



DELEGATION OF AUTHORITY

I, Scott Rook, President and Chief Executive of Chemtrade Chemicals US LLC, a Delaware limited liability company ("Chemtrade"), do hereby delegate and appoint the following agents of Chemtrade to execute all municipal contracts and instruments, including bids, proposals and quotations, which in the ordinary course of business are processed by the Marketing Group of the company:

Parul Kachhia-Patel: Lisa Brownlee: Paul Peters: Elizabeth Ryno: Leilina Gossa:
Christine LaSala: Delana Peralta: Michele Schroeher: Marie-Josée Joly

Set forth below is a certified copy of the resolution of Chemtrade authorizing such action.

Dated as of the 21st day of February, 2023

Scott Rook
President and Chief Executive Officer

CERTIFICATE OF SECRETARY

I, Susan Pare, hereby certify that I am the Corporate Secretary of Chemtrade Chemicals US LLC ("Chemtrade") and that set forth below is a true and correct copy of the resolution of the Board of Managers of Chemtrade, adopted by unanimous written consent as of the 10th day of November, 2023 and that the same has not been modified or revoked and is on the date hereof in full force and effect:

RESOLVED that any officer of the Company be, and he hereby is, authorized to delegate, with the right of further delegation, to any other officer, employee or agent of the Company, all or any part of the authority granted to them by the Board of Managers; and that any such delegations may be general or specific and subject to such limitations and restrictions as the delegating officer shall determine.

I FURTHER CERTIFY that Scott Rook is the duly elected President and Chief Executive Officer of Chemtrade and holds such offices on the date hereof, that Mr. Rook is, in his capacity as President and Chief Executive Officer is authorized to represent and bind Chemtrade in all matters including, but not limited to, contracts and that set forth below is the genuine signature of such officer:

Scott Rook
President and Chief Executive Officer

IN WITNESS WHEREOF, I have hereunto set my hand and have caused the seal of the Company to be affixed effective this 21st day of February, 2023.

Susan Pare
Corporate Secretary

Seal



Water Chemicals Group
90 East Halsey Road
Parsippany, NJ 07054
Tel: 800-441-2659
Fax: 973-515-4461
www.chemtradelogistics.com

Bay Area Chemical Consortium
Bid Number: 14-2024 Sulfuric Acid
Opening: February 22, 2024 @ 4:00 p.m.

MANUFACTURING & SHIPPING INFORMATION:

Please note that the products included in this bid are manufactured in the United States of America. Chemtrade Chemicals will be manufacturing and shipping this material from our USA plant. Please see below for the exact address:

Chemtrade West US LLC
525 Castro Street
Richmond, CA 94801

Ph: (510) 232-7193
Fax: (510) 232-7629

If you have any questions or concerns, please feel free to contact me.

Sincerely,

Elizabeth Ryno
Marketing Specialist
Ph: (973) 515-1858
bids@ChemtradeLogistics.com



CHEMTRADE

Water Chemicals Group
90 East Halsey Road
Parsippany, NJ 07054
Tel: 973-515-0900
Fax: 973-515-4461

**ORDER CONTACT, EMERGENCY CONTACT AND TECHNICAL
SERVICE INFORMATION**

Normal operating business hours are Monday – Friday 8:00 AM to 5:00 PM E.S.T.

To place orders, contact your Customer Service Representative:

Name: Hensley Derougeur
Phone: 1-833-644-4717
E-mail: mtlcsr@chemtradelogistics.com
Fax: (514) 640-4858

After normal business hours, for emergencies and orders please call 1-514-513-7401 and the on-call Customer Service Representative will be available to assist you. This number will also be provided if you call the regular Customer Service line.

**For Technical Service please call (315) 478-2323 or visit our website at:
<http://www.chemtradelogistics.com>**

Corporate/Sales Office

Chemtrade Chemicals US, LLC
90 East Halsey Road
Parsippany, NJ 07054

Justin Bain, Pricing Mgr.

Phone: (973) 515-1846

Email:

Jbain@chemtradelogistics.com

Shawn Hire, Senior Account Mgr.

Mobile: (816) 518-2877

Email:

Shire@chemtradelogistics.com

For Bid/Contract Information:

Elizabeth Ryno

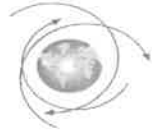
Phone: (800) 441-2659

Direct: (973) 515-1858

Fax: 973-515-4461

Bryno@chemtradelogistics.com

bids@chemtradelogistics.com



CHEMTRADE

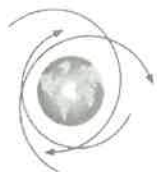
Water Chemicals Group

90 East Halsey Road
Parsippany, NJ 07054
Tel: 800-441-2659
Fax: 973-515-4461
www.ChemtradeLogistics.com

WARRANTY INFORMATION

Chemtrade Chemicals will accept return of material and replace material. Samples will be taken of material and analyzed. Any material that is off-spec as a result of a Chemtrade's production error will be replaced without cost to customer. If product damage is a result of transportation, we will then partner with our carrier to pursue the cause of the problem and develop a resolution in the best interest of the customer.

