

Sulphuric Acid

SECTION 1. IDENTIFICATION

Product Identifier	Sulphuric Acid
Other Means of Identification	Sulfuric Acid
Recommended Use	Process chemical, laboratory and scientific research and development.
Restrictions on Use	None known.
Manufacturer/Supplier Identifier	Caledon Laboratories Ltd, 40 Armstrong Avenue, Georgetown, Ontario, L7G-4R9, (905) 877-0101, www.caledonlabs.com
Emergency Phone No.	CANUTEC, (613) 996-6666
SDS No.	0056

SECTION 2. HAZARD IDENTIFICATION

Classification

Corrosive to metals - Category 1; Skin corrosion - Category 1; Serious eye damage - Category 1; Carcinogenicity - Category 1A; Specific target organ toxicity (single exposure) - Category 1; Specific target organ toxicity (repeated exposure) - Category 1; Aquatic hazard (Acute) - Category 3

Label Elements



Signal Word:

Danger

Causes severe skin burns and eye damage.

Causes serious eye damage.

Causes damage to organs (respiratory system).

Causes damage to organs (respiratory system) through prolonged or repeated exposure.

Harmful to aquatic life with long lasting effects.

Precautionary Statement(s):

Do not breathe mist, vapours.

Use only outdoors or in a well-ventilated area.

Wash hands thoroughly after handling.

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

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

Keep container tightly closed.

Response:

Immediately call a POISON CENTRE or doctor.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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

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

Continue rinsing.

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

Wash contaminated clothing before reuse.

Absorb spillage to prevent material damage.

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Storage:
Store locked up.
Store in corrosive resistant container with a resistant inner liner.
Store in a well-ventilated place. Keep container tightly closed.
Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other Hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	%	Other Identifiers
Sulphuric acid	7664-93-9	95.0 - 98.0	EU EINECS/ELINCS Number: 231-639-5

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Immediately call a Poison Centre or doctor. Move to fresh air. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by Poison Centre or doctor. If breathing has stopped, trained personnel should begin rescue breathing.

Skin Contact

Avoid direct contact. Wear chemical protective clothing if necessary. Quickly and gently blot or brush away excess chemical. Immediately rinse skin with lukewarm, gently flowing water for at least 30 minutes. Take off contaminated clothing, shoes and leather goods (e.g. watchbands, belts). DO NOT INTERRUPT FLUSHING. If it can be done safely, continue flushing during transport to hospital. Double bag, seal, label and leave contaminated clothing, shoes and leather goods at the scene for safe disposal.

Eye Contact

Immediately call a Poison Centre or doctor. Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes, while holding the eyelid(s) open.

Ingestion

Immediately call a Poison Centre or doctor. Never give anything by mouth if person is rapidly losing consciousness, or is unconscious or convulsing. Do not induce vomiting.

First-aid Comments

Get medical advice or attention if you feel unwell or are concerned.

Most Important Symptoms and Effects, Acute and Delayed

Can cause lung injury. Corrosive to skin and eyes. Symptoms may develop hours after exposure and are made worse by physical effort. A severe exposure can cause death.

Immediate Medical Attention and Special Treatment

Target Organs

Respiratory system.

Special Instructions

Symptoms of pulmonary edema can be delayed up to 48 hours after exposure.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Not combustible. Use extinguishing agent suitable for surrounding fire. Carbon dioxide, dry chemical powder or appropriate foam. Use water to keep non-leaking, fire-exposed containers cool.

Unsuitable Extinguishing Media

Do not use water as an extinguisher.

Specific Hazards Arising from the Product

Contact with water causes violent frothing and spattering.

In a fire, the following hazardous materials may be generated: corrosive sulfur oxides.

Special Protective Equipment and Precautions for Fire-fighters

Before entry, especially into confined areas, use an appropriate monitor to check for: toxic gases or vapours. Dike and recover contaminated water for appropriate disposal.

