CHEMICAL INDUSTRIES (FAR EAST) LIMITED.
化学工业(远东)有限公司

Title	Doc. No.	TDC-SDS-Lab-S030
SDS – Sulfuric Acid	Revision	A
	Date of issue	14 May 2025
	Page	1 of 6

SAFETY DATA SHEET (SDS)

SULFURIC ACID (< 60%)

Preface

Sulfuric acid, aqueous, is a colorless to pale yellow liquid.

Sulfuric acid is a CORROSIVE CHEMICAL and contact can severely irritate and burn the skin and eyes with possible eye damage and may lead to blindness. Breathing Sulfuric Acid can irritate the nose and throat. Sulfuric Acid is a REACTIVE CHEMICAL and an EXPLOSION HAZARD.

1 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Product name	:	Sulfuric acid
Chemical name	:	Sulfuric acid
Chemical formula	:	H_2SO_4
Other names	:	Sulfuric acid
Company's name & address	:	Chemical industries (Far East) Limited
(head office)	:	3, Jalan Samulun, Jurong Town, Singapore 629127
		Tel: 6265 0411 Fax: 6265 6690 Email: chemical.ind@cil.sg
(manufacturing plant)	:	91, Sakra Avenue, Jurong Island, Singapore 627882
		Tel: 6867 6977 Fax: 6867 6972 Email: sakraplant@cil.sg
Emergency telephone number	:	6265 0411 or 6867 7433 (Manufacturing plant's control room)

2 HAZARD IDENTIFICATION

GHS CLASSIFICATION :

Corrosive to metals	Category 1
Acute Toxicity :	
Oral :	Category 1A
Dermal:	Category 1A
Inhalation :	Category 3
Skin corrosion/irritation:	Category 1A
Serious eye damage/irritation :	Category 1A
Skin sensitization:	Category 1A
Carcinogenicity	Not classified
Reproductive toxicity :	Not classified
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 3

GHS label elements
Pictograms:

Signal word: Danger

Hazard Statement(s):

H290: May be corrosive to metals.

H314: Causes severe skin burns and eye damage

H335: May cause respiratory irritation.

Precautionary Statement(s):

Prevention:

P202: Do not handle until all safety precaution have been read and understood.

P233: Keep container tightly close.

P234: Keep only in original container.

P260: Do not breathe in mist or vapours or spray.

P264: Wash thoroughly after handling.

P270: Do not eat, drink or smoke when using this product.

P273: Avoid release into the environment.

P280: Wear protective glove, clothing, eye protection and face protection.

Response:

P304 + P340: IF IN HALED: Remove person to fresh air and keep comfortable for breathing.

P310: Immediately call a POISON CENTRE or doctor/physician if you feel unwell.

P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353: IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305 + P351+ P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contant lenses, if present and easy to do. Continue rinsing.

P390: Absorb spillage to prevent material damage.

Storage and disposal:

P403 + P233: Store in a well ventilated place. Keep container tightly closed.

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

3 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredients		CAS No.[1]	EC-No.[2]	EC-Index-No.[3]	Symbol / R-phrase	Content
Sulfuric acid (H_2SO_4)	:	7664-93-9	016-020-00-8	231-639-5	C, R 35 C = Corrosive R 35 = Causes severe burns	$\leq$ 60 %

4 FIRST-AID MEASURES

Types of contact…	First aid measures
Eye contact	Wash eyes thoroughly with water for at least 15 minutes with eyelids held widely open. Immediately summon for eye doctor / specialist.
Skin contact	Immediately wash off with plenty of water. Any clothing contaminated with acid should be removed immediately and washed before re-use. Summon medical attention for serious exposure.
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. Give oxygen if necessary. Summon medical attention.
Ingestion	Immediately rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water if victim is conscious. Never give anything to an unconscious victim. Immediately summon medical attention.

Note: Speed in removing victim from contaminated area and removing H_2SO_4 from eyes / skin are of primary importance.

5 FIRE-FIGHTING MEASURES

Fire-fighting media : Not combustible. However, if material is involved in a fire, use fine water spray, normal foam, dry agent (carbon dioxide, dry chemical powder).

Protective equipment for fire-fighting : Fire fighters should use full protective clothing and full-face positive pressure self-contained breathing apparatus.

