

## SAFETY DATA SHEET

REV. 2 Issued: July 25, 2016

This SDS adheres to the standards and regulatory requirements of Canada and may not meet the regulatory requirements in other countries.

### 1. IDENTIFICATION

<b>Product identifier</b>	<b>Sulphuric Acid</b>
<b>Other means of identification</b>	
<b>Synonyms</b>	Sulphuric Acid Solution, 45-100%, H <sub>2</sub> SO <sub>4</sub>
<b>Recommended use</b>	Water treatment, metal pickling, petroleum processing, manufacture of fertilizers, explosives and other acids.
<b>Recommended restrictions</b>	Professional Use Only
<b>Manufacturer/Importer/Supplier/Distributor information</b>	
<b>Manufacturer</b>	
<b>Company name</b>	ERCO Worldwide, A division of Superior Plus LP
<b>Address</b>	302 The East Mall Suite 200 Toronto, ON M9B 6C7 Canada
<b>Telephone</b>	Information #: (416) 239-7111 (Monday – Friday 8:00 am – 5:00pm EST)
<b>Website</b>	<a href="http://www.ercoworldwide.com">http://www.ercoworldwide.com</a>
<b>E-mail</b>	productinfo@ercoworldwide.com
<b>Emergency phone number</b>	24 Hr. #:       Canada: 613-996-6666 (CANUTEC) USA: 1-800-424-9300 (CHEMTREC)
<b>Supplier</b>	Refer to Manufacturer

### 2. HAZARD(S) IDENTIFICATION

<b>Physical hazards</b>	Corrosive to metals	Category 1
<b>Health hazards</b>	Acute toxicity, inhalation	Category 2
	Skin corrosion	Category 1A
	Serious eye damage	Category 1
	Carcinogenicity	Category 1A
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
<b>Environmental hazards</b>	Not currently regulated by the Canadian Hazardous Products Regulation (WHMIS 2015), refer to Section 12 for additional information.	

**Label elements****Signal word**

Danger

**Hazard statement**

May be corrosive to metals.

Causes severe skin burns and eye damage.

Causes serious eye damage.

Fatal if swallowed.

Fatal in contact with skin.

Fatal if inhaled.

May cause respiratory irritation.

May cause cancer.

**Precautionary statement****Prevention**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep only in original container. Use only outdoors or in a well-ventilated area. Wear respiratory protection. Wear protective gloves/clothing and eye/face protection. Do not breathe mist. Wash thoroughly after handling. Do not get in eyes, on skin or on clothing. Do not ingest. Do not breathe mist.

**Response**

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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

IF IN EYES: Rinse cautiously with water for 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Absorb spillage to prevent material damage.

**Storage**

Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in corrosive resistant container with a resistant inner liner.

**Disposal**

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

**Hazard(s) not otherwise classified (HNOC)**

No OSHA defined hazard classes.

Other hazards which do not result in classification: Contact with most metals will generate flammable hydrogen gas. Reacts violently with water with evolution of heat. Reacts violently with a wide variety of organic and inorganic chemicals including alcohol, carbides, chlorates, picrates, nitrates and metals. In extreme cases, tooth erosion could result. Chronic skin contact with low concentrations may cause dermatitis.

**Supplemental information**

Ventilate the area. Keep away from heat. Remove sources of ignition. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Keep away from metals and other incompatibles. When preparing or diluting solution, always add to water, slowly and with stirring. When diluting, always add the product to water. Never add water to the product. Label containers appropriately.

In case of fire: Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical. Use water with caution. Contact with water will generate considerable heat. Use chemical extinguishing agents with caution. Some chemical extinguishing agents may react with this material.

In case of spills or leaks: Contact the proper local authorities.