Chemical protective clothing (e.g. chemical splash suit) and positive pressure SCBA may be necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Evacuate downwind locations. Do not touch damaged containers or spilled product unless wearing appropriate protective equipment. Increase ventilation to area or move leaking container to a well-ventilated and secure area.

Environmental Precautions

Do not allow into any sewer, on the ground or into any waterway. If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas.

Methods and Materials for Containment and Cleaning Up

Neutralize spill area and washings with soda ash or lime. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

Other Information

Contact supplier, local fire and emergency services for help. Report spills to local health, safety and environmental authorities, as required.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Do not get in eyes, on skin or on clothing. Do not breathe in this product. Do not swallow. Only use where there is adequate ventilation. Get medical advice or attention for all exposures. Symptoms can be delayed. Wear personal protective equipment to avoid direct contact with this chemical. Never add water to a corrosive. Always add corrosives slowly to COLD water. Keep containers tightly closed when not in use or empty. Do NOT eat, drink or store food in work areas. Wash hands thoroughly after handling this material.

Conditions for Safe Storage

Store in an area that is: well-ventilated. Store in a dry place. Store in corrosive resistant container with a resistant inner liner. Keep container tightly closed.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Chemical Name	ACGIH TLV®		OSHA PEL		AIHA WEEL	
	TWA	STEL	TWA	Ceiling	8-hr TWA	TWA
Sulphuric acid	0.2 mg/m ³		1 mg/m ³			

Appropriate Engineering Controls

Provide eyewash and safety shower if contact or splash hazard exists. Use local exhaust ventilation, if general ventilation is not adequate to control amount in the air.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

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Skin Protection

Wear chemical protective clothing e.g. gloves, aprons, boots.
Butyl rubber, Viton®/butyl rubber, Viton®.

Respiratory Protection

For non-routine or emergency situations: wear a full facepiece NIOSH approved air-purifying respirator with an acid gas cartridge.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	Clear oily.
Odour	Odourless
Odour Threshold	Not available
pH	0.3 (5% solution)
Melting Point/Freezing Point	-32 - 3 °C (-26 - 37 °F) (melting); -32 - 3 °C (-26 - 37 °F) (freezing)
Initial Boiling Point/Range	~ 290 °C (554 °F)
Flash Point	Not applicable
Evaporation Rate	Not available
Flammability (solid, gas)	Not applicable
Upper/Lower Flammability or Explosive Limit	Not applicable (upper); Not applicable (lower)
Vapour Pressure	Very low.
Vapour Density (air = 1)	3.4
Relative Density (water = 1)	1.84 at 25 °C
Solubility	Soluble in all proportions in water
Partition Coefficient, n-Octanol/Water (Log Kow)	Not applicable
Auto-ignition Temperature	Not applicable
Decomposition Temperature	340 °C (644 °F)
Viscosity	10.7 - 11.5 mm ² /s at 25 °C (kinematic); Not available (dynamic)
Other Information	
Physical State	Liquid
Molecular Formula	H ₂ SO ₄
Molecular Weight	98.08

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions of use.

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

Hazardous polymerization does not occur.

Conditions to Avoid

Water, moisture or humidity.

Incompatible Materials

Reacts violently with: reducing agents (e.g. hydroquinone), strong bases (e.g. sodium hydroxide), water, nitriles (e.g. butyronitrile), inorganic acids (e.g. hydrofluoric acid), oxidizing agents (e.g. peroxides), cyanides, potassium.
Corrosive to: aluminum alloys, carbon steel, cast iron.

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Hazardous Decomposition Products

Decomposes at 340 deg C into sulfur trioxide and water.

SECTION 11. TOXICOLOGICAL INFORMATION

Emergency Overview: POISON! DANGER! CORROSIVE. LIQUID AND MIST CAUSE SEVERE BURNS TO ALL BODY TISSUE. MAY BE FATAL IF SWALLOWED OR CONTACTED WITH SKIN. HARMFUL IF INHALED. AFFECTS TEETH. WATER REACTIVE. CANCER HAZARD. STRONG INORGANIC ACID MISTS CONTAINING SULFURIC ACID CAN CAUSE CANCER. Risk of cancer depends on duration and level of exposure.