Special risks : Reacts violently with water and organics with evolution of heat. Decomposes on heating, emitting toxic fumes, including those of oxides of sulfur. Heating can cause expansion or decomposition of the material, which can lead to the containers exploding. If safe to do so, remove containers from the path of fire.

6 ACCIDENTAL RELEASE MEASURES

Personal protective equipment : Avoid contact with skin / eye. Do not inhale vapor / fume. Ensure supply of fresh air in enclosed room.
Use full protective clothing, rubber gloves, rubber boots and eye googles.

[1] CAS – Chemical Abstract Service
[2] EC No. – No. given by EC Commission
[3] EC Index No. – as per appendix 1 of the regulation 67/548/EC

Procedure to stop / minimize :

1. Prevent further leakage if it is safe to do so without personal risk.
2. For **minor** spill / leak, cover with sand, dry lime or soda ash. Use clean non-sparking tools to collect material and place it into loosely covered plastic containers for later disposal. Washing down spills with water is not recommended.
3. For **large** spill / leak, prevent entry into sewers and confined areas. Dike with inert materials (sand, dry lime or soda ash) Collect into properly labelled containers or drums for disposal. Consider insitu neutralization and disposal. Ensure adequate decontamination of tools and equipment following clean up.
4. Assistance can be obtained from licensed waste disposal contractors / supplier.
5. If major spill / leak is not under control, inform SCDF / fire brigade / police./ supplier
6. Stay upwind, and evacuate if required.
7. Clean up affected area.

Method to clean up : Neutralize with alkaline material (soda, ash, lime), then absorb with an inert material (e.g. vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as sawdust. Do not flush to sewer.
Dispose in accordance to current local disposal regulations.
(In Singapore, The Environmental Public Health (Toxic industrial waste) Regulations.)

Environmental precautions : Prevent liquid from entering sewer, surface water, ground water and soil. Advise authorities if substance has entered a watercourse / drain / soil.

7 HANDLING & STORAGE

Usual shipping containers : Carbons steel or certain stainless steels, as well as certain fiberglass reinforced plastics and PVC lined FRP are suitable for handling sulfuric acid. Polyethylene drums / carboys.

Handling : Keep containers closed. Handle containers with care. Container remains hazardous when empty. Always add acid to water. Never the reverse.
Wherever sulfuric acid is used, handled, manufactured, or stored, use explosion-proof electrical equipments and fittings.

Storage : Store in a cool, dry, ventilated storage area with acid resistant floors and good drainage. Protect from physical damage. Keep out of direct sunlight and away from heat, water, and incompatible materials. Do not wash out container and use it for other purposes.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls : Provide adequate and general ventilation in areas of storage and places of usage where sulfuric acid mist is present to meet PEL (personal exposure limit) requirements.
Provide water supply / emergency eyewash / shower near areas of handling.

Safe work practices / industrial hygiene : Wash hands and face after working with the substance, and before eating / drinking. Immediately remove contaminated clothing. Wash before re-using.

Personal protection

1. Eye protection : Use safety goggle / face shield.
2. Skin protection : Use rubber gloves, acid-resistant protective clothing and rubber boots. Chemical resistance of materials should be ascertained with the vendor.
3. Respiratory protection : If the exposure limit is exceeded and engineering controls are not feasible, a full face piece respirator with an acid gas cartridge and particulate filter may be worn. For emergencies or planned entry into unknown concentrations or IDLH conditions, use a full-face piece positive pressure, air-supplied respirator.
4. Other protective equipment : Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate.

Occupational exposure standards : TWA 8 hours = 1 mg/m^3
LTEL = 1 mg/m^3
STEL = 3 mg/m^3 (Singapore permissible exposure limit)
(TWA – time weighted average, LTEL - Long term exposure limit, STEL – Short term exposure limit)

