

SAFETY DATA SHEET (SDS)

according to Hazardous Products Regulations (SOR/2015-17)

Sulphuric Acid, 93-99% w/w

Revision date: 02/24/2022 (mm/dd/yyyy)

Revision number: 4.2

SECTION 1 Identification

1.1. Product identifier

Product name:	Instrument Quality Sulphuric Acid BASELINE Sulphuric Acid Technical Grade Sulphuric Acid	Product number(s):	S010301 S020301 S040301
EU Index number:	016-020-00-8		
Synonyms:	Sulfuric acid; Battery acid; Electrolyte acid; Hydrogen sulphate; Mattling acid; Oil of vitriol		
Chemical names:	FR Acide sulfurique; DE Schwefelsäure; NL Zwavelzuur; ES Ácido sulfúrico; IT Acido solforico		

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses: For laboratory use only. Not for drug, food, or household use.

1.3. Details of the supplier of the safety data sheet

Manufacturer:

SEASTAR CHEMICALS ULC
2061 Henry Avenue West, Sidney, BC V8L 5Z6 CANADA
1-250-655-5880

Email: SCI-QA&RegulatoryAffairs@seastarchemicals.com

1.4. Emergency telephone number

CAN (CANUTEC): 1-613-996-6666 (24-hour)

SECTION 2 Hazard identification

2.1. Classification of the substance or mixture

Classification in accordance 29 CFR 1910 (OSHA HCS) / WHMIS HPR / Regulation (EC) No 1272/2008

Skin corrosion, category 1A

2.2. Label elements

Pictograms:



Signal word: Danger

Hazard statements: **H314:** Causes severe skin burns and eye damage.

Supplemental: In contact with water, releases gases which are toxic if inhaled.

Precautionary statements: **P260:** Do not breathe fume/gas/mist/vapours/spray.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P310: Immediately call a POISON CENTER or doctor.

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.

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

2.3. Other hazards

For the full text of the H-Statement(s) and P-Statement(s) mentioned in this Section, see Section 16.

SECTION 3 Composition/Information on ingredients

3.2. Mixtures

Chemical name	Chemical formula	Weight percent ¹	CAS №	EINECS №
Sulphuric acid	H ₂ SO ₄	93-99% w/w	7664-93-9	231-639-5
Water	H ₂ O	Balance	7732-18-5	231-791-2

¹Weight Percent or percentage by mass (%): 100x (mass solute/mass total solution after mixing). Expressed as % w/w

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SECTION 4 First-aid measures

4.1. Description of first aid measures

Inhalation: Take proper precautions to ensure your own safety before attempting rescue (e.g., wear appropriate protective equipment, use the buddy system). Remove source of contamination or move victim to fresh air. If breathing is difficult, trained personnel should administer emergency oxygen. DO NOT allow victim to move about unnecessarily. Symptoms of pulmonary edema can be delayed up to 48 hours after exposure. Avoid mouth-to-mouth contact by using mouth guards or shields. Quickly transport victim to an emergency care facility.

Skin: Avoid direct contact. Wear chemical protective clothing, if necessary. As quickly as possible, remove contaminated clothing, shoes, and leather goods. Quickly and gently blot or brush away excess chemical. Immediately flush with lukewarm, gently flowing water for at least 30 minutes. DO NOT INTERRUPT FLUSHING. If necessary and it can be done safely, continue flushing during transport to emergency care facility. Quickly transport victim to an emergency care facility. Double bag, seal, label and leave contaminated clothing, shoes, and leather goods at the scene for safe disposal.

Eye: Avoid direct contact. Wear chemical protective gloves, if necessary. Quickly and gently blot or brush chemical off the face. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes, while holding the eyelid(s) open. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens until flushing is done. Neutral saline solution may be used as soon as it is available. DO NOT INTERRUPT FLUSHING. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto the face. Quickly transport victim to an emergency care facility.

Ingestion: NEVER give anything by mouth if victim is rapidly losing consciousness, is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.

First aid comments: Provide general supportive measures (comfort, warmth, rest). Consult a doctor and/or the nearest Poison Control Centre for all exposures. Some first aid procedures recommended above require advanced first aid training. Protocols for undertaking advanced procedures must be developed in consultation with a doctor and routinely reviewed. All first aid procedures should be periodically reviewed by a doctor familiar with the material and its conditions of use in the workplace.