**3. COMPOSITION/INFORMATION ON INGREDIENTS****Substances**

Chemical name	Common name and synonyms	CAS number	%
Sulfuric Acid	Hydrogen Sulfate Oil of Vitriol	7664-93-9	45 - < 100
Water	Dihydrogen Oxide	7732-18-5	Balance

**Chemical name of impurities, stabilizing solvents and/or additives:** None

**4. FIRST-AID MEASURES****Inhalation**

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, trained personnel should give oxygen. If breathing stops, provide artificial respiration. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Give Cardiopulmonary Resuscitation (CPR) if there is no pulse AND no breathing. Call a physician or poison control center immediately.

**Skin contact**

Take off immediately all contaminated clothing. Immediately flush skin with running water for at least 20 minutes. If irritation persists, repeat flushing. Cover wound with sterile dressing. Do not rub area of contact. Wash contaminated clothing before reuse. Discard heavily contaminated clothing and shoes in a manner that limits further exposure. Leather and shoes that have been contaminated with the solution may need to be destroyed. Call a physician or poison control center immediately. Do not transport victim unless the recommended flushing period is completed or flushing can be continued during transport. While the patient is

being transported to a medical facility, apply compresses of iced water. If medical treatment must be delayed, immerse the affected area in iced water. Do not apply ointments unless directed by a physician. If immersion is not practical, compresses of iced water can be applied. Avoid freezing tissues.

**Eye contact**

Rinse cautiously with water for a minimum of 20 minutes. Hold eye lids open during flushing. If irritation persists, repeat flushing. Remove contact lenses, if present and easy to do. Continue rinsing. Take care not to rinse contaminated water into the unaffected eye or onto the face. Call a physician or poison control center immediately. Do not transport victim until the recommended flushing period is completed unless flushing can be continued during transport.

**Ingestion**

Do not induce vomiting. Rinse mouth. Never give anything by mouth to a victim who is unconscious or is having convulsions. If victim is alert and not convulsing, rinse mouth and give 1/2 to 1 glass of water to dilute material. If spontaneous vomiting occurs, have victim lean forward with head down to avoid breathing in of vomitus, rinse mouth and administer more water. Call a physician or poison control center immediately.

**Most important symptoms/effects, acute and delayed**

May be fatal if inhaled. Can cause severe respiratory irritation. Symptoms may include coughing, choking and wheezing. Inhalation could result in pulmonary edema (fluid accumulation).

Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed. May result in unconsciousness and possibly death. Direct skin contact may cause corrosive skin burns, deep ulcerations and possibly permanent scarring. Corrosive to the eyes and may cause severe damage including blindness. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause severe irritation and corrosive damage in the mouth, throat and stomach. Symptoms may include abdominal pain, vomiting, burns, perforations, bleeding and eventually death.

**Indication of immediate medical attention and special treatment needed**

Immediate medical attention is required. Causes chemical burns. May be fatal if inhaled. Symptoms may be delayed.

**General information**

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

## 5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**

Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical. Use water with caution. Contact with water will generate considerable heat.

**Unsuitable extinguishing media**

Use chemical extinguishing agents with caution. Some chemical extinguishing agents may react with this material.

**Specific hazards arising from the chemical**

Not considered flammable. Vapors are heavier than air and may spread along floors. Contact with most metals will generate flammable hydrogen gas. Reacts violently with water with evolution of heat. Contact with combustible material may cause fire. Reacts violently with a wide variety of organic and inorganic chemicals including alcohol, carbides, chlorates, picrates, nitrates and metals. Toxic fumes, gases or vapours may evolve on burning.

**Special protective equipment and precautions for firefighters**

Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. A full-body chemical resistant suit should be worn.

**Fire-fighting equipment/instructions**

Fight fire with normal precautions from a reasonable distance. Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Evacuate the area promptly. Move containers from fire area if you can do it without risk. Use water spray to cool unopened containers. Fight fire from upwind to avoid exposure to combustion products. Do not allow run-off from fire-fighting to enter drains or water courses. Dike for water control.

**Specific methods**

Use standard firefighting procedures and consider the hazards of other involved materials.

