

Safety Data Sheet



Hazardous, Dangerous Goods

1. MATERIAL AND SUPPLY COMPANY IDENTIFICATION

Product name: **SULPHURIC ACID 98%**

Synonyms

H₂SO₄ 98%
Sulfuric Acid 98%
Sulphuric acid Sp.Gr. 1.84
Hydrogen Sulfate 98%
Dihydrogen Sulfate 98%
Oil of Vitriol

Product Code

Recommended use: The manufacture of superphosphate fertiliser, inorganic and petro-chemicals, explosives and pigments. Component of heavy duty metal cleaners, pickles. In manufacture of rayon, cellulose film. As battery electrolyte and also in electroplating processes.

Supplier: Clark Products
Street Address: 75 Niven Street Onekawa
Napier 4110 New Zealand
Telephone: 06 8433163
Facsimile: 06 8432958
Email: orders@clarkproducts.co.nz

Emergency telephone number: 0800 CHEMCALL (0800 243 622)

2. HAZARDS IDENTIFICATION

This material is hazardous according to criteria of EPA New Zealand.

HSNO Approval Code: HSR001572



Signal Word

Danger

Hazard Classifications

Acute Toxicity - Inhalation - Category 4
Corrosive to Metals - Category 1
Skin Corrosion/Irritation - Category 1B
Serious Eye Damage/Irritation - Category 1
Carcinogenicity - Category 1
Specific Target Organ Toxicity following Single Exposure - Category 3 - Respiratory Tract Irritation
Specific Target Organ Toxicity following Repeated Exposure - Category 1

Hazard Statements

H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H332 Harmful if inhaled.

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H335 May cause respiratory irritation.
H350 May cause cancer .
H372 Causes damage to organs through prolonged or repeated exposure.

Prevention Precautionary Statements

P102 Keep out of reach of children.
P103 Read carefully and follow all instructions.
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P234 Keep only in original packaging.
P260 Do not breathe dust, fume, gas, mist, vapours or spray.
P264 Wash hands, face and all exposed skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P281 Use personal protective equipment as required.

Response Precautionary Statements

P101 If medical advice is needed, have product container or label at hand.
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/insert appropriate source of emergency medical advice.
P363 Wash contaminated clothing before reuse.
P390 Absorb spillage to prevent material damage.

Storage Precautionary Statements

P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P406 Store in corrosive resistant insert appropriate compatible material container with a resistant inner liner.

Disposal Precautionary Statement

P501 Dispose of contents/container in accordance with local, regional, national and international regulations.

DANGEROUS GOOD CLASSIFICATION

Classified as Dangerous Goods by the criteria of the "Australian Code for the Transport of Dangerous Goods by Road & Rail" and the "New Zealand NZS5433: Transport of Dangerous Goods on Land".

Dangerous Goods Class: 8

3. COMPOSITION INFORMATION

CHEMICAL ENTITY	CAS NO	PROPORTION
Sulfuric acid	7664-93-9	>98 % (w/w)
Water	7732-18-5	1-2 % (w/w)
		100%

4. FIRST AID MEASURES

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If poisoning occurs, contact a doctor or Poisons Information Centre (Phone Australia 131 126, New Zealand 0800 764 766).

Inhalation: Remove victim from area of exposure - avoid becoming a casualty. Remove contaminated clothing and loosen remaining clothing. Allow patient to assume most comfortable position and keep warm. Keep at rest until fully recovered. If patient finds breathing difficult and develops a bluish discoloration of the skin (which suggests a lack of Oxygen in the blood - Cyanosis), ensure airways are clear of any obstruction and have a qualified person give oxygen through a face mask. If breathing has stopped immediately apply artificial respiration. Seek immediate medical advice.

Skin Contact: If skin or hair contact occurs, remove contaminated clothing, carefully and quickly wipe the Sulphuric Acid from the skin and then immediately flush skin and hair with running water and remove other clothing. Continue to flush skin and hair with plenty of water (e.g. in a safety shower). If Diphoterine Product (an Amphoteric Chelating compound) is available, wash continuously with the Diphoterine product. For skin burns, cover with a clean, dry dressing until medical help is available. If blistering occurs, do NOT break blisters. If swelling, redness, blistering, or irritation occurs seek medical assistance.