4.2. Most important symptoms and effects, both acute and delayed

Sulphuric acid can cause severe lung damage with a life-threatening accumulation of fluid (pulmonary edema). The symptoms of pulmonary edema include coughing, chest pain and shortness of breath and can be delayed for up to 24 or 48 hours after exposure. These symptoms are aggravated by physical exertion. Corrosive materials are capable of producing severe burns, blisters, ulcers, and permanent injury and scarring, depending on the concentration of the solution and the duration of contact.

4.3. Indication of any immediate medical attention and special treatment needed

Consult a doctor and/or the nearest Poison Control Centre for all exposures.

SECTION 5 Fire-fighting measures

5.1. Extinguishing media

Sulphuric acid is not combustible. Use extinguishing agents suitable for the surrounding fire. WATER REACTIVE. DO NOT use water or water-based extinguishers since it can generate heat and cause spattering if applied directly to sulphuric acid.

5.2. Special hazards arising from the substance or mixture

Sulphuric acid is not flammable. During a fire, irritating/toxic sulphur oxides may be generated. Sulphuric acid reacts violently with water and organic materials with the evolution of heat. Fire may result due to the heat generated by contact of concentrated sulphuric acid with combustible materials. Sulphuric acid reacts with most metals, especially when diluted with water. This reaction produces highly flammable hydrogen gas, which may explode if ignited, particularly in confined spaces. Sulphuric acid is a strong dehydrating agent, which may cause ignition of finely divided materials on contact. Containers may explode in the heat of a fire.

Hazardous combustion products: Sulphur oxides.

5.3. Advice for firefighters

Firefighter's normal protective clothing (Bunker Gear) will not provide adequate protection. A full body encapsulating chemical protective suit with positive pressure self-contained breathing apparatus (NIOSH approved or equivalent) may be necessary.

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SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Restrict access to area until completion of cleanup. Ensure cleanup is conducted by trained personnel only. Wear adequate personal protective equipment. Remove or isolate incompatible materials.

6.2. Environmental precautions

Notify government occupational health and safety and environmental authorities.

6.3. Methods and material for containment and cleaning up

Do not touch spilled material. Prevent material from entering confined spaces, sewers, or waterways. Keep materials which can burn away from spilled material. Stop or reduce leak if safe to do so.

SMALL SPILLS: Soak up spill with absorbent material which does not react with spilled chemical. Put material in suitable, covered, labelled containers. Flush area with water.

LARGE SPILLS: Contact fire and emergency services and supplier for assistance and advice. Contain spill with dry sand, clay, diatomaceous earth, or absorbent material which does not react with spilled material. Cautiously dilute and neutralize with lime or soda ash. Remove liquid by corrosion-resistant pumps or vacuum equipment. Place in suitable, covered, labelled containers.

Contaminated absorbent material may pose the same hazards as the spilled product.

6.4. Reference to other sections

See Section 7 for information on handling. See Section 8 for information on personal protection. See Section 13 for information on disposal.

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Do not use this product once the expiration date is reached. The expiration date defines both the end of the product shelf life and its certification. The expiration date is conditional; products must be stored and transported according to SEASTAR™'s Product Integrity Guidelines.

Plastic bottles should be inspected regularly, specifically HDPE bottles, for any evidence of change to the plastic bottle's ability to deform. The ability to deform is defined by its ductility/plasticity/malleability/embrittlement, or hardening/compressibility. If any change is noticed, carefully and safely transfer or dispose of the product according to your safe handling practices and procedures. Any product disposal must be done according to applicable regulations governing the disposal of the hazardous product.

This material is a corrosive and toxic (in contact with water) liquid. Before handling, it is important that engineering controls are operating, and that protective equipment requirements and personal hygiene measures are being followed. People working with this chemical should be properly trained regarding its hazards and its safe use. Unprotected persons should avoid all contact with this chemical including contaminated equipment. Immediately report leaks, spills, or ventilation failures. Avoid generating vapours or mists. Prevent the release of vapours or mists into the air. Use the smallest possible amounts in an area separate from the storage area. When handling large quantities, closed handling systems should be used.