**Hazardous combustion products**

Toxic fumes, gases or vapours may evolve on burning. Sulphur oxides.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up**

Ventilate the area. Remove sources of ignition. Stop leak if you can do so without risk. Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal.

Small Spills: Contain and absorb spilled liquid with non-combustible, inert absorbent material (e.g. sand). Dilute acid with water and neutralize with Sodium Carbonate (soda ash) or lime. Clean surface thoroughly to remove residual contamination.

Large Spills: Prevent entry into waterways, sewer, basements or confined areas. Restrict access to area until completion of clean up. Ventilate area. Following product recovery, flush area with water. Do not flush into surface water or sanitary sewer system. If not recoverable, dilute with water or flush to holding area and neutralize. Remove with vacuum trucks or pump to storage/salvage vessels. Place recovered materials into

suitable corrosion resistant labelled containers. Ensure adequate decontamination of tools and equipment following clean up. Never return spills to original containers for re-use. Contaminated absorbent material may pose the same hazards as the spilled product. For waste disposal, see section 13 of the SDS.

**Environmental precautions**

Avoid discharge into drains, water courses or onto the ground. Contact local authorities in case of spillage to drain/aquatic environment.

**7. HANDLING AND STORAGE****Precautions for safe handling**

Use only outdoors or in a well-ventilated area. Wear chemically resistant protective equipment during handling. Do not breathe mist. Do not taste or swallow. Avoid contact with eyes, skin and clothing. Keep away from heat. Keep away from metals and other incompatibles. When preparing or diluting solution, always add to water, slowly and with stirring. Never add water to the product. Label containers appropriately. Wash thoroughly after handling. When using, do not eat, drink or smoke. Avoid release to the environment.

**Conditions for safe storage, including any incompatibilities**

Store in a cool, dry place out of direct sunlight. Store in a well-ventilated place. Store locked up. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Store away from incompatible materials (see Section 10 of the SDS). Store in original tightly closed container. Store in corrosive resistant container with a resistant inner liner.

Suitable container and packaging materials for safe storage: The resistance of metal alloys to sulphuric acid corrosion increases with increasing chromium, molybdenum, copper and silicon content. Contact product supplier for specific packaging recommendations when handling Sulphuric acid at strengths less than 77%. CAUTION: Hydrogen, a highly flammable gas, can accumulate to explosive concentrations inside drums, or inside most types of metal containers or tanks upon storage. Metal and, specifically, carbon steel, storage tanks must be vented due to hydrogen release as noted above.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Occupational exposure limits****US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Components	Type	Value
Sulfuric Acid (CAS 7664-93-9)	PEL	1 mg/m <sup>3</sup>

**US. ACGIH Threshold Limit Values**

Components	Type	Value
Sulfuric Acid (CAS 7664-93-9)	TWA	0.2 mg/m <sup>3</sup>
	STEL	3.0 mg/m <sup>3</sup> , 15 minutes

**US. NIOSH: Pocket Guide to Chemical Hazards**

Components	Type	Value
Sulfuric Acid (CAS 7664-93-9)	TWA	1 mg/m <sup>3</sup>

**Biological limit values**

No biological exposure limits noted for the ingredient(s).

**Exposure guidelines**

The NIOSH IDLH concentration for Sulphuric acid is 15 mg/m<sup>3</sup>. The purpose of establishing an IDLH value is to ensure that the worker can escape from a given contaminated environment in the event of failure of the most protective respiratory protection equipment. In the event of failure of respiratory protection equipment every effort should be made to exit immediately.

**Appropriate engineering controls**

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available proximate to the work-station location when handling this product.

**Individual protection measures, such as personal protective equipment****Eye/face protection**

Chemical goggles and face shield are recommended. Eye wash fountain is recommended.

**Skin protection****Hand protection**

Wear appropriate chemical resistant gloves.

