

Section 1. Identification

Product identifier : Sulfuric Acid 93-98%

Other means of identification : Synonym: Sulphuric acid
Product code: 2252-4; 2726-4
Historic MSDS #: 1886

Product type : Liquid.

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

Identified uses	
Manufacture of chemical products. Manufacture of specialty fertilizers.	
Uses advised against	Reason
Consumer use	Risk cannot be ruled out.

Supplier's details :

Emergency telephone number (with hours of operation) : Transportation Emergencies: 1-800-792-8311 Medical Emergencies: 1-303-389-1653

French or Spanish:
Tranportation or Medical Emergencies: 1-303-389-1654

Section 2. Hazard identification

Classification of the substance or mixture : CORROSIVE TO METALS - Category 1
SKIN CORROSION - Category 1A
SERIOUS EYE DAMAGE - Category 1
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : May be corrosive to metals.
Causes severe skin burns and eye damage.
May cause respiratory irritation.

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Section 2. Hazard identification

- Prevention** : Wear protective gloves/clothing and eye/face protection. Do not breathe vapor or spray. Use only outdoors or in a well-ventilated area. Keep only in original packaging. Wash thoroughly after handling.
- Response** : IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician.
IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.
Absorb spillage to prevent material damage.
- Storage** : Store locked up. Store in a corrosion resistant container with a resistant inner liner. Store in a well-ventilated place. Keep container tightly closed.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Supplemental label elements** : None known.
- Other hazards which do not result in classification** : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Ingredient name	% (w/w)	CAS number
Sulfuric acid	93 - 98	7664-93-9
Water	2 - 7	7732-18-5

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First-aid measures

Description of necessary first aid measures

- Eye contact** : CORROSIVE. Begin eye irrigation immediately. All eye exposures require medical evaluation following decontamination. Immediately rinse eyes with large quantities of water or saline for a minimum 30 minutes, longer irrigation time is preferred if possible, due to the chemical reaction that occurs - see Notes to Physician below. If possible, remove contact lenses being careful not to cause additional eye damage. If the initial water supply is insufficient, keep the affected area wet with a moist cloth and transfer the person to the nearest place where rinsing can be continued for the recommended length of time. Call an ambulance for transport to hospital. Continue eye irrigation during transport. For additional advice call the medical emergency number on this safety data sheet or your poison center or doctor.
- Inhalation** : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. CORROSIVE. If gases, mists or vapors exceed the IDLH or are present in unknown concentrations, rescuers must wear self-contained breathing apparatus and a suit resistant to gases (EPA Level B).
REMOVE PERSON TO FRESH AIR. Watch closely for signs of wheezing and breathing difficulties. Maintain an open airway. If not breathing, begin CPR. Oxygen may be administered by trained personnel. Affected persons who have stopped breathing or are having difficulty breathing or are unconscious need immediate medical attention. Symptoms may be delayed after exposure. The exposed person may need to be kept under medical surveillance for 24 - 48 hours.

Section 4. First-aid measures

Call an ambulance for transport to hospital. For additional advice call the medical emergency number on this SDS or your poison center or doctor.

- Skin contact** : CORROSIVE. Causes severe burns. Immediately begin rinsing the affected areas with water. Remove contaminated clothing and shoes. Affected areas should be rinsed for a minimum 30 minutes, longer irrigation time is preferred if possible, due to the chemical reactions that occur. Luke-warm water is recommended for continued irrigation to prevent hypothermia. Conscious persons without breathing difficulties may benefit from prolonged irrigation in a fixed shower or bathing facility prior to hospital transport. Call an ambulance for transport to hospital. Continue skin irrigation during transport. For additional advice call the medical emergency number on this safety data sheet or your poison center or doctor.
- Ingestion** : CORROSIVE. May cause severe burns to the mouth, throat, and stomach. If the affected person requires cardiopulmonary resuscitation, avoid mouth to mouth contact. Do not induce vomiting. If vomiting occurs, attempt to keep head lower than the chest so that vomit does not enter the lungs. Wash face and mouth with water to remove visible material. If the exposed person is conscious and can swallow, give 1-2 sips of water. Do not give anything else by mouth. Loosen tight clothing such as collar, tie, belt or waistband to prevent any breathing restrictions. For signs of breathing difficulties, refer to the INHALATION section. Call an ambulance for transportation to hospital. For additional advice, call the medical emergency number on this safety data sheet or your poison center or doctor.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye damage. Corrosive to eyes on contact.
- Inhalation** : May cause slight transient irritation. May cause breathing difficulties.
- Skin contact** : Causes severe burns. Corrosive to the skin.
- Ingestion** : Corrosive to the digestive tract. May cause burns to the mouth, throat and stomach.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain
watering
redness
- Inhalation** : Adverse symptoms may include the following:
Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
coughing
wheezing and breathing difficulties
- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
throat and stomach pain
difficulty swallowing
nausea or vomiting