Eye contact: Speed is ESSENTIAL: If Diphoterine SIEW or Diphoterine solution is available: Wash eye with contents of SIEW where available and continue washing with portable Diphoterine (amphoteric/chelating) solution. Otherwise: Immediately irrigate with in and around the eye with large amounts of water for at least 15 minutes. Eyelids to be held open and apart. Remove clothing if contaminated and wash skin. Urgently seek medical assistance. Promptly transport to hospital or medical centre.

Ingestion: Rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water to drink. Never give anything by the mouth to an unconscious patient. If vomiting occurs give further water. Seek medical advice.

PPE for First Aiders: Wear rubber boots, overalls, gloves, apron, face shield, respirator. Use with adequate ventilation. If inhalation risk exists wear organic vapour/particulate respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716. Available information suggests that gloves made from butyl rubber, teflon should be suitable for intermittent contact. However, due to variations in glove construction and local conditions, the user should make a final assessment. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

Notes to physician: Treat symptomatically. Can cause corneal burns.

5. FIRE FIGHTING MEASURES

Hazchem Code: 2P

Suitable extinguishing media: If material is involved in a fire use water fog (or if unavailable fine water spray), alcohol resistant foam, standard foam, dry agent (carbon dioxide, dry chemical powder).

Specific hazards: Non-combustible material.

Fire fighting further advice: Not applicable.

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILLS

Use absorbent (soil, sand or other inert material). DO NOT use sawdust. Neutralise residues with lime or soda ash.

LARGE SPILLS

Clear area of all unprotected personnel. Slippery when spilt. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contamination and the inhalation of vapours. Work up wind or increase ventilation. Contain - prevent run off into drains and waterways. Use absorbent (soil, sand or other inert

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material). Collect and seal in properly labelled containers or drums for disposal. If contamination of crops, sewers or waterways has occurred advise local emergency services.

Dangerous Goods - Initial Emergency Response Guide No: 40

7. HANDLING AND STORAGE

Handling: Avoid eye contact and skin contact. Avoid inhalation of vapour, mist or aerosols..Always add the acid to water, never the reverse. Eye wash facilities and emergency shower must be available when handling this product.

Storage: Leave chemicals in the original containers. Do NOT mix with other waste. Handle uncleaned containers like the 98% Sulphuric Acid itself.Store in a cool, dry, well-ventilated place and out of direct sunlight. Store away from foodstuffs. Store away from incompatible materials described in Section 10. Store away from sources of heat and/or ignition..Store locked up. Store in corrosive resistant container with a resistant inner liner. Keep container standing upright. Keep containers closed when not in use - check regularly for leaks. .This material is classified as a Class 8 Corrosive as per the criteria of the "New Zealand NZS5433: Transport of Dangerous Goods on Land" and/or the "Australian Code for the Transport of Dangerous Goods by Road & Rail" and must be stored in accordance with the relevant regulations.

This material is classified as a Class 8 Corrosive as per the criteria of the "New Zealand NZS5433: Transport of Dangerous Goods on Land" and/or the "Australian Code for the Transport of Dangerous Goods by Road & Rail" and must be stored in accordance with the relevant regulations.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

National occupational exposure limits: No value assigned for this specific material by WorkSafe New Zealand.

Biological Limit Values: As per the WorkSafe New Zealand the ingredients in this material do not have a Biological Limit Allocated.

Engineering Measures: Natural ventilation should be adequate under normal use conditions..

Personal Protection Equipment: RUBBER BOOTS, OVERALLS, GLOVES, APRON, FACE SHIELD, RESPIRATOR.

Personal protective equipment (PPE) must be suitable for the nature of the work and any hazard associated with the work as identified by the risk assessment conducted.

Wear rubber boots, overalls, gloves, apron, face shield, respirator. Use with adequate ventilation. If inhalation risk exists wear organic vapour/particulate respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716. Available information suggests that gloves made from butyl rubber, teflon should be suitable for intermittent contact. However, due to variations in glove construction and local conditions, the user should make a final assessment. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

Hygiene measures: Keep away from food, drink and animal feeding stuffs. When using do not eat, drink or smoke. Wash hands prior to eating, drinking or smoking. Avoid contact with clothing. Avoid eye contact and skin contact. Avoid inhalation of vapour, mist or aerosols. Ensure that eyewash stations and safety showers are close to the workstation location.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Liquid
Colour: Colourless

