SAFETY DATA SHEET

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1. PRODUCT IDENTIFIER & IDENTITY FOR THE CHEMICAL

Product Identifier: **SULFURIC ACID 34%**
Other Means of Identification:
CAS No.: 7664-93-9
EC No: 231-639-5
Annex I Index No: 016-020-00-8
Molecular Weight: 98
Chemical Formula: H_2SO_4 in aqueous solution
Chemical names: Sulfuric Acid
Proper shipping name (ADG): Sulphuric acid (<51%)
SUSMP name: Poison Schedule 6 (Sulphuric Acid)
Other names or synonyms: Sulfuric Acid, Sulphuric Acid
Product Code: M0561
Recommended use of the chemical and restrictions on use: an intermediate in manufacture of inorganic and organic chemicals incl. Fertilizers, processing aid, catalyst, dehydrating agent, pH regulation, for extractions and processing of minerals, ores, the process of surface treatments, purification and etching, electrolytic processes, gas purification, scrubbing, flue gas scrubbing, production of sulphuric acid contained batteries, recycling of sulphuric acid contained batteries, industrial cleaning, Mixing, preparation and repackaging of sulphuric acid. No restrictions.

Supplier Details

PERTH: Environex International Pty Ltd; 19 Motivation Drive Wangara WA 6065 EMAIL: sales@environex.net.au ABN: 371 5988 7117 FAX: (08) 9302 5000 TEL: (08) 9302 4000	BUNBURY: Environex International Pty Ltd; 18 Halifax Drive, Bunbury WA 6230
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2. HAZARD IDENTIFICATION

Emergency overview: Corrosive. Harmful if swallowed. Causes eye and skin burns. Mist may cause severe respiratory and digestive tract irritation with possible burns.

Classification of the hazardous chemical

Classified as hazardous according to criteria of ASCC and classified as a dangerous good according to the ADG code.

Classification under the Globally Harmonised System of Classification and Labelling of Chemicals 4th Revised Edition:

Skin corrosion (Category 1A), H314

Label elements according to the National model Code of Practice for the Labelling of Workplace Hazardous Chemicals (2015)

Hazard pictograms:

Corrosion
Signal word: DANGER
Hazard statements
H314 Causes severe skin burns and eye damage
Precautionary statements:
P260 Do not breathe dusts or mists.
P264 Wash …thoroughly after handling.
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): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position 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 or doctor/physician.
P321 Specific treatment (see ... on this label) (cleansing agent if appropriate)
P363 Wash contaminated clothing before reuse.
P405 Store locked up.
P501 Dispose of contents/ container in accordance with local/regional/ national/international Regulations
Other hazards which do not result in classification: Not a PBT or vPvB substance or mixture

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance Name	*Concentration, %*	*Product Identifier*	*Hazard Classes and Hazard Categories*
Sulfuric Acid	34	CAS No. 7664-93-9 EC No. 231-639-5	Skin Corr. 1A , H314 (Concentration limits: C ≥ 15 %, Skin Corr. 1A; H314; 5 % ≤ C < 15 %, Skin Irrit. 2; H315; 5 % ≤ C < 15 %, Eye Irrit. 2; H319)

Ingredients either below cut off levels or not classified in "Implementing GHS – Annex 9"

Substance Name	*Concentration, %*	*Product Identifier*	*Hazard Classes and Hazard Categories*
Water	66	CAS No. 7732-18-5 EC No. 231-791-2	Not Listed

4. FIRST AID MEASURES
Description of necessary first aid measures
General measures: Protect skin and eyes. Keep all the basic rules of work and body hygiene
Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Remove contact lenses, if present and easy to do it Get medical aid immediately.

Skin: Get medical aid immediately. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Discard contaminated clothing in a manner, which limits further exposure.

Ingestion: Call a doctor immediately. Vomiting should not to be induced. Mouth has to be immediately rinsed with water. Make the victim if conscious drink 1 or 2 glasses of water or milk. Neutralising agents has not to be given.

Inhalation: Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth respiration.

Symptoms caused by exposure: It causes severe skin burns and eye damage. All persons, exposed to the hazard of skin/eye contact have to be aware about necessity of immediate skin/eye rinsing

Medical Attention and Special Treatment: Treat symptomatically and supportively

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Not flammable. Use any of water spray, dry chemical, carbon dioxide or chemical foam. Do NOT get water inside containers.. Cool containers with flooding quantities of water until well after fire is out.

Specific hazards arising from the chemical

Fire: During reaction of weak acid with metals hydrogen can evolve and form explosive mixtures with atmospheric oxygen in large concentration range.

Explosion**:** May produce hydrogen - an explosion hazard.

Hazchem Code: 2R

Special protective equipment and precautions for fire fighters

Advice for firefighters: Keep containers cool with water spray. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. Containers may explode when heated

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Close the place, prevent entering of all non-authorized person. Avoid the direct contact with the product – wear protective gloves/protective clothing/eye protection/face protection.