This material is highly reactive. Prevent accidental contact with water. Do not use with incompatible materials such as alkali solutions, carbides, chlorates, and nitrates. See Section 10 for more information. Never return contaminated material to its original container. 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.

Inspect containers for leaks before handling. Secondary protective containers must be used when this material is being carried. Label containers. Avoid damaging containers. Keep containers tightly closed when not in use. Assume that empty containers contain residues which are hazardous. Use corrosion-resistant transfer equipment when dispensing. Whenever possible, use self-closing, portable containers for dispensing small amounts of this material. Never transfer liquid by pressurizing original container with air or inert gas. Immediately contact the supplier for handling instructions if drums of this material appear to be swollen. Have suitable emergency equipment for fires, spills and leaks readily available. Practice good housekeeping. Maintain handling equipment. Comply with applicable regulations.

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7.2. Conditions for safe storage, including any incompatibilities

Store in a cool, dry area out of direct sunlight and away from heat and ignition sources. Keep quantities stored as small as possible. Avoid bulk storage indoors. It is very important that sulphuric acid be stored away from the many materials with which it is incompatible. See Section 10 for more information.

Inspect all incoming containers to make sure they are properly labelled and not damaged. Always store in original labelled container. Protect the label and keep it visible. Keep containers tightly closed when not in use and when empty. Protect from damage. Store containers at a convenient height for handling, below eye level if possible. Store within recommended temperature range. Keep empty containers in separate storage area. Assume that empty containers contain hazardous residues.

Inspect storage area regularly for evidence of leakage or corrosion. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Keep storage area separate from work areas. Post warning signs.

Contain spills or leaks by storing in trays made from compatible materials. Keep absorbents for leaks and spills readily available. Provide raised sills or ramps at doorways or create a trench which drains to a safe location. Floors should be sealed to prevent absorption. Drums may need to be vented. Venting should only be performed by trained personnel. If drums are swollen, contact the supplier immediately for assistance. Handling swollen drums requires special procedures and equipment.

In large scale storage facilities, walls, floors, shelving, lighting, and ventilation systems in storage area should be made from materials that resist attack from sulphuric acid. Storage facilities should be made of fire-resistant materials. Have appropriate fire extinguishers and spill clean-up equipment in storage area. Storage tanks should be above ground and surrounded with a dike capable of holding entire contents.

7.3. Specific end use(s)

No information available.

SECTION 8 Exposure controls/Personal protection

8.1. Control parameters

Chemical name	Limit value type	Exposure limit value	Source
Sulphuric acid, as H ₂ SO ₄	TLV-TWA	0.2 mg/m ³	USA ACGIH
	PEL-TWA, REL-TWA	1 mg/m ³	USA OSHA, USA NIOSH
	IDLH	15 mg/m ³	USA NIOSH
Water	None listed.	None listed.	Not applicable

8.2. Exposure controls

NOTE: Exposure to this material can be controlled in many ways. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. This general information can be used to help develop specific control measures. Ensure that control systems are properly designed and maintained. Comply with occupational, environmental, fire, and other applicable regulations.

Engineering Controls: Engineering methods to control hazardous conditions are preferred. Methods include mechanical ventilation (dilution and local exhaust), process or personnel enclosure, control of process conditions, and process modification (e.g., substitution of a less hazardous material). Because of the high potential hazard associated with this substance, stringent control measures such as enclosure or isolation may be necessary to control mists. Use a corrosion-resistant local exhaust ventilation system separate from other exhaust ventilation systems. Cleaning of contaminated exhaust air before release to the outdoors may be necessary. Supply sufficient replacement air to make up for air removed by exhaust systems.

Personal Protective Equipment: If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection. Have appropriate equipment available for use in emergencies such as spills or fire. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance, and inspection.

Eye / Face protection: Wear chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. A face shield may also be necessary when handling in an open system.

Skin protection: Wear impervious gloves and appropriate protective clothing. Choose body protection according to the amount and concentration of the substance at the workplace. A chemical protective full body encapsulating suit and respiratory

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protection may be required in some operations. Have a safety shower/eye-wash fountain readily available in the immediate work area.