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Odour:	Very slight acid odour
Solubility:	Hazardous reaction with organic solvents.
Solubility in water:	1000 g/L at 25°C. Miscible in water (with high heat release)
Specific Gravity:	1.83-1.85
Density:	1.83-1.85 g/cm ³ at 15°C
Relative Vapour Density (air=1):	3.40
Vapour Pressure (20 °C):	133 Pa at 146°C (97%) & 6 Pa at 20°C (90%) [Sulphuric Acid]
Flash Point (°C):	N App
Flammability Limits (%):	N App
Autoignition Temperature (°C):	N App
Melting Point/Range (°C):	3-5°C (98%)
Boiling Point/Range (°C):	310-335°C (98%)
pH:	1 (1% solution)
Viscosity:	22 mPa.s at 20°C (95% H ₂ SO ₄)
Total VOC (g/Litre):	Nil
Oxidising properties:	High heat release with water causes oxidation of organic compounds
% Volatile by Volume:	1-2% (moisture loss on drying)
Molecular Formula:	H ₂ -S-O ₄
Molecular Weight:	98.07

(Typical values only - consult specification sheet)
N Av = Not available, N App = Not applicable

10. STABILITY AND REACTIVITY

Chemical stability: Stable under standard ambient conditions (10-40°C) in sealed containers. Open under low humidity conditions, otherwise seal up as soon as possible.

Conditions to avoid: Avoid contact with water, moisture. Reacts with water. Always add acid to water, NEVER the reverse.

Incompatible materials: Contact with reactive metals releases flammable Hydrogen gas (that can build up in sealed spaces). Contact with Animal and Vegetable tissues that contain moisture and will release high heat causing Corrosive Oxidation. Reacts violently with Alkaline (basic) materials/chemicals. Reacts with most Organic Chemicals.

Hazardous decomposition products: Sulphuric Acid aerosols following contact with water. Oxides of Sulphur (SO_x). WILL release flammable Hydrogen gas with most metals that can build up in sealed spaces.

Hazardous reactions: High heat release (exothermic) reaction with water causing violent boiling.

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Acute Effects

Inhalation: Harmful if inhaled. Material is an irritant to mucous membranes and respiratory tract.

Skin contact: Contact with skin will result in severe irritation. Corrosive to skin - may cause skin burns.

Ingestion: Swallowing can result in nausea, vomiting, diarrhoea, abdominal pain and chemical burns to the

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gastrointestinal tract.

Eye contact: A severe eye irritant. Corrosive to eyes: contact can cause corneal burns. Contamination of eyes can result in permanent injury.

Acute toxicity

Inhalation: This material has been classified as a Category 4 Hazard. Acute toxicity estimate (based on ingredients): $10.0 < LC_{50} \leq 20.0$ mg/L for vapours or $1.0 < LC_{50} \leq 5.0$ mg/L for dust and mist.

Skin contact: This material has been classified as not hazardous for acute dermal exposure. Acute toxicity estimate (based on ingredients): $LD_{50} > 2,000$ mg/Kg bw

Ingestion: This material has been classified as not hazardous for acute ingestion exposure. Acute toxicity estimate (based on ingredients): $LD_{50} > 2,000$ mg/Kg bw

Corrosion/Irritancy: Eye: this material has been classified as a Category 1 Hazard (irreversible effects to eyes). Skin: this material has been classified as a Category 1B Hazard (irreversible effects to skin).

Sensitisation: Inhalation: this material has been classified as not a respiratory sensitiser. Skin: this material has been classified as not a skin sensitiser.

Aspiration hazard: This material has been classified as not an aspiration hazard.

Specific target organ toxicity (single exposure): This material has been classified as not a specific hazard to target organs by a single exposure.

Chronic Toxicity

Mutagenicity: This material has been classified as non-hazardous.

Carcinogenicity: This material has been classified as a Category 1 - Substances that are known or presumed human carcinogens.

Reproductive toxicity (including via lactation): This material has been classified as non-hazardous.

Specific target organ toxicity (repeat exposure): This material has been classified as non-hazardous.

12. ECOLOGICAL INFORMATION

Avoid contaminating waterways.