Likely Routes of Exposure

Inhalation; skin contact; eye contact.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Sulphuric acid	510 mg/m ³ (rat) (2-hour exposure)	2140 mg/kg (rat)	

Skin Corrosion/Irritation

Animal tests show skin corrosion. Contact can cause pain, redness, burns, and blistering. Permanent scarring can result. Can cause sore throat, vomiting, diarrhea. Circulatory collapse with clammy skin, weak and rapid pulse, shallow respirations, and scanty urine may follow ingestion or skin contact. Circulatory shock is often the immediate cause of death.

Serious Eye Damage/Irritation

Contact causes severe burns with redness, swelling, pain and blurred vision. Permanent damage including blindness can result.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

Causes severe nose and throat irritation. Symptoms may include coughing, shortness of breath, difficult breathing and tightness in the chest. Symptoms may develop hours after exposure and are made worse by physical effort. May cause lung edema, a medical emergency.

Ingestion

Causes severe irritation or burns to the mouth, throat and stomach. Symptoms may include difficulty swallowing, intense thirst, nausea, vomiting, diarrhea, and in severe cases, collapse and death.

Aspiration Hazard

May be drawn into the lungs (aspirated) if swallowed or vomited. Death can result.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

Irritation of the respiratory system. Respiratory tract injury has been observed, mucus production, chronic bronchitis and chronic cough, dental erosion.

Respiratory and/or Skin Sensitization

In sensitized people, exposure to a very small amount of product can cause symptoms including wheezing, difficult breathing, sneezing and runny or blocked nose. Can cause death. Symptoms can develop immediately following exposure or hours later. Repeated exposure will make the reaction worse. Not a skin sensitizer.

Carcinogenicity

IARC has classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen, (IARC category 1). This classification applies only to mists containing sulfuric acid and not to sulfuric acid or sulfuric acid solutions.

Reproductive Toxicity

Development of Offspring

Not known to harm the unborn child.

Sexual Function and Fertility

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Not known to cause effects on sexual function or fertility.

Effects on or via Lactation

No information was located.

Germ Cell Mutagenicity

Not known to be a mutagen.

Interactive Effects

No information was located.

No information was located for: Effects on or via Lactation

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Harmful to aquatic life, based on acute toxicity tests.

Persistence and Degradability

Expected to be readily biodegradable.

Bioaccumulative Potential

No information was located.

Mobility in Soil

The product is water soluble and may spread in water systems. Contamination of groundwater could occur.

Other Adverse Effects

The product may affect the acidity (pH-factor) in water with risk of harmful effects to aquatic organisms.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

Dispose of contents and container in accordance with local, regional, national and international regulations. Empty containers retain product residue. Follow label warnings even if container appears to be empty.

SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
Canadian TDG	UN1830	Sulphuric Acid	8	II
US DOT	UN1830	Sulphuric Acid	8	II
IATA (Air)	UN1830	Sulphuric Acid	8	II
IMO (Marine)	UN1830	Sulphuric Acid	8	II

Environmental Hazards Not applicable

Special Precautions Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

Canada

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

Listed on the DSL.

USA

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Toxic Substances Control Act (TSCA) Section 8(b)

All ingredients are listed on the TSCA Inventory.

Additional USA Regulatory Lists

CERCLA: Listed.

SARA Title III - Section 302:

Acute Health Hazard: Yes

Chronic Health Hazard: Yes

Fire Hazard: No

Pressure Hazard: No

Reactive Hazard: No.

SECTION 16. OTHER INFORMATION

NFPA Rating	Health - 3	Flammability - 0	Instability - 2
SDS Prepared By	Caledon Laboratories Ltd		
Date of Preparation	January 11, 2017		
References	CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS). Supplier Safety Data Sheets.		
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