9 PHYSICAL & CHEMICAL PROPERTIES

Appearance		:	Clear, colorless to pale yellow liquid
Boiling point (at 1013 hPa)		:	Not Available
Melting point		:	Not Available
Vapor pressure (mmHg, at 20°C)		:	Not Available
Specific gravity (at 20°C)		:	< 1.5
Solubility in water (at 20°C)		:	Completely soluble
Corrosiveness		:	Material is highly corrosive to most metals with the release of hydrogen gas, which is highly flammable when mixed with air.
Viscosity (dynamic, at 20°C)		:	Not Available
Evaporation rate		:	Extremely low
Vapor density		:	Not Available
Odor		:	Odorless to slight pungent
pH (at 100 g/l, 20°C)		:	< 1
Flash point		:	Not Available
Explosive limits	lower	:	Not Available
	upper	:	Not Available
Auto-ignition temperature		:	Not Available
Molecular weight		:	98.08

10 STABILITY & REACTIVITY

Stability	:	Normally stable, but reacts violently with water and organic materials with evolution of heat. Avoid temperatures greater than 300°C
Conditions to avoid instability	:	Heat
Hazardous decomposition products	:	Toxic gases and vapors (e.g. sulfur dioxide, sulfur trioxide, sulfur acid vapors) Attacks many metals liberating explosive hydrogen gas.
Conditions to avoid polymerization	:	Will not occur.
Materials & conditions to avoid (incompatibility)	:	React violently with water and reducing agents. When diluting, always add acid to water. Do NOT add water to acid. Incompatible with oxidizing agents, alkalis, some metals and organic materials (such as alcohol, acrylonitrile, chlorates, carbides, epichlorohydrin, fulminates, isoprene, nitrates and picrates)

11 TOXICOLOGICAL INFORMATION

Acute toxicity	:	LC_{50} (inhalation, rat) – 510 mg/m^3 for 2 hours LD_{50} (oral, rat) – 2140 mg/kg
Further data	:	Further hazardous properties cannot be excluded. Handle with usual care when dealing with chemicals. See also section 2 on effects on health. Skin effects: Severe irritation Eye effects: Severe irritation

12 ECOLOGICAL INFORMATION

Ecotoxicity	:	Harmful to aquatic life in very low concentrations. May be dangerous if it enters water intake. Avoid contaminating waterways.
Further ecological data	:	Prevent liquid from entering sewer, surface water, ground water and soil. Advise authorities if substance has entered a watercourse / drain / soil.

13 DISPOSAL CONSIDERATIONS

Considerations	:	Do not dispose substance directly to sewerage, ground-water and surface-water system. Render harmless the recovered substance / water washing by careful neutralizing using dilute sodium hydroxide solution, or by throwing on lime or soda ash. Consult approved

waste collectors for disposal.

Singapore regulations : Dispose in accordance to current local disposal regulations.
(In Singapore, The Environmental Public Health (Toxic industrial waste) Regulations)

14 TRANSPORT INFORMATION

Proper shipping name (for land / sea / air) : SULFURIC ACID

	UN No.[4]	Hazard class	PSA Group[5]
Land [The Environmental Pollution Control (Hazardous substances) Regulations]	1830	8	II
Sea (IMDG[6] / IMO[7])	1830	8	II
Air (ICAO[8] /IATA[9])	1830	8	II

15 REGULATORY INFORMATION

In Singapore:

Import & sale of hazardous substances : Environmental Protection and Management (Hazardous Substances) Regulations

Disposal of obsolete / expired chemicals / waste : Environmental Public Health (Toxic Industrial Waste) Regulations

Symbol	:	C	Corrosive
R-phases	:	R 35	Causes burn. Irritating to respiratory system.
S-phases	:	S 26	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 if you feel unwell, seek medical advice immediately (show the label where possible)

	Hazard type	Hazard class.	UN No.	Hazchem code
Sulfuric acid (H_2SO_4)	Corrosive	8	1830	2R

NFPA rating[10]	Health	Reactivity	Flammability	Other
	3	2	0	W

16 OTHER INFORMATION

Revision No.	Date of issue	Description of changes
A	May 2025	Content revision

[4] UN No. – No. issued by United Nations Subcommittee Experts
[5] PSA Group – Grouping of dangerous goods by Port Of Singapore Authority
[6] IMDG – International Maritime Dangerous Goods
[7] IMO – International Maritime Organisation
[8] ICAO – International Civil Aviation Organisation
[9] IATA – International Air Transport Association
[10] NFPA rating – rating according to National Fire Protection Agency