Wear as appropriate: Butyl rubber, Natural rubber, Neoprene, Polyvinyl chloride (PVC), Viton rubber (fluor rubber).

Unsuitable material: Polyvinyl alcohol (PVA). Advice should be sought from glove suppliers.

**Other**

Where contact is likely, wear chemical-resistant gloves, a chemical suit, rubber boots, and chemical safety goggles plus a face shield. A chemical protective full-body encapsulating suit may be required in some operations. Eye wash facilities and emergency shower must be available when handling this product.

**Respiratory protection**

In case of insufficient ventilation, wear suitable respiratory equipment. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection. Respirators should be selected based on the form and concentration of

contaminants in air, and in accordance with OSHA (29 CFR 1910.134). Advice should be sought from respiratory protection specialists.

NIOSH RECOMMENDATIONS for Sulphuric acid CONCENTRATIONS IN AIR: Up to 15 mg/m<sup>3</sup>:

SAR operated in a continuous-flow mode or powered air-purifying respirator with acid gas cartridge(s) and a high-efficiency particulate filter. Full-face piece chemical cartridge respirator with acid gas cartridge(s) and a high-efficiency particulate filter or gas mask with acid gas canister and high-efficiency particulate filter or full-face piece SCBA or full-face piece SAR.

EMERGENCY OR PLANNED ENTRY INTO UNKNOWN CONCENTRATIONS OR IDLH

CONDITIONS: Positive pressure, full-face piece SCBA or positive pressure, full-face piece SAR with an auxiliary positive pressure SCBA.

ESCAPE: Gas mask with acid gas canister and high-efficiency particulate filter; or escape-type SCBA.

Air-purifying respirators do not protect against oxygen-deficient atmospheres.

#### **Thermal hazards**

Not applicable.

#### **General hygiene considerations**

Do not breathe mist. Avoid contact with eyes, skin and clothing. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove soiled clothing and wash it thoroughly before reuse. Handle in accordance with good industrial hygiene and safety practice.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### **Appearance**

<b>Physical state</b>	Liquid
<b>Form</b>	Oily liquid
<b>Color</b>	Clear. Amber to Brown.

**Odor** Odorless.

**Odor threshold** Not Applicable

**pH** 0.3 – 2.1 (at high acid concentration in water, pH scale is not applicable)

**Melting point/freezing point** - 40 to - 1°C (- 40 to 30°F)

**Initial boiling point and boiling range** 150 - 300 °C (302 - 572 °F)

**Flash point** Not Applicable (Does not burn)

**Evaporation rate** Not Available

**Flammability (solid, gas)** Not Applicable

### **Upper/lower flammability or explosive limits**

**Flammability limit – lower (%)** Not Applicable

**Flammability limit – upper (%)** Not Applicable

**Explosive limit - lower (%)** Not Available

**Explosive limit - upper (%)** Not Available

**Vapor pressure** 0.2 to 0.0003 kPa (1.2 to 0.002 mmHg) (at 20°C)

<b>Vapor density</b>	3.4 (Air = 1)
<b>Relative density</b>	1.706 - 1.844 g/cm <sup>3</sup>
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	Soluble in all proportions .
<b>Solubility (other)</b>	Decomposes in Ethanol.
<b>Partition coefficient (n-octanol/water)</b>	Not Available
<b>Auto-ignition temperature</b>	Not Available
<b>Decomposition temperature</b>	340 °C (644 °F)
<b>Viscosity</b>	13.6 mm <sup>2</sup> /s (100%)
<b>Viscosity temperature</b>	25 °C (77 °F)
<b>Other information</b>	
<b>Critical temperature</b>	Mineral acid
<b>Molecular formula</b>	H <sub>2</sub> SO <sub>4</sub>
<b>Molecular weight</b>	98.08
<b>Percent volatile</b>	15 % estimated
<b>Specific gravity</b>	1.30 - 1.84
<b>Surface tension</b>	49.6 dynes/cm at 30°C (100%)

## 10.STABILITY AND REACTIVITY

### Reactivity

Reacts violently with water with evolution of heat. Contact with most metals will generate flammable hydrogen gas. Will react violently with alkalis. The concentrated acid oxidizes, dehydrates, or sulfonates most organic compounds.

