazardous reactions	Flammable hydrogen gas is generated by the action of the acid on most metals (i.e. lead, copper, tin, zinc, aluminium, etc.). Reacts with alkali metals and alkaline earth metals.
Hazardous Polymerization	Will not occur.

11. Toxicological Information

Toxicology Information	No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. If mishandled or overexposed to this product the following symptom or effects may occur.
Ingestion	Ingestion of this product may cause irritation and possible burns of mucous membranes in the mouth, pharynx, oesophagus, and gastrointestinal tract, causing nausea, vomiting and diarrhoea. In severe cases, may cause severe and permanent damage to the oesophagus and digestive tract, perforation of the stomach, gastrointestinal bleeding, oedema of the glottis, necrosis and scarring, and sudden circulatory collapse (similar to acute inhalation). It may also cause systemic toxicity with acidosis.
Inhalation	Inhalation of product vapours may cause severe irritation and possible burns of the mucous membranes of the nose, throat and respiratory system, with sore throat, coughing, and shortness of breath.
Skin	May 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.
Eye	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.
Serious eye damage/irritation	Eye Irritation: Application of a 1% solution caused tissue death (necrosis) in rabbits. Application of a 5% solution, rinsed with water, caused clouding of the cornea and irritation in rabbits which cleared within 7 days. Eye irritation/Corrosion, rabbit, US.FHSA Fed. Reg. Vol 38 (187) Part II and 16 CFR 1500.42 (1973) and Draize method (1944), Sulfuric acid 5%: moderate irritant.
Respiratory Irritation	Human volunteers exposed to sulfuric acid for 5-15 minutes noticed no odour, or irritation below 1 mg/m ³ . All volunteers noticed the exposure at 3 mg/m ³ and at 5 mg/m ³ 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 ³ dry mist and 21 mg/m ³ 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 irritation study: Result: not irritating, Remark: Comparative study in rats, rabbits and humans, abraded and non-abraded skin. This study demonstrated non-irritancy of 10% aqueous H2SO4. 10% solutions of sulfuric acid appear not to be irritating to the skin in difference species: Species, Test Type: Rabbit, Guinea-pig, Human, Skin irritation test on abraded and intact skin, Ref. (year): 135 (1975), Protocol: FDA, FSHA, Federal register V37, 1972, Doses: 0.5 ml of sulfuric acid, 10 % Result: Not irritating. Species, Test Type: Rabbit, Human, Standard Skin irritation Test and Hill top Chambers Test, Ref. (year): 134 (1990), Protocol: Code of Federal Regulation, DOT 1986 (Rabbit) and 1988 (Human) + Hill top Chamber, Doses: 0.4 or 0.5 ml of sulfuric acid 10 % in standard test, 0.2 ml of sulfuric acid 10 % in Chamber, Result: Not irritating.

12. Ecological information

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Ecological Information	No ecological problems are to be expected when the product is handled and used with due care and attention.
Ecotoxicity	Harmful effect due to pH shift. Quantitative data on the ecological effect of this product are not available. The following applies to sulfuric acid in general: Harmful effect on aquatic organisms. Toxic effect on fish and algae. 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. Neutralisation possible in waste water treatment plants.
Bioaccumulative Potential	An enrichment in organisms should not be expected.
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 and dry deposition.
Environmental Protection	Do not allow to enter waters, waste water, or soil!
Acute Toxicity - Daphnia	Daphnia magna EC50: 29 mg/l /24 h (pure substance).

13. Disposal considerations

Disposal Considerations	Dispose of according to relevant local, state and federal government regulations.
Waste Disposal	Neutralise remaining product with lime, soda ash or sodium bicarbonate, adjusting pH to 6-8. Flush to sewer as greatly diluted solution.

14. Transport information

U.N. Number	2796
UN proper shipping name	SULFURIC ACID
Transport hazard class(es)	8
Hazchem Code	2R
Packaging Method	3.8.8
Packing Group	II
EPG Number	8A1
IERG Number	37

15. Regulatory information

Poisons Schedule	S6
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16. Other Information

Literature References	'Standard for the Uniform Scheduling of Medicines and Poisons No. 15', Commonwealth of Australia, November 2016. Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997. National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007. Safe Work Australia, 'National Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals', 2011. Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 2010. Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'. Safe Work Australia, 'Hazardous Substances Information System, 2005'. Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'. Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995) 3rd Edition]'.
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Contact

Paul McCarthy Ph. (08) 8440 2000 **DISCLAIMER STATEMENT:**

Person/Point

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Empirical Formula & Structural Formula

H₂SO₄

...End Of MSDS...

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