



Safety Data Sheet

Section 01 Identification

Product Identifier	Sulphuric Acid 51-98% Sulphuric Acid 98% Sulphuric Acid 93% NSF® - 60 Sulphuric Acid 93% Sulphuric Acid 62% Sulphuric Acid 61% Sulphuric Acid 60%
Other Means of Identification	Sulphuric Acid, Sulfuric Acid, Oil of vitriol, dihydrogen sulphate, battery acid, spirit of sulphur, electrolyte acid
Product Use and Restrictions on Use	Used in manufacture of fertilizers, explosives, other acids, metal pickling and petroleum processing. Lead storage batteries.
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Section 02 Hazard Identification

Physical Hazards

Corrosive to metals Category 1

Health Hazards

Skin corrosion / irritation Category 1A

Serious eye damage / eye irritation Category 1

Carcinogenicity Category 1A

Signal Word

Danger

Hazard Statements

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

H350 May cause cancer (Inhalation)

Pictograms



Precautionary Statements

Prevention

- 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 vapours, fumes, and mists.
- P264 Wash affected body parts thoroughly after handling.
- P280 Wear protective gloves, protective clothing, eye protection, face protection

Response

- 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. Wash contaminated clothing before reuse.
- P304 P340 P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.
- P305 P351 P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P308 P313 IF exposed or concerned: Get medical advice or attention.
- P390 Absorb spillage to prevent material damage.

Storage

- P405 Store locked up.

Disposal

- P501 Dispose of contents / container in accordance with all federal, provincial and / or local regulations including the Canadian Environmental Protection Act.

Hazards Not Otherwise Classified

Not available

Supplemental Information

Not available

Section 03 Composition / Information on Ingredients

Hazardous Ingredients:

Chemical name	Common name(s)	CAS number	Concentration (w/w%)
Sulphuric acid	Battery acid	7664-93-9	51-98%

Section 04 First-Aid Measures

Description of necessary first-aid measures

Inhalation	Remove source of exposure or move person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor. If breathing has stopped, trained personnel should begin rescue breathing or if the heart has stopped, immediately start cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED). Avoid mouth to mouth contact by using a barrier device. If exposed or concerned: Get medical advice / attention.
Ingestion	Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor. If vomiting occurs naturally, lie on your side, in the recovery position. If exposed or concerned: Get medical advice / attention.
Skin contact	Avoid direct contact. Wear chemical protective clothing, if necessary. Take off immediately contaminated clothing, shoes and leather goods. Gently blot or brush away excess product. Rinse skin with lukewarm, gently flowing water / shower for 30 minutes. Immediately call a POISON CENTER or doctor. Wash contaminated clothing before re-use, or discard. If exposed or concerned: Get medical advice / attention.
Eye contact	Avoid direct contact. Wear chemical protective gloves, if necessary. Gently blot or brush chemical off the face. Remove source of exposure or move person to fresh air. Rinse eyes cautiously with lukewarm, gently flowing water for several minutes, while holding the eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing for 30 minutes. Take care not to rinse contaminated water into the unaffected eye or onto the face. Immediately call a POISON CENTER or doctor.

Most important symptoms and effects, both acute and delayed

Inhalation	Causes severe burns to the mouth and throat (mist). May cause cancer through long-term exposure to mists.
Ingestion	Causes burns to the mouth and throat.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Further information	For further information see Section 11 Toxicological Information.

Section 05 Fire Fighting Measures

Suitable extinguishing media	Extinguish fire using extinguishing agents suitable for the surrounding fire.
Unsuitable extinguishing media	Not available
Specific hazards arising from the chemical	Highly corrosive sulphuric acid fumes and sulphur oxides may be released in the event of a fire. Reacts with many metals to liberate hydrogen gas that can form explosive mixtures.
Special protective equipment for fire-fighters	Wear NIOSH-approved self-contained breathing apparatus and chemical-protective clothing.