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Corrosives may cause coagulative or liquifaction necrosis. Treatment is symptomatic and supportive. The extent of injury depends on duration of exposure and concentration of liquid. Do not attempt to use chemicals to neutralize the exposure. 24 Hr Medical Emergency telephone number for professional support: English: 1-303-389-1653; French or Spanish: 1-303-389-1654.

Section 4. First-aid measures

- Specific treatments** : Outcomes can be improved by minimizing time to decontamination and extending decontamination times to reduce tissue damage. Expert opinion indicates extended decontamination is required to remove corrosive chemicals. Skin and eye decontamination should be performed for a minimum of 20 - 30 minutes. Extended decontamination times may be required depending on the exposure. To avoid hypothermia, irrigation water should be maintained at a comfortable temperature. If the patient is not in extremis, it may be necessary to delay transport to emergency care facilities to ensure adequate decontamination time. However, early patient transport may be necessary depending on patient's condition or the availability of water. If possible, continue skin and/or eye irrigation during emergency medical transport. Double-bag contaminated clothing and personal belongings of the patient.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. Depending on the situation, the rescuer should wear an appropriate mask, gloves, protective clothing and a respirator or self-contained breathing apparatus. Mouth-to-mouth resuscitation of oral exposure patients is not recommended. First-aiders with contaminated clothing should be properly decontaminated.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Non-flammable. Material will not burn. Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : Do not use water jet. Do not direct water at spill or source.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst. Reacts violently with water. Will react with water or steam to produce heat and corrosive fumes.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
sulfur oxides
acidic corrosive material

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Remark : Do not allow water to enter container because a violent reaction may occur. Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Contain and collect the water used to fight the fire for later treatment and disposal. Do not allow to enter groundwater, surface water or drains.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". Refer to Emergency Response Guidebook, Guide 137 for further information regarding spill control and Isolation/Protective Action Distances Guidelines.

Section 6. Accidental release measures

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused adverse impacts (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Use suitable protective equipment (section 8). Stop leak if without risk. Move containers from spill area. Neutralize acids by applying basic substances (soda ash or lime) or use an acid spill kit. Dilute with water and mop up if water-soluble. Dispose of via a licensed waste disposal contractor.
- Large spill** : Use suitable protective equipment (section 8). Approach release from upwind. Stop leak if without risk. Prevent entry into sewers, water courses, basements or confined areas. Move containers from spill area. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). The spilled material may be neutralized with sodium carbonate, sodium bicarbonate or sodium hydroxide. Contaminated absorbent material may pose the same hazard as the spilled product. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal. Refer to Emergency Response Guidebook, Guide 137 for further information regarding spill control and Isolation/Protective Action Distances Guidelines.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from alkalis. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Refer to NFPA 400 Hazardous Materials Code for further information on the safe storage and handling of hazardous materials. Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Contact your sales representative or a metallurgical specialist to ensure compatibility with your equipment. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Separate from alkalis. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
<p>Canadian Regulations: Sulfuric acid</p> <p>U.S. Federal Regulations: Sulfuric acid</p> <p>Water</p>	<p>CA Alberta Provincial (Canada, 4/2009). 15 min OEL: 3 mg/m³ 15 minutes. 8 hrs OEL: 1 mg/m³ 8 hours.</p> <p>CA Ontario Provincial (Canada, 1/2013). TWA: 0.2 mg/m³ 8 hours.</p> <p>CA Quebec Provincial (Canada, 1/2014). TWAEV: 1 mg/m³ 8 hours. STEV: 3 mg/m³ 15 minutes.</p> <p>CA British Columbia Provincial (Canada, 4/2014). TWA: 0.2 mg/m³ 8 hours. Form: thoracic</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 1 mg/m³ 8 hours.</p> <p>NIOSH REL (United States, 10/2013). TWA: 1 mg/m³ 10 hours.</p> <p>ACGIH TLV (United States, 4/2014). TWA: 0.2 mg/m³ 8 hours. Form: Thoracic fraction</p> <p>OSHA PEL (United States, 2/2013). TWA: 1 mg/m³ 8 hours.</p> <p>None assigned.</p>