Resistance of Materials for Protective Clothing: Guidelines for sulphuric acid concentrations above 70%:

RECOMMENDED (resistance to breakthrough longer than 8 hours): Butyl rubber; Viton®; Viton®/Butyl rubber; Barrier® - PE/PA/PE; Silver Shield® - PE/EVAL/PE; Saranex®; ChemMAX® 3 and 4; Frontline® 500; Interceptor®; Microchem® 4000; Trellchem® HPS and VPS; Tychem® CPF3, F, Thermopro, BR/LV, Responder® CSM, TK, and Reflector; Zytron® 300 and 500.

CAUTION, use for short periods only (resistance to breakthrough within 1 to 4 hours): Neoprene rubber; Polyvinyl chloride (PVC).

NOT RECOMMENDED for use (resistance to breakthrough less than 1 hour and/or poor degradation rating): Natural and nitrile rubber; Polyvinyl alcohol (PVAL).

Inhalation / Ventilation: NIOSH/OSHA RECOMMENDATIONS FOR SULPHURIC ACID CONCENTRATIONS IN AIR:

Up to 15 mg/m³: Any chemical cartridge respirator with a full facepiece and acid gas cartridge(s) in combination with an N100, R100, or P100 filter; or Any air-purifying, full facepiece respirator (gas mask) with a chin-style, front- or back-mounted acid gas canister having an N100, R100, or P100 filter; or any self-contained breathing apparatus with a full facepiece; or any supplied-air respirator with a full facepiece.

Emergency or planned entry into unknown concentrations or IDLH conditions: Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode; or 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: Any air-purifying, full facepiece respirator (gas mask) with a chin-style, front- or back-mounted acid gas canister having an N100, R100, or P100 filter; or any appropriate escape-type, self-contained breathing apparatus.

Personal Hygiene: Remove contaminated clothing immediately. Discard or launder before re-wearing. Inform laundry personnel of contaminant's hazards. Do not eat, drink, or smoke in work areas. Wash hands thoroughly after handling this material. Maintain good housekeeping.

SECTION 9 Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Liquid	Vapour pressure:	Extremely low
Colour:	Colourless	Vapour density:	3.38 (air=1) (calculated)
Molecular weight:	98.08 g/mol	Density: (at 20 °C)	93% w/w: 1.8279 g/mL
Odour:	Odourless		98% w/w: 1.8361 g/mL
Odour threshold:	Irritation can occur between 1-3 mg/m ³	Solubility:	Soluble in all proportions in water with generation of much heat. Decomposes in ethanol.
pH:	0.3 (1N solution)		
Melting/freezing point:	93% w/w: -32 °C (-25.6 °F) 98% w/w: 3 °C (37.4 °F)	Partition coefficient:	Not applicable (ionizable compounds)
Boiling point:	93% w/w: 279 °C (534.2 °F) 98% w/w: 310-340 °C (590-644 °F)	Auto-ignition temperature:	Not applicable
Flash point:	Not combustible (does not burn).	Decomposition temperature:	340 °C (644 °F)
Evaporation rate:	Likely very slow.	Viscosity:	93% w/w: 11.0 mm ² /s (11.0 centistokes) at 25 °C (calculated) 98% w/w: 11.5 mm ² /s (11.5 centistokes) at 25 °C (calculated)
Flammability:	Not applicable		
Lower flammable (explosive) limit (LFL/LEL):	Not applicable		
Upper flammable (explosive) limit (UFL/UEL):	Not applicable		

9.2. Other information

No information available.

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SECTION 10 Stability and reactivity

10.1. Reactivity

Hydrogen is generated by the action of the acid on most metals. Reacts violently with water. See Section 10.5 for incompatible materials.

10.2. Chemical stability

Normally stable.

10.3. Possibility of hazardous reactions

Sulphuric acid does not polymerize and does not form peroxides. See Section 10.5 for incompatible materials.

10.4. Conditions to avoid

Contact with water.

10.5. Incompatible materials

NOTE: Chemical reactions that could result in a hazardous situation (e.g., generation of flammable or toxic chemicals, fire, or detonation) are listed here. Many of these reactions can be done safely if specific control measures (e.g., cooling of the reaction) are in place. Although not intended to be complete, an overview of important reactions involving common chemicals is provided to assist in the development of safe work practices.

WARNING: It is fairly easy to produce the dangerous anhydrous perchloric acid from either its salts or its aqueous solutions by heating with high boiling acids and dehydrating agents such as sulphuric acid and phosphorus pentoxide.