### Chemical stability

Material is stable under normal conditions. Decomposes at ~ 340°C to form sulphur trioxide.

### Possibility of hazardous reactions

Reacts violently with a wide variety of organic and inorganic chemicals including alcohol, carbides, chlorates, picrates, nitrates and metals. Acetaldehyde and allyl chloride may polymerize violently in the presence of sulfuric acid. Hazardous gases, such as hydrogen cyanide, hydrogen sulfide and acetylene, are evolved on contact with chemicals such as cyanides, sulfides and carbides.

### Conditions to avoid

Avoid high temperatures. Contact with incompatible materials. Do not use in areas without adequate ventilation.

### Incompatible materials

Metals. Bases. Water. Strong oxidizing agents. Reducing agents. Strong acids. Alcohols. Carbides. Picrates. Chlorates. Nitrates. Acrylonitrile. Fulminates. Perchlorates. Permanganates. Epichlorohydrin. Aniline. Ethylenediamine. Cyclopentadiene. Nitromethane. 4-nitrotoluene. Phosphorus (III) oxide. Potassium. Sodium. Ethylene glycol. Isoprene. Styrene. Acetaldehyde and allyl chloride may polymerize violently in the presence of sulfuric acid. Sulfuric acid attacks plastics.

### **Hazardous decomposition products**

None known, refer to hazardous combustion products in Section 5. The following may be released during a fire: Sulphur oxides.

## **11. TOXICOLOGICAL INFORMATION**

### **Information on likely routes of exposure**

#### **Inhalation**

Can be fatal if inhaled. Sulphuric acid is not very volatile, and therefore workplace exposures are primarily to mists or aerosols. Sulphuric acid is corrosive and can cause severe irritation or corrosive damage if inhaled. Sulphuric acid can cause severe lung damage with a life-threatening accumulation of fluid (pulmonary edema).

#### **Skin contact**

Causes severe skin burns deep ulcerations and possibly permanent scarring. Not expected to be absorbed through the skin. Extensive acid burns can result in death.

#### **Eye contact**

Corrosive to the eyes and may cause severe damage including blindness. Sulphuric acid mists and aerosols are expected to be irritating.

#### **Ingestion**

May cause severe irritation and corrosive damage in the mouth, throat and stomach and digestive tract burns. Symptoms may include difficulty swallowing, intense thirst, nausea, vomiting, diarrhea, and in severe cases, collapse and death. Small amounts of acid which may enter the lungs during ingestion or vomiting (aspiration) can cause serious lung injury and death.

### **Symptoms related to the physical, chemical and toxicological characteristics**

Symptoms may include coughing, choking and wheezing. Inhalation could result in pulmonary edema (fluid accumulation). May result in unconsciousness and possibly death. Direct skin contact symptoms may include stinging, tearing, redness, swelling, and blurred vision. Ingestion symptoms may include abdominal pain, vomiting, burns, perforations, bleeding and eventually death. May cause cancer.

### **Delayed and immediate effects, and chronic effects from short-term and long-term exposure**

#### **Effects of short-term (acute) exposure:**

Very hazardous in case of skin contact (corrosive, irritant). Skin contact may produce burns. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Very hazardous in case of eye contact (irritant, corrosive). Inflammation of the eye is characterized by redness, watering, and itching. Immediate pain, severe burns and corneal damage. Inhalation of the mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Very hazardous in case of ingestion. May cause burns to mouth, throat and stomach.