Emergency procedures, Evacuate the danger area or consult an expert**.** Approach from upwind. Isolate the area. Wear self-contained breathing apparatus in confined spaces, in cases where the oxygen level is depleted, or in case of significant emissions. Prevent further leakage or spillage if safe to do so. Keep away from incompatible products.

Environmental precautions: Seal the leaking-off place, call a specialist. Spilt liquid: neutralise with hydroxide solution or lime. Prevent run-off from entering storm sewers and ditches which lead to natural waterways without neutralization.

General Information: Use proper personal protective equipment as indicated in Section 8.

Methods and materials for containment and cleaning up

Spills/Leaks: Dam spills immediately, observing precautions in the Protective Equipment section. Treat with dry lime or soda ash and place in a closed container for disposal. Remove all sources of ignition. Flush spill area with water. Do not get water inside containers.

7. HANDLING AND STORAGE

Precautions for safe handling: General: Eating, drinking and smoking in work areas is prohibited. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas. Use only in a well-ventilated area. Keep container tightly closed. Do not get on skin or in eyes. Do not ingest or inhale.

Conditions for safe storage, including any incompatibilities: Store according to Australian Standards AS 3780-2008 The storage and handling of corrosive substances. Product is delivered bulk in glass, plastic or anticorrosive bottles and/or tanks. Storage system shall be designed and operated to prevent escapes like leaking-off and/or spilling. Store in acid-proof tanks (glass, plastic, anticorrosive) and keep away from non-authorized manipulation. The risk of corrosion of metal tanks and hydrogen evolving has to be considered, when such tanks are used for storage. Drain pit under/around the tank is necessary. Protect against freeze and high temperature above boiling point. Avoid contact with water and organic matter.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters – exposure standards, biological monitoring

HSIS Airborne Exposure Limits:

Sulfuric acid: TWA 1 mg/m3; STEL 3mg/m3. Odour Threshold: > 1 mg/m3 IDLH Value: 80 mg/m3

Sulfur Dioxide: TWA 2 ppm (5.2 mg/m3); STEL 5ppm (13 mg/m3). Odour Threshold: > 1 mg/m3 IDLH Value: 80 mg/m3

Appropriate engineering controls: Facilities storing or utilising this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits

Personal protective equipment (PPE)

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles

Skin: Wear appropriate gloves to prevent skin exposure. Wear protective gloves made from PVC, neoprene, nitril or rubber, penetration time > 480 minutes

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respiratory Protection (AS/NZS 1715/1716 Approved): Wear a full-face piece dust/mist respirator For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Liquid; oily viscous, colourless up to yellowish or brownish
Odour: Acidic odour
Odour threshold: > 1 mg/m^3 IDLH Value: 80 mg/m
pH: < 1 (pH: 0.5 M = 0.3; 0.05 M = 1.2; 0.005 M = 2.1)
Melting point/freezing point (°C): -64 °C approx..
Initial boiling point and boiling range (°C): 110 °C approx..
Flash point: N/A
Evaporation rate: N/A
Flammability (solid, gas): Not flammable
Upper/lower flammability or explosive limits: N/A
Vapour pressure (at 293 K): 0.017 atm
Vapour density: Not known
Relative density (at 293 K): 1.139 (20%), 1.252 (34%), 1.498 (60%), 1.611 (70%), 1.836 (98%)
Solubility in water: Miscible in every ratio, not limited
Partition coefficient: n-octanol/water: N/A

Auto-ignition temperature: N/A
Decomposition temperature: It decomposes at temperatures above boiling point, irritant sulphur oxides evolve**.**
Viscosity (at 293 K): 22.5 mPa.s for conc. 95%
Explosive properties: N/A
Oxidising properties: None
Miscibility with water: In every ratio, developing a big amount of heat
Fat solubility: N/A
Dissociation constant: pKa = 1.92
Gas group: N/A
Organic solvents/organic carbon contents: below the limit of detection
Percent volatile: 66%.

10. STABILITY AND REACTIVITY

Reactivity: It decomposes most of organic matter, particularly sacharides and polysacharides. During reaction of weak acid with metals hydrogen can evolve and form explosive mixtures with atmospheric oxygen in large concentration range..
Chemical Stability: Stable under normal conditions. Heating up to higher temperatures evolves corrosive and hygroscopic vapours. It decomposes at/over boiling point evolving irritative sulphur oxides.
Possibility of Hazardous Reactions: Heating up to and/or over boiling point evolves irritating vapours of sulphur oxides.. Diluting in water develops a big amount of heat. It decomposes most organic matter, namely sacharides and polysacharides. Reactions with organic matter are followed with heat developing, up to burning and sulphur oxides evolving. During reaction of weak acid with metals hydrogen can evolve and can form explosive mixtures with atmospheric oxygen over a large concentration range**..**
Conditions to Avoid Contact with water and organic compounds and high temperatures above the boiling point.
Incompatible materials and possible hazardous reactions: Water. Alkalis. Organic compounds, namely sacharides and polysacharides. Slowly liberates explosive hydrogen gas when reacting with stainless steel.
Hazardous Decomposition Products: Oxides of sulfur.