Sulphuric acid is a very reactive substance. The concentrated acid dehydrates, or sulfonates most organic compounds. Sulphuric acid reacts vigorously, violently or explosively with many organic and inorganic chemicals including water, acrylonitrile, alkali solutions, carbides, chlorates, fulminates, nitrates, perchlorates, permanganates, picrates, powdered metals, metal acetylides or carbides, epichlorohydrin, aniline, ethylenediamine, alcohols with strong hydrogen peroxide, chlorosulfonic acid, cyclopentadiene, hydrofluoric acid, nitromethane, 4-nitrotoluene, phosphorus(III) oxide, potassium, sodium, ethylene glycol, isoprene, styrene. Acetaldehyde and allyl chloride may polymerize violently in the presence of sulphuric acid. Hazardous gases, such as hydrogen, hydrogen cyanide, hydrogen sulfide and acetylene, are evolved on contact with chemicals such as metals, cyanides, sulfides and mercaptans and carbides respectively.

10.6. Hazardous decomposition products

Decomposes at 340 °C into sulphur trioxide and water.

10.7. Corrosivity to metals:

Sulphuric acid (10-100%) is corrosive to aluminum alloys at room temperature. The maximum attack occurs at 80% concentration. The rate of attack of less than 10% sulphuric acid is very low. The conventional austenitic grades of stainless steels, the 300 series, show good resistance in very dilute or highly concentrated sulphuric acid. Sulphuric acid in the intermediate concentration is more corrosive. Conventional ferritic grades, such as the 400 series are attacked by sulphuric acid. Sulphuric acid is corrosive to some austenitic stainless steels (e.g., type 304 (10-80%), 310 and 312 (10-85%), 316 and 321(10-80%). It also attacks type 17-4PH (50-100%) stainless steel. It is also corrosive to types 1010 and 1020 carbon steel (concentration 2-100%), cast iron (7-100%), 3% nickel cast iron, nickel (70-100%), nickel-base-alloys Inconel (60-100%) and Monel (70-100%), copper (all concentrations), and copper alloys, bronze (10-100%), silicon bronze (70-100%), aluminum bronze (65-100%), copper nickel 90-10 (5-100%), copper nickel 70-30 (80-100%), brass (10-100%), naval brass (70-100%), admiralty brass (10-100%), unalloyed titanium (all concentrations except very dilute solutions) and zirconium (65-100%). Sulphuric acid is not corrosive to cast high silicon iron (Duriron) (all concentrations), Carpenter 20 Cb3 (Alloy 20), lead, Hastelloy B/B-2, Hastelloy C/C-276, Hastelloy D, Incoloy 825 (all concentrations), tantalum (up to 98%) and zirconium (0-65%). Resistance of alloys to concentrated sulphuric acid corrosion increases with increasing chromium, molybdenum, and silicon content. The corrosiveness of sulphuric acid solutions is highly dependent on concentration, temperature, acid velocity, and impurities.

10.8. Corrosivity to non-metals:

Sulphuric acid attacks plastics, such as nylon (all concentrations), polyvinylidene chloride (50-100%), acrylonitrile-butadiene-styrene (ABS) (60-100%), styrene acrylonitrile (SAN) (90-100%), polyurethane (rigid) (40-100%), polyetherether ketone (PEEK) (50-100%), polyethylene terephthalate (PET) (40-100%), high-density polyethylene (80-100%) (HDPE), thermoset polyester bisphenol A