Section 06 Accidental Release Measures

Personal Precautions / Protective Equipment / Emergency Procedures	Wear appropriate personal protective equipment (See Section 08 Exposure Controls and Personal Protection). Stay upwind, ventilate area. Do not breathe vapours, fumes, and mists. Do not use material handling equipment with exposed metal surfaces.
Environmental Precautions	Prevent material from entering waterways, sewers or confined spaces. Notify local health and wildlife officials. Notify operators of nearby water intakes.
Methods and Materials for Containment and Cleaning Up	SMALL SPILLS: Stop or reduce leak if safe to do so. Clean up spill with non-reactive absorbent and place in suitable, covered, labeled containers. Flush area with water. Contaminated absorbent material may pose the same hazards as the spilled product. LARGE SPILLS: Contact fire and emergency services and supplier for advice.

Section 07 Handling and Storage

- Precautions for Safe Handling** Use proper equipment for lifting and transporting all containers. Use sensible industrial hygiene and housekeeping practices. Wash thoroughly after handling. Avoid all situations that could lead to harmful exposure. Prevent the release of vapours, fumes, and mists into the workplace air.
- Inspect containers for damage or leaks before handling. If the original label is damaged or missing replace with a workplace label. Have suitable emergency equipment for fires, spills and leaks readily available.
- Never add water to a corrosive. Always add corrosives to water. When mixing with water, stir small amounts in slowly. Use cold water to prevent excessive heat generation.
- Conditions for Safe Storage** Store in a cool, dry, well-ventilated area, out of direct sunlight, away from heat sources and incompatible materials. Always store in original labeled container. Keep containers tightly closed when not in use and when empty. Empty containers may contain hazardous residues. Protect label and keep it visible. Do not transfer to metal containers.
- Incompatibilities**
- Bases, such as potassium hydroxide, sodium hydroxide, calcium hydroxide (slaked lime), ammonia, carbonates.
 - Oxidizing agents, such as oxygen, hydrogen peroxide, sulphuric and nitric acids, hypochlorites and permanganates.
 - Reducing agents, such as hydrogen, sodium borohydride, sulphur dioxide, thiosulphates, hydrazine, phosphites, carbon, and oxalic, formic and ascorbic acid.
 - Metals, such as aluminum, steel, and brass.

Section 08 Exposure Controls and Personal Protection

Exposure limits

Component	Regulation	Type of listing	Value
Sulphuric Acid	ACGIH	TLV	0.2 mg/m ³

Engineering controls

- Ventilation Requirements** Mechanical ventilation (dilution or local exhaust), process or personnel enclosure and control of process conditions should be provided in accordance with all fire codes and regulatory requirements. Supply sufficient replacement air to make up for air removed by exhaust systems.
- Other** An emergency shower and eyewash station should be available, tested, and be in close proximity to the product being handled in accordance with provincial regulations.

Protective equipment

The following are recommendations only. It is the responsibility of the employer / user to conduct a hazard assessment of the process in which this product being used and determine the proper engineering controls and PPE for their process. Additional regulatory and safety information should be sought from local authorities and, if needed, a professional industrial hygienist.

- Eye and face protection** Where there is potential eye or face exposure, tightly fitting safety goggles and a face shield or a full face respirator or similar protective equipment which protects the wearer's face and eyes are recommended. Contact lenses are not recommended; they may contribute to severe eye injury.

Hand and body protection Disposable latex or nitrile gloves are recommended to prevent incidental contact. Butyl rubber, neoprene, or PVC skin protection is recommended for extended contact. Leather gloves are not recommended for chemical protection. Refer to manufacturer's specifications for breakthrough times and permeability information; note that breakthrough times and permeability vary with temperature, application and age of material. Continued use of contaminated safety gear or clothing is not recommended; wash before reuse or discard.

Respiratory protection In case of insufficient ventilation wear suitable respiratory equipment.