#### **Effects of long-term (chronic) exposure:**

Symptoms of pulmonary edema (chest pain, shortness of breath) may be delayed. High mist or aerosol concentrations may cause redness, irritation and burns to the skin if contact is prolonged. Can cause permanent

eye damage, including blindness. Skin irritation may be aggravated in individuals with existing skin lesions. Breathing of vapours may aggravate acute or chronic asthma and chronic pulmonary disease such as emphysema and bronchitis. Over-exposure by inhalation may cause respiratory irritation. May be fatal if inhaled or swallowed.

### Information on toxicological effects

#### Acute toxicity

May be fatal if inhaled. The below product data is the calculated ATE values for this mixture. Individual ingredient component data appears below the product mixture ATE values.

Product	Species	Test Results
Sulphuric Acid (CAS Mixture)		
<b>Acute</b>		
<i>Inhalation</i>		
LC <sub>50</sub>	Rat	0.375 - 0.536 mg/l, 4 hours (mist)
<i>Oral</i>		
LD <sub>50</sub>	Rat	2140 - 3058 mg/kg
Components	Species	Test Results
Sulfuric Acid (CAS 7664-93-9)		
<b>Acute</b>		
<i>Dermal</i>		No Data in Literature
<i>Inhalation</i>		
LC <sub>50</sub>	Rat	0.375 mg/l, 4 hours (mist)
<i>Oral</i>		
LD <sub>50</sub>	Rat	2140 mg/kg
Water (CAS 7732-18-5)		
<b>Acute</b>		
<i>Dermal</i>		
LD <sub>50</sub>	Rabbit	Not available.
<i>Inhalation</i>		
LC <sub>50</sub>	Rat	Not available.
<i>Oral</i>		
LD <sub>50</sub>	Rat	> 89840 mg/kg

#### Skin corrosion/irritation

Category 1A. Causes severe skin burns and eye damage.

#### Serious eye damage/eye irritation

Category 1. Causes serious eye damage.

**Respiratory or skin sensitization**

**Respiratory sensitization**

Not expected to be a respiratory sensitizer.

**Skin sensitizer**

This product is not expected to be a skin sensitizer.

**Germ cell mutagenicity**

Not expected to be mutagenic in humans.

**Carcinogenicity**

Category 1A. May cause cancer. This product may form mists.

Occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to humans. The information located is insufficient to conclude that sulfuric acid itself is a carcinogen. IARC has concluded there is sufficient evidence that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to humans (Group 1). ACGIH has designated strong inorganic acid mists containing sulfuric acid as A2 (suspected human carcinogen). US NTP has listed strong inorganic acid mists containing sulfuric acid as a known human carcinogen. These classifications are for inorganic acid mists containing sulfuric acid and does not apply to sulfuric acid or sulfuric acid solutions. Ingredients are present on the following lists.

**IARC Monographs. Overall Evaluation of Carcinogenicity**

Sulfuric Acid (CAS 7664-93-9)                      1 Carcinogenic to humans.

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)**

Not listed.

**US. National Toxicology Program (NTP) Report on Carcinogens**

Sulfuric Acid (CAS 7664-93-9)                      Known to be human carcinogen.

**Reproductive toxicity**

This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure**

Hazardous by OSHA criteria. Classification:

The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with respiratory tract irritation. May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure**

Not classified as a specific target organ toxicity -repeated exposure.

**Aspiration toxicity**

Not expected to be an aspiration hazard.

**Chronic effects**

Chronic skin contact with low concentrations may cause dermatitis. In extreme cases, tooth erosion could result.

## 12.ECOLOGICAL INFORMATION

### Ecotoxicity

Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems. However, may be neutralized by naturally occurring alkalinity in the environment. The ingredient ecotoxicity data appearing above is expected to be primarily associated with pH.

Components		Species	Test Results
Sulfuric Acid (CAS 7664-93-9)			
Aquatic			
Acute			
Algae	EC50	Green Algae (Pseudokirchneriella subcapitata)	> 100 mg/l, 72 hours
Crustacea	EC50	Water flea (Daphnia magna)	29 mg/l, 24 hours
Fish	LC50	Bluegill (Lepomis macrochirus)	16 - 28 mg/l, 96 hours

### Persistence and degradability

Biodegradation is not applicable to inorganic substances.