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

> 8 hours (breakthrough time): butyl rubber, neoprene rubber, polyethylene (PE), Viton®, Viton®/butyl rubber

1 - 4 hours (breakthrough time): nitrile rubber

< 1 hour (breakthrough time): polyvinyl alcohol (PVA)

Section 8. Exposure controls/personal protection

- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: chemical-resistant protective suit
Contact your personal protective equipment manufacturer to verify the compatibility of the equipment for the intended purpose.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Impervious rubber safety boots.
Contact your personal protective equipment manufacturer to verify the compatibility of the equipment for the intended purpose.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. For U.S. work sites where respiratory protection is required, ensure that a respiratory protection program meeting 29 CFR 1910.134 requirements is in place. Contact your personal protective equipment manufacturer to verify the compatibility of the equipment for the intended purpose.

Section 9. Physical and chemical properties

Appearance

- Physical state** : Liquid. [Oily liquid. Hygroscopic.]
- Color** : Yellow or brown.
- Odor** : Odorless.
- Odor threshold** : Not available.
- pH** : <1
- Melting point** : 10°C (50°F)
- Boiling point** : 290°C (554°F)
- Flash point** : [Product does not sustain combustion.]
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : 0 kPa (0 mm Hg) [room temperature]
- Vapor density** : 3.4 [Air = 1]
- Relative density** : 1.84
- Solubility** : Easily soluble in the following materials: cold water and hot water.
- Partition coefficient: n-octanol/water** : Not available.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : 340°C (644°F)
- Viscosity** : Not available.

Section 10. Stability and reactivity

- Reactivity** : Reacts violently when water is added to this product. Reacts violently with bases. Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.

Section 10. Stability and reactivity

Conditions to avoid : Sulfuric acid reacts violently with water or alcohol, liberating large amounts of heat; ALWAYS ADD ACID TO WATER OR OTHER DILUENT. Extremely reactive and incompatible with reducing agents, organic materials, metals, alkalis, moisture. Highly reactive with combustible materials. Slightly reactive with oxidizing agents.

Incompatible materials : Attacks many metals producing extremely flammable hydrogen gas which can form explosive mixtures with air. Reactive or incompatible with the following materials:
alkalis
reducing agents
organic materials
metals or alloys
water Contact your sales representative or a metallurgical specialist to ensure compatibility with your equipment.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Sulfuric acid	LD50 Oral	Rat	2140 mg/kg	-
Water	LD50 Oral	Rat	>90 g/kg	-

Conclusion/Summary : Corrosive liquid.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Sulfuric acid	Eyes - Corrosive	Rabbit	-	250 Micrograms	-
	Eyes - Corrosive	Rabbit	-	0.5 minutes 5 milligrams	-

Conclusion/Summary

Skin : Corrosive to the skin.

Eyes : Corrosive to eyes.

Respiratory : Inhalation of the spray or mist may produce severe irritation of respiratory tract, characterized by coughing, choking or shortness of breath.

Sensitization

Not available.

Conclusion/Summary

Skin : No known significant effects or critical hazards.

Respiratory : No known significant effects or critical hazards.

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Sulfuric acid	OECD 471 Bacterial Reverse Mutation Test	Experiment: In vitro Subject: Bacteria Metabolic activation: With and without	Negative

Conclusion/Summary : Not mutagenic in Ames test.

Carcinogenicity

Not available.

Section 11. Toxicological information

Conclusion/Summary : The U.S. National Toxicology Program has concluded that occupational exposure to strong inorganic acid mists containing sulfuric acid are carcinogenic. Epidemiological studies of workers chronically exposed to sulfuric acid have suggested increased risk for upper respiratory cancers, especially laryngeal cancer. The International Agency for Research in Cancer and NTP has concluded that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to man, however, sulfuric acid itself is not considered a confirmed human carcinogen at this time. The epidemiological studies which provided the basis for the IARC and NTP assessments were confounded by exposure to alkyl sulfates (known animal carcinogens), other chemicals, and smoking. Based on the evidence from all human and animal studies, no definitive relationship has been shown between increased risk of respiratory tract cancer and sulfuric acid alone. Sulfuric acid can react with other substances to form mutagenic and possibly carcinogenic products such as alkyl sulfates.