NIOSH respirator recommendations for: Sulphuric Acid

Up to: 15 mg/m³

- (APF = 25) Any supplied-air respirator operated in a continuous-flow mode
- (APF = 25) Any powered, air-purifying respirator with a high-efficiency particulate filter
- (APF = 50) Any chemical cartridge respirator with a full facepiece and acid gas cartridge(s) in combination with an N100, R100, or P100 filter.
- (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted acid gas cartridge(s) having an N100, R100, or P100 filter.
- (APF = 50) Any self-contained breathing apparatus with a full facepiece.
- (APF = 50) Any supplied-air respirator with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:

- (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode
- (APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape:

- (APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted acid gas cartridge(s) having an N100, R100, or P100 filter.
- Any appropriate escape-type, self-contained breathing apparatus

Thermal hazards Not available

Section 09 Physical and Chemical Properties

Appearance

Physical state LiquidLiquid
Colour Clear
Odour No odour
Odour threshold Not available

Property

pH <1.0
Melting point / freezing point Not available
Initial boiling point and boiling range Not available
Flash point Not applicable
Evaporation rate Not available
Flammability Not applicable

Upper flammable limit	Not available
Lower flammable limit	Not available
Vapour pressure	0.001 mm Hg @ 20 °C
Vapour density	3.4 (Air = 1)
Relative density	Not applicable
Solubility	Miscible in water
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	Not available
Specific gravity	1.40-1.84 g/mL @ 20 °C
Formula	H ₂ SO ₄
Molecular weight	98.072 g/mol

Section 10 Stability and Reactivity

Reactivity	May be corrosive to metals. Reacts with many metals to liberate hydrogen gas that can form explosive mixtures. Reacts with water to generate heat. Reacts violently with bases.
Stability	This product is stable if stored according to the recommendations in Section 07.
Possibility of hazardous reactions	Hazardous polymerization will not occur.
Conditions to avoid	Avoid contact with incompatible materials. Do not heat.
Incompatible materials	Bases, such as potassium hydroxide, sodium hydroxide, calcium hydroxide (slaked lime), ammonia, carbonates. Oxidizing agents, such as oxygen, hydrogen peroxide, sulphuric and nitric acids, hypochlorites and permanganates. Reducing agents, such as hydrogen, sodium borohydride, sulphur dioxide, thiosulphates, hydrazine, phosphites, carbon, and oxalic, formic and ascorbic acid. Metals, such as aluminum, steel, and brass.
Hazardous decomposition products	Corrosive vapors

Section 11 Toxicological Information

Acute Toxicity (LD50 values)

Component	Route	Species	Value	Exposure time
Sulphuric Acid	Oral	Rat	2140 mg/kg	
	Inhalation (mist)	Rat	0.375 mg/l	1-8 hours

Toxic Health Effect Summary

Chemical characteristics	Sulphuric acid is a strong acid, and moderate oxidizing agent.
Skin	Causes severe skin burns.
Ingestion	Causes burns to the mouth and throat.

Inhalation	Causes severe burns to the mouth and throat (mist). May cause cancer through long-term exposure to mists. Sulphuric acid can be classified toxic by inhalation, if the LC50 values are considered in isolation. However, there is no available evidence that Sulphuric acid causes systematic toxicity; all of its affects are localized and are therefore considered corrosive. This substance is already classified as corrosive, therefore also classifying it as toxic by inhalation would be inappropriate.
Eye contact	Causes serious eye damage.
Sensitization	This product and its components at their listed concentration have no known sensitizing effects.
Mutagenicity	This product and its components at their listed concentration have no known mutagenic effects.
Carcinogenicity	IARC has classified mists from strong inorganic acids as group 1, carcinogenic to humans.
Reproductive toxicity	This product and its components at their listed concentration have no known reproductive effects.
Specific organ toxicity	This product and its components at their listed concentration have no known effects on specific organs.
Aspiration hazard	Not available
Synergistic materials	Not available