11. TOXICOLOGICAL INFORMATION

Acute toxicity:
LD50 = 2140 mg/kg (rat); LC50 = 375 mg/m3/hour (rat); LC50 = 16 mg/l (Lepomis macrochirus), EC50 = 100 mg/l (Daphnia magna, 48 hours)
Health Effects
Skin: Contact with liquid is corrosive and causes severe burns and ulceration.
Eye: Will cause irreversible eye injury. Contact with liquid is corrosive to the eyes and causes severe burns.
Ingestion: Causes severe pain, nausea, vomiting, diarrhoea, and shock. May cause haemorrhaging of the digestive tract. May cause corrosion and permanent tissue destruction of the oesophagus and digestive tract. Harmful if swallowed.
Inhalation: Irritation may lead to chemical pneumonitis and pulmonary oedema. Causes severe irritation of upper respiratory tract with coughing, burns, breathing difficulty, and possible coma.
Chronic: No information
Respiratory or skin sensitisation: Not sensitising

Germ cell mutagenicity: Not available
Carcinogenicity: Exposure to strong inorganic acid mists containing sulphuric acid has been classified as carcinogenic to humans
Reproductive toxicity: Not available
Specific Target Organ Toxicity (STOT) – single exposure: Not available
Specific Target Organ Toxicity (STOT) – repeated exposure: Not available
Aspiration hazard: Not available
Information on Possible routes of exposure: Ingestion, Inhalation, Skin/ eye exposure.
Delayed Health Effects from Exposure: Symptoms of lung oedema (shortness of breath) may develop up to 24 hours after exposure

12. ECOLOGICAL INFORMATION

Ecotoxicity: Toxicity for aquatic organisms:
LC50 = 16 up to 28 mg/l (Lepomis macrochirus, 96 hours)
EC50 > 100 mg/l (Daphnia magna, 48 hours)
EC50 > 100 mg/l (Desmodesmus subspicatus, 72 hours)
PNEC: 0.0025 mg/l (fresh water), 8.8 mg/l (sewage treatment plants)
Persistence and degradability: Not persistent . PNEC: 0.0025 mg/l (fresh water), 8.8 mg/l (sewage treatment plants)
Bioaccumulative potential: None
Mobility in soil: The product is water soluble and naturally present in soil as sulphate ions
Other adverse effects: The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms. The product has no other adverse effects like effect on environmental fate (exposure), photochemical ozone creation potential, ozone depletion potential, endocrine disrupting potential and/or global warming potential

13. DISPOSAL CONSIDERATIONS

Disposal methods: Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to an approved waste facility. State and local disposal regulations may differ from federal disposal regulations. Neutralise to pH 6-9 before disposal
Disposal of any contaminated packaging: Dispose of container and unused contents in accordance with federal, state and local requirements..
Effects of sewage disposal: No data
European Waste List Code 06 01 01: Dangerous Waste – Sulphuric Acid has to be used when treated in EU. Small residues after rinsing and/or wastes of acid have to be neutralized before disposing into sewerage using hydroxide solution. Bigger residues after rinsing and/or wastes of acid have to be neutralized before disposing into sewerage using lime solution. Developed gypsum can be disposed into a designed place/depot in accordance with local legal requirements. Contaminated water and waste acid have to be neutralized in industrial waste water treatment plant.

14. TRANSPORT INFORMATION

ADG Classification: UN 2796, Proper Shipping Name: Sulfuric Acid (<51%); Class 8; PG II
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Hazchem Code: 2R
IMDG Classification: UN 2796; Shipping name: Sulphuric acid (<51%); Class 8; PG II; EmS: F-A, S-B; Stowage and Segregation: Cat C. For Steel Drums, Cat B.
Environmental hazards for Transport Purposes: Not a marine pollutant
Special precautions during transport: None

15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations
Australian Inventory of Chemical Substances: Sulfuric Acid is listed in the AICS.
SUSMP Labelling: Schedule 6 Poison. **FIRST AID**. For advice, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor (at once). If swallowed, do NOT induce vomiting. 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. If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. **SAFETY DIRECTIONS** Corrosive. Avoid contact with eyes and skin.
HSIS (Safe Work Australia) Labelling: C Corrosive R35 Causes severe burns, S (1/2) Keep locked up and out of reach of children, S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice, S30 Never add water to this product, S45 In case of accident or you feel unwell, seek medical advice immediately (show label whenever possible

Solutions equal to or stronger than 1.5 M are labelled “CORROSIVE”, while solutions greater than 0.5 M but less than 1.5 M are labelled “IRRITANT
Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work. Follow national regulation for work with chemical agents.

16. OTHER INFORMATION

Date of preparation or review:
Key abbreviations or acronyms used:
PNEC: Predicted No-Effect Concentration.
PBT: Persistent, bioaccumulative and toxic.
vPvB: Very Persistent and very Bioaccumulative.
End of SDS