Reproductive toxicity

Product/ingredient name	Maternal toxicity	Fertility	Development toxin	Species	Dose	Exposure
Sulfuric acid	Negative	Negative	Negative	Rabbit - Female	Inhalation	-

Conclusion/Summary : No known significant effects or critical hazards.

Teratogenicity

Product/ingredient name	Result	Species	Dose	Exposure
Sulfuric acid	Negative - Inhalation	Rabbit - Female	-	-

Conclusion/Summary : No known significant effects or critical hazards.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Sulfuric acid	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Skin contact
Inhalation

Potential acute health effects

Eye contact : Causes serious eye damage. Corrosive to eyes on contact.
Inhalation : May cause slight transient irritation. May cause breathing difficulties.
Skin contact : Causes severe burns. Corrosive to the skin.
Ingestion : Corrosive to the digestive tract. May cause burns to the mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain
watering
redness

Inhalation : Adverse symptoms may include the following:
Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
coughing
wheezing and breathing difficulties

Section 11. Toxicological information

- Skin contact** : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur
- Ingestion** : Adverse symptoms may include the following:
throat and stomach pain
difficulty swallowing
nausea or vomiting

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : See above

Potential delayed effects : See above

Long term exposure

Potential immediate effects : See above

Potential delayed effects : See below.

Potential chronic health effects

Conclusion/Summary : Repeated or prolonged overexposure may result in chronic health effects. Adverse effects are typically the result of acute overexposure. These effects may be long term or permanent in nature.

General : See above

Carcinogenicity : Limited evidence of a carcinogenic effect.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Sulfuric acid	Acute LC50 42500 µg/l Marine water	Crustaceans - Pandalus montagui - Adult	48 hours
	Acute LC50 70000 to 80000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 42000 µg/l Fresh water	Fish - Gambusia affinis - Adult	96 hours

Conclusion/Summary : May be harmful to the environment if released in large quantities.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Water	-1.38	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.






Other adverse effects : No known significant effects or critical hazards.

Section 12. Ecological information

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Section 14. Transport information

	TDG Classification	DOT Classification	Mexico Classification	IMDG	IATA
UN number	1830	1830	1830	1830	1830
UN proper shipping name	Sulphuric acid (sulfuric acid)	Sulphuric acid (sulfuric acid)	Sulphuric acid (sulfuric acid)	Sulfuric acid with more than 51% acid (sulfuric acid)	Sulfuric acid with more than 51% acid (sulfuric acid)
Transport hazard class(es)	8 	8 	8 	8 	8 
Packing group	II	II	II	II	II
Environmental hazards	No.	No.	No.	No.	No.
Additional information	<p>ERAP Index 3000</p> <p>Passenger Carrying Road or Rail Index 1</p> <p>Classification per the current revision, Transportation of Dangerous Goods Regulation, Part 2, Sec 2.1.</p>	<p>Reportable quantity 1000 lbs / 454 kg [65.182 gal / 246.74 L] Packages of less than the reportable quantity are not subject to Hazmat transportation requirements.</p> <p>Packaging instruction Passenger aircraft Quantity limitation: 1 L</p> <p>Cargo aircraft Quantity limitation: 30 L</p> <p>Special</p>	-	-	-

Section 14. Transport information

		provisions A3, A7, B2, B15, IB2, N6, N34, T8, TP2			
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Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

Canadian lists

Canadian NPRI : The following components are listed: Sulphuric acid

CEPA Toxic substances : None of the components are listed.

Canada inventory : All components are listed or exempted.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : All components are listed or exempted.

China : All components are listed or exempted.

Europe : All components are listed or exempted.

Japan : All components are listed or exempted.

Malaysia : All components are listed or exempted.

New Zealand : All components are listed or exempted.

Philippines : All components are listed or exempted.

Republic of Korea : All components are listed or exempted.

Taiwan : All components are listed or exempted.

Turkey : Not determined.