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fumarate (80-100%), thermoset polyester isophthalic acid (70-100%), polystyrene (80-100%) and ethylene vinyl acetate (EVA) (75-100%); elastomers, such as butyl rubber (isobutylene isoprene) (80-100%), nitrile buna N (nitrile rubber) (90-100%), chloroprene (neoprene) (75-100%), isoprene (60-100%), natural rubber (60-100%), hard rubber (60-100%), soft rubber (30-100%), chlorosulfonated polyethylene (CSM) (90-100%), styrene-butadiene (SBR) (10-100%), polyacrylate (10-100%), polyurethane (10-100%), chlorinated polyethylene (all concentrations), nylon 11 and 12 (20-100%), silicone rubbers (120-100%), flexible polyvinyl chloride (PVC) (95-100%), low density polyethylene (LDPE) (90-100%) and ethylene vinyl acetate (50-100%); and coatings, such as coal tar epoxy (10-100%), general purpose epoxy (30-100%), chemical resistant epoxy (60-100%) and vinyls (90-100%). Sulphuric acid does not attack plastics, such as Teflon and other fluorocarbons, like ethylene tetrafluoroethylene (ETFE; Tefzel), ethylene chlorotrifluoroethylene (ECTFE; Halar) and chlorotrifluoroethylene (Kel-F) (all concentrations), polyvinyl chloride (PVC) (up to 96%), chlorinated polyvinyl chloride (CPVC) (up to 96%), polypropylene (up to 98%), acrylonitrile-butadiene-styrene (ABS) (up to 50%), high-density polyethylene (up to 75%) (HDPE), ultrahigh molecular weight polyethylene (UHMWPE) (up to 100%), cross-linked polyethylene (XLPE) (up to 96%), polyetherether ketone (PEEK) (up to 50%) and polystyrene (up to 70%); elastomers, such as Viton A and other fluorocarbons, like Teflon, Chemraz Kalrez and Fluoraz, ethylene propylene (EP) (up to 100%), butyl rubber (isobutylene isoprene) (up to 80%), nitrile buna N (nitrile rubber) (up to 80%), chloroprene (neoprene) (up to 70%), flexible polyvinyl chloride (PVC) (up to 50%), and low density polyethylene (LDPE) (up to 80%); and coatings, such as polyester (up to 80%), urethanes (up to 80%) and vinyls (up to 80%).

SECTION 11 Toxicological information

11.1. Information on toxicological effects

RTECS#: WS5600000 (Sulphuric acid, CAS# 7664-93-9)

Acute toxicity:

Oral LD50: 2,140 mg/kg (rat)

Dermal LD50: No information available.

Inhalation LC50: 510 mg/m³/2H (rat)

Other information: No information available.

Exposure routes:

Inhalation: May be fatal if inhaled. Sulphuric acid is corrosive and can cause severe irritation or corrosive damage if inhaled. It is not very volatile, and therefore workplace exposures are primarily to mists or aerosols. Sulphuric acid can cause severe lung damage with a life-threatening accumulation of fluid (pulmonary edema). The symptoms of pulmonary edema include coughing, chest pain and shortness of breath and can be delayed for up to 24 or 48 hours after exposure. These symptoms are aggravated by physical exertion.

Skin: Sulphuric acid is corrosive. Corrosive materials are capable of producing severe burns, blisters, ulcers, and permanent scarring, depending on the concentration of the solution and the duration of contact. Extensive acid burns can result in death. High mist or aerosol concentrations may cause redness, irritation and burns to the skin if contact is prolonged.

Eye: Sulphuric acid is corrosive. Corrosive materials are capable of producing severe eye burns, and permanent injury, including blindness, depending on the concentration of the solution and the duration of contact. Sulphuric acid mists and aerosols are expected to be irritating.

Ingestion: May be fatal if swallowed. Sulphuric acid is corrosive depending on the concentration of the solution and will cause burns to the lips, tongue, throat, esophagus, and stomach if ingested. Symptoms may include difficulty swallowing, intense thirst, nausea, vomiting, diarrhea, and in severe cases, collapse, and death. Small amounts of acid, which could enter the lungs during ingestion or vomiting (aspiration), can cause serious lung injury and death.

Germ cell mutagenicity: Sulphuric acid is not known to be mutagenic.

Carcinogenicity: IARC has concluded there is sufficient evidence that occupational exposure to strong acid mists containing sulphuric acid is carcinogenic to humans (Group 1). ACGIH has designated strong inorganic acid mists containing sulphuric acid as A2 (suspected human carcinogen). The US NTP has listed strong inorganic acid mists containing sulphuric acid as a known human carcinogen.

Reproductive toxicity: Sulphuric acid is not known to cause reproductive toxicity.

Additional information: Long-term exposure to corrosive materials like sulphuric acid can cause chronic respiratory irritation.

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Repeated exposure to sulphuric acid aerosols can cause dental erosion. Repeated skin contact with low concentrations can cause dry, red, cracked skin (dermatitis). To the best of our knowledge, the chronic toxicity of this substance has not been fully investigated.