### Bioaccumulative potential

No accumulation in living organisms is expected due to high solubility and dissociation properties.

### Mobility in soil

High water solubility indicates a high mobility in soil.

### Other adverse effects

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

## 13.DISPOSAL CONSIDERATIONS

### Disposal instructions

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Do not allow this material to drain into sewers/water supplies. Dispose in accordance with all applicable regulations.

### Local disposal regulations

Dispose in accordance with all applicable regulations.

### Hazardous waste code

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

### Waste from residues / unused products

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging**

Empty containers should be taken to an approved waste handling site for recycling or disposal.

Since emptied containers may retain product residue, follow label warnings even after container is emptied.

**14. TRANSPORT INFORMATION****TDG**

<b>Shipping Name (TDGR)</b>	<b>UN Number</b>	<b>Hazard Class</b>	<b>Packing Group</b>
SULPHURIC ACID	UN1830	8	II

**IATA**

<b>UN number</b>	UN1830
<b>UN proper shipping name</b>	Sulphuric Acid
<b>Transport hazard class(es)</b>	
<b>Class</b>	8
<b>Subsidiary risk</b>	None
<b>Packing group</b>	II
<b>Environmental hazards</b>	No
<b>ERG Code</b>	8L
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling. Refer to the appropriate Packing Instruction, prior to shipping this material. Review all State and Operator Variations, prior to shipping this material.
<b>Other information</b>	
<b>Passenger and cargo aircraft</b>	Allowed
<b>Cargo aircraft only</b>	Allowed

**IMDG**

<b>UN number</b>	UN1830
<b>UN proper shipping name</b>	Sulphuric Acid
<b>Transport hazard class(es)</b>	
<b>Class</b>	8
<b>Subsidiary risk</b>	None
<b>Packing group</b>	II
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No
<b>EmS</b>	F-A, S-B
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

**Transport in bulk according to** This substance/mixture is not intended to be transported in bulk.

**Annex II of MARPOL 73/78 and  
the IBC Code**

**IATA; IMDG; TDG**



## 15.REGULATORY INFORMATION

### International Inventories

Country(s) or region	Inventory name	On inventory (Yes/No)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16.OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST VERSION**

<b>Issue date</b>	07-25-2016
<b>Revision #</b>	2
<b>Revision Indicator</b>	New safety data sheet.
<b>List of abbreviations</b>	ACGIH: American Conference of Governmental Industrial Hygienists CAS: Chemical Abstract Services CFR: Code of Federal Regulations CPR: Cardiopulmonary Resuscitation HSDB® - Hazardous Substances Data Bank IARC: International Agency for Research on Cancer IATA: International Air Transport Association IDLH: immediately dangerous to life or health IMDG: International Maritime Dangerous Goods LC: Lethal Concentration LD: Lethal Dose NIOSH: National Institute of Occupational Safety and Health NTP: National Toxicology Program OECD: Organisation for Economic Cooperation and Development OSHA: Occupational Safety and Health Administration PPE: Personal Protective Equipment RTECS: Registry of Toxic Effects of Chemical Substances SAR: supplied-air respirator SCBA: self-contained breathing apparatus STEL: Short Term Exposure Limit TDGR: Transport of Dangerous Good Regulations TWA: Time Weighted Average WHMIS: Workplace Hazardous Materials Information System

<b>References</b>	Canadian Centre for Occupational Health and Safety, CCInfoWeb Databases, 2014 (Chempendium, RTECs, HSDB, INCHEM) European Chemicals Agency, Classification Legislation, 2014. Material Safety Data Sheet from manufacturer. OECD - The Global Portal to Information on Chemical Substances - eChemPortal, 2014.
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