Acute aquatic hazard: This material has been classified as not hazardous for acute aquatic exposure. Acute toxicity estimate (based on ingredients): > 100 mg/L

Chronic aquatic hazard: This material has been classified as not hazardous for chronic aquatic exposure. Non-rapidly or rapidly degradable substance for which there are adequate chronic toxicity data available OR in the absence of chronic toxicity data, Acute toxicity estimate (based on ingredients): > 100 mg/L, where the substance is not rapidly degradable and/or $BCF < 500$ and/or $\log Kow < 4$.

Ecotoxicity in the soil environment: This material has been classified as non-hazardous.

Ecotoxicity to terrestrial vertebrates: This material has been classified as non-hazardous.

Ecotoxicity to terrestrial invertebrates: This material has been classified as non-hazardous.

Ecotoxicity: No information available.

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Persistence and degradability: No information available.

Bioaccumulative potential: No information available.

Mobility: No information available.

13. DISPOSAL CONSIDERATIONS

Contact with reactive metals releases flammable Hydrogen gas (that can build up in sealed spaces). Contact with Animal and Vegetable tissues that contain moisture and will release high heat causing Corrosive Oxidation. Reacts violently with Alkaline (basic) materials/chemicals. Reacts with most Organic Chemicals. Always add the acid to water, never the reverse. Persons conducting disposal, recycling or reclamation activities should ensure that appropriate personal protection equipment is used, see "Section 8. Exposure Controls and Personal Protection" of this SDS. If possible material and its container should be recycled. IF material or container cannot be recycled, dispose in accordance with local, regional, national and international Regulations.

14. TRANSPORT INFORMATION

ROAD AND RAIL TRANSPORT

Classified as Dangerous Goods by the criteria of the "Australian Code for the Transport of Dangerous Goods by Road & Rail" and the "New Zealand NZS5433: Transport of Dangerous Goods on Land".



UN No: 1830
Dangerous Goods Class: 8
Packing Group: II
Hazchem Code: 2P
Emergency Response Guide No: 40

Proper Shipping Name: SULPHURIC ACID

Segregation Dangerous Goods: Not to be loaded with explosives (Class 1), dangerous when wet substances (Class 4.3), oxidising agents (Class 5.1), organic peroxides (Class 5.2), radioactive substances (Class 7) or food and food packaging in any quantity. Note 1: Concentrated strong alkalis are incompatible with concentrated strong acids. Note 2: Concentrated strong acids are incompatible with concentrated strong alkalis. Note 3: Acids are incompatible with Dangerous Goods of Class 6 which are cyanides. Exemptions may apply.

MARINE TRANSPORT

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.



UN No: 1830
Dangerous Goods Class: 8
Packing Group: II

Proper Shipping Name: SULPHURIC ACID

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AIR TRANSPORT

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.



UN No: 1830
Dangerous Goods Class: 8
Packing Group: II
Proper Shipping Name: SULPHURIC ACID

15. REGULATORY INFORMATION

This material is not subject to the following international agreements:

Montreal Protocol (Ozone depleting substances)
The Stockholm Convention (Persistent Organic Pollutants)
The Rotterdam Convention (Prior Informed Consent)

This material is subject to the following international agreements:

Basel Convention (Hazardous Waste)

- Acidic solutions or acids in solid form

International Convention for the Prevention of Pollution from Ships (MARPOL)

- Annex II - Noxious Liquid Substances carried in Bulk
- Annex III - Harmful Substances carried in Packaged Form

This material/constituent(s) is covered by the following requirements:

All components of this product are listed on or exempt from the New Zealand Inventory of Chemical (NZIoC).

AIICS Status: AIIC listed pure substance.

HSNO Approval Code: HSR001572

16. OTHER INFORMATION

Reasons for issue: Change in First Aid Measures
Change in Personal Protection Requirements
Change in Handling & Storage Requirements
Change in Accidental Release Measures
Change in Formulation
Change in Physical Properties
Change in Disposal requirements

This information was prepared in good faith from the best information available at the time of issue. It is based on the present level of research and to this extent we believe it is accurate. However, no guarantee of accuracy is made or implied and since conditions of use are beyond our control, all information relevant to usage is offered without warranty. The manufacturer will not be held responsible for any unauthorised use of this information or for any modified or altered versions.

If you are an employer it is your duty to tell your employees, and any others that may be affected, of any hazards described in this sheet and of any precautions that should be taken.

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Safety Data Sheets are updated frequently. Please ensure you have a current copy.