U.S. Federal Regulations: : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
TSCA 8(b) inventory: All components are listed or exempted.
Clean Water Act (CWA) 311: Sulfuric acid

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Section 15. Regulatory information

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Listed

SARA 302/304 Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
Sulfuric acid	93 - 98	Yes.	1000	66.3	1000	66.3

SARA 304 RQ : 1000 lbs / 454 kg [65.2 gal / 246.7 L]

SARA 311/312

Classification : Immediate (acute) health hazard
Delayed (chronic) health hazard.

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard.
Sulfuric acid	93 - 98	No.	No.	No.	Yes.	Yes.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	Sulfuric acid 93-98%	7664-93-9	93 - 98
Supplier notification	Sulfuric acid 93-98%	7664-93-9	93 - 98

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

- Massachusetts** : The following components are listed: Sulfuric acid
New York : The following components are listed: Sulfuric acid
New Jersey : The following components are listed: Sulfuric acid; Dihydrogen sulfate
Pennsylvania : The following components are listed: Sulfuric acid
California Prop. 65 : **WARNING:** This product contains a chemical known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Strong inorganic acid mists containing sulfuric acid	Yes.	No.	No.	No.

Section 16. Other information

History

Date of issue/Date of revision : 6/13/2018

Date of previous issue : 5/15/2018

Version : 1.8

☑ Indicates information that has changed from previously issued version.

Section 16. Other information

- Key to abbreviations**
- : ATE = Acute Toxicity Estimate
 - BCF = Bioconcentration Factor
 - GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 - IATA = International Air Transport Association
 - IBC = Intermediate Bulk Container
 - IMDG = International Maritime Dangerous Goods
 - LogPow = logarithm of the octanol/water partition coefficient
 - MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 - UN = United Nations
 - HPR = Hazardous Products Regulations

Procedure used to derive the classification

Classification	Justification
CORROSIVE TO METALS - Category 1	Weight of evidence
SKIN CORROSION - Category 1A	On basis of test data
SERIOUS EYE DAMAGE - Category 1	Weight of evidence
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3	Weight of evidence

- References**
- : Not available. Transportation of Dangerous Goods Act and Clear Language Regulations, current edition at time of SDS preparation, Transport Canada; Hazardous Products Act and Regulations, current revision at time of SDS preparation, Health Canada; Domestic Substances List, current revision at time of SDS preparation, Environment Canada;
 - 29 CFR Part 1910, current revision at time of SDS preparation, U.S. Occupational Safety and Health Administration;
 - 40 CFR Parts 1-799, current revision at time of SDS preparation, U.S. Environmental Protection Agency;
 - 49 CFR Parts 1-199, current revision at time of SDS preparation, U.S. Department of Transport;
 - Mexican Official Standard NOM-018-STPS-2015, Harmonised System for the Identification and Communication of Hazards and Risks by Hazardous Chemicals in the Workplace;
 - Mexican Official Standard NOM-002-SCT / 2011, List of the most commonly transported hazardous substances and materials;
 - Threshold Limit Values for Chemical Substances, current edition at time of SDS preparation, American Conference of Governmental Industrial Hygienists;
 - NFPA 400, National Fire Codes, National Fire Protection Association, current edition at time of SDS preparation;
 - NFPA 704, National Fire Codes, National Fire Protection Association, current edition at time of SDS preparation;
 - Corrosion Data Survey, Sixth Edition, 1985, National Association of Corrosion Engineers;
 - ERG 2016, Emergency Response Guidebook, U.S. Department of Transport, Transport Canada, and the Secretariat of Transportation and Communications of Mexico
 - Hazardous Substances Data Bank, current revision at time of SDS preparation, National Library of Medicine, Bethesda, Maryland
 - Integrated Risk Information System, current revision at time of SDS preparation, U. S. Environmental Protection Agency, Washington, D.C.
 - Pocket Guide to Chemical Hazards, current revision at time of SDS preparation, National Institute for Occupational Safety and Health, Cincinnati, Ohio ;
 - Agency for Toxic Substances and Disease Registry Databank, current revision at time of SDS preparation, U.S. Department of Health and Human Services, Atlanta, Georgia
 - National Toxicology Program, Report on Carcinogens, Division of the National Institute of Environmental Health Sciences, Research Triangle Park, North Carolina.
 - Registry of Toxic Effects of Chemical Substances. National Institute for Occupational Safety and Health, Cincinnati, Ohio
 - The Fertilizer Institute, Product Toxicology Testing Program Results, TFI,

Section 16. Other information

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