Section 12 Ecological Information

Ecotoxicity

Component	Type	Species	Value	Exposure Time
ATE Sulphuric Acid 93%	LC50	Aesop shrimp	45 mg/L	48 hours
	LC50	Western mosquitofish	46 mg/L	96 hours

Biodegradability	The domestic substance list categorizes sulphuric acid as persistent.
Bioaccumulation	The domestic substance list categorizes sulphuric acid as non-bioaccumulative.
Mobility	This product is water soluble, is not predicted to adsorb to soil and may contaminate ground water.
Other adverse effects	Not available

Section 13 Disposal Considerations

Waste From Residues / Unused Products	Dispose in accordance with all federal, provincial, and local regulations including the Canadian Environmental Protection Act.
Contaminated Packaging	Do not remove label, follow label warnings even after the container is empty. Empty containers should be recycled or disposed of at an approved waste handling facility.

Section 14 Transport Information

UN number	UN1830
UN proper shipping name and description	SULPHURIC ACID with more than 51% acid
Transport hazard class(es)	8
Packing group	II
Excepted quantities	1 L
Environmental hazards	Not listed as a marine pollutant under Canadian TDG Regulations, schedule III.
Special precautions	No special provisions

Transport in bulk	ERAP index: not available
	MARPOL 73/78 and IBC Code: Product name: Sulphuric acid Pollution category: Y
	Hazards: the product is included in the Code because of both its safety and pollution hazards.
	Ship type: ship type 3
	Tank type: integral gravity tank
	Tank vents: open venting
	Tank environmental control: no special requirements under this Code
	Temperature classes
	Electrical equipment: Apparatus group
	Flash point non-flammable product
	Gauging: open gauging
	Vapour detection: no special requirements under this Code
	Fire protection: no special requirements under this Code
	Emergency equipment no special requirements under this Code
	Specific and operational requirements 15.11, 15.16.2, 15.19.6
Additional information	Secure containers (full or empty) during shipment and ensure all caps, valves, or closures are secured in the closed position.

TDG PRODUCT CLASSIFICATION: This product has been classified on the preparation date specified at section 16 of this SDS, for transportation in accordance with the requirements of part 2 of the Transportation of Dangerous Goods Regulations. If applicable, testing and published test data regarding the classification of this product are listed in the references at section 16 of this SDS.

Section 15 Regulatory Information.

NOTE: THE PRODUCT LISTED ON THIS SAFETY DATA SHEET HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CANADIAN HAZARDOUS PRODUCTS REGULATIONS. THIS SAFETY DATA SHEET CONTAINS ALL INFORMATION REQUIRED BY THOSE REGULATIONS.

All components of this product appear on the domestic substance list.

NSF Certification: Sulphuric Acid 93% is certified under NSF / ANSI Standard 60 for pH adjustment and descaling at a maximum dosage of: 50 mg/LNSF product use restrictions based on requirements obtained from the NSF website; consult NSF website for current requirements.

Sulphuric acid is listed in the National Pollutant Release Inventory (NPRI). Reporting threshold: 10 tonnes manufactured, processed or otherwise used.

Section 16 Other Information

Date of latest revision: November 12, 2019

Note: The responsibility to provide a safe workplace remains with the buyer / user. The buyer / user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the buyer / user to comply with all applicable laws and regulations regarding handling, using, reselling and shipping this product.

Attention: Receiver of the chemical goods / SDS coordinator

As part of our commitment to the RDC Responsible Distribution® initiative, ClearTech Industries Inc. and its associated companies require, as a condition of sale, that you forward the attached Safety Data Sheet(s) to all affected employees, customers, and end-users. ClearTech will send any available supplementary handling, health, and safety information to you at your request.

If you have any questions or concerns please call our customer service center.

References:

- 1) CHEMINFO
- 2) TOXNET
- 3) eChemPortal
- 4) ECHA
- 5) Transportation of Dangerous Goods Canada
- 6) HSDB
- 7) PAN