SECTION 12 Ecological information

12.1. Toxicity

Zebra fish (*Brachydanio rerio*): LC50 = 82 mg/L/24H

12.2. Persistence and degradability

Sulphuric acid will ultimately react with calcium and magnesium in water to form sulphate salts.

12.3. Bioaccumulative potential

Bioaccumulation is not anticipated for inorganic compounds that are miscible with water.

12.4. Mobility in soil

The presence of water in the soil influences the rate of chemical movement. Sulphuric acid can dissolve some of the soil material, in particular carbonate-based materials.

12.5. Results of PBT and vPvB assessment

Not applicable for inorganic substances.

12.6. Other adverse effects

No information available.

SECTION 13 Disposal considerations

13.1. Waste treatment methods

Review local/regional/international regulations or requirements prior to disposal. Store material for disposal as indicated in Storage Conditions. **Contaminated packaging:** Dispose of as unused product.

SECTION 14 Transport information

14.1. UN number	UN1830
14.2. UN proper shipping name	SULPHURIC ACID
14.3. Transport hazard class(es)	8
Hazards label(s):	8
14.4. Packing group	II
14.5. Environmental hazards	
Marine pollutant:	No
14.6. Special precautions for user	
ADR/RID hazard identification number:	80
ADR/RID tunnel code:	E
IMDG EMS number:	F-A, S-B
IMDG Category:	C

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.

SECTION 15 Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

OSHA Hazards: CAS #7664-93-9 meets criteria for hazardous material, as defined by 29 CFR 1910.1200.

SARA:

302: This material contains Sulphuric acid (CAS# 7664-93-9), which is subject to the reporting requirement of 1,000 lbs RQ.

313: This material contains Sulphuric acid (CAS# 7664-93-9), which is subject to the reporting requirements of Section 313 of SARA Title III.

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311/312: This material contains Sulphuric acid (CAS# 7664-93-9).

Right To Know Lists:

Massachusetts: CAS# 7664-93-9 is listed, 50 lbs RQ.

Pennsylvania: CAS# 7664-93-9 is listed, E (environmental hazard).

New Jersey: CAS# 7664-93-9 is listed, RTK# 1761.

California Prop. 65: CAS# 7664-93-9 is subject to this act, type of toxicity: cancer. CAS# 7446-09-5 (sulphur dioxide, decomposition product) is subject to this act, type of toxicity: developmental. CAS# 7732-18-5 is not subject to this act.

⚠️WARNING: This product can expose you to chemicals including strong inorganic mists containing Sulphuric acid, which are known to the State of California to cause cancer, and Sulphur dioxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Inventory Status:

Canada DSL/NDSL Inventory List: CAS# 7664-93-9 is listed. CAS# 7732-18-5 is listed.

US TSCA Inventory List: CAS# 7664-93-9 is listed. CAS# 7732-18-5 is listed.

EC Inventory List: CAS# 7664-93-9 is listed, EC# 231-639-5. CAS# 7732-18-5 is listed, EC# 231-791-2.

15.2. Chemical safety assessment

Not applicable.

SECTION 16 Other information

Full text of H-Statement(s) and P-Statement(s):

H314: Causes severe skin burns and eye damage.

Supplemental: In contact with water, releases gases which are toxic if inhaled.

P260: Do not breathe fume/gas/mist/vapours/spray.

P264: Wash thoroughly after handling.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P310: Immediately call a POISON CENTER or doctor.

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.

P363: Wash contaminated clothing before reuse.

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.

P405: Store locked up.

P501: Dispose of contents/container according to federal, regional and local government requirements.

Date modified: 02-2022, Supersedes 08-2018, 01-2018, 07-2014, 04-2014, 04-2011

The statements contained herein are offered for informational purposes only and are based upon technical data. SEASTAR CHEMICALS ULC believes them to be accurate but does not purport to be all-inclusive. The above-stated product is intended for use only by persons having the necessary technical skills and facilities for handling the product at their discretion and risk. Since conditions and manner of use are outside our control, we (SEASTAR CHEMICALS ULC) make no warranty of merchantability or any such warranty, express or implied with respect to information and we assume no liability resulting from the above product or its use. Users should make their own investigations to determine suitability of information and product for their particular purposes.