Water Treatment Group



CHEMTRADE

90 East Halsey Road
Parsippany, NJ 07054
Tel: 1-800-441-2653
Fax: (973) 515-4461
www.chemtradelogistics.com

Product Certification

Chemtrade Chemicals certifies that all grades of Sulfuric Acid as produced by our Richmond, CA manufacturing location meets National Sanitation Foundation Standard 60 standards in every respect.

The Material Safety Data Sheet, NSF Certification and related technical information is attached.

Should you have any questions regarding this product please contact Shawn Hire at the following phone number (816) 518-2877.

A handwritten signature in blue ink that reads "Elizabeth Ryno".

Elizabeth Ryno
Marketing Specialist



**CHEMTRADE ANALYTICAL SERVICES LABORATORY
REPORT OF ANALYSIS**

To: Bashar Alwash, Michael Henry, Paul West
Pearl Zhu

Lab. Log # A23042102

SAMPLES: 93% H2SO4
Tank 2

ORIGIN: Richmond, CA

All analyses are reported as PPM unless stated otherwise

PARAMETER	Concentration	PARAMETER	Concentration
As	<0.10	Strength , % H2SO4, w/w	94.4
Ba	<0.10	Color, PtCo Units	8
Be	<0.10	Sulfur dioxide (SO2)	6
Bi	<0.10	Appearance (% Transmittance at 480 nm)	98.9
Ca	2.61	Nitrates (NO3)	15
Cd	<0.10	Permanganate Oxidizable Matter, mis	<2
Co	<0.03	Chlorides (Cl)	<1
Cr	0.17	Non-volatile Matter (NVM)	<100
Cu	<0.10	Heavy Metals as Lead	<0.10
Fe	2.64	Total Suspended Solids (TSS), mg/L	<100
Hg	<0.05	TSS, Photo No. (1 min - 5 max)	1
Mg	0.85	Ammonium (NH4)	<5
Mn	<0.10	Char test, TPT	PASS
Ni	0.12	Reducing substances as SO2, FCC	PASS
P	<0.10		
Pb	<0.10		
Pt	<0.07		
Re	<0.10		
Sb	<0.10		
Se	<0.03		
Sn	<0.10		
Te	<0.10		
Ti	<0.70		
V	<0.10		
Zn	<0.10		
Na	3		
Si	<1		

NOTES:

Federal Method O-S-801E/F, Standard Method EPA2450D

Analysts
Stephanie Ulman
Andrew Carr

Record
45100.60251
SEQ1080

Report Date
6/30/2023

Chemtrade is not engaged in the business of consulting or providing technical, operational or safety advice for a fee. Any such advice provided herein has been furnished as an accommodation and without charge and is made without any warranty of representation as to its completeness, accuracy, fitness for a particular purpose or any other matter. The recipient's use or non-use of such advice is made solely at the discretion and risk of the recipient.



Sulphuric Acid, 93% PRODUCT DATA SHEET

CHARACTERISTICS

Sulphuric Acid, 93% is a dense, clear-to-slightly turbid, colorless to off-white, corrosive, oily liquid, miscible with water in all proportions with evolution of heat on mixing.

TYPICAL PROPERTIES

Formula:	Aqueous solution of sulphuric acid	
C.A.S.	7664-93-9 (Sulphuric acid)	
	Sulphuric Acid (H ₂ SO ₄), %	93.19
	Specific Gravity @ 16°C (60°F)	1.8354
	Freezing Point (see table)	-29°C (-21°F)
	Normal Boiling Point (see table)	279°C (535°F)
	Density, lbs./gal., US	15.302

PRODUCT USES

Municipal and industrial water and wastewater treatment for pH control. Production of synthetic alcohols. Aluminum, ammonium, and iron salts manufacture. Boric acid and borate manufacture. Catalyst and silica gel manufacture. Production of rayon and cellophane. Production of S-type rubber. Chlorine manufacture by drying chlorine gas. Chromium chemical manufacture. Dye and intermediate manufacture. Fertilizer and detergent manufacture through production of phosphoric acid and superphosphate. Leaching metal out of ore. Hydrochloric and hydrofluoric acid manufacture. Pickling iron, steel and other metals. Petroleum refining via alkylation. Production of titanium dioxide pigment. Generation of chlorine dioxide. Production of tall oil. Storage battery manufacture as electrolyte additive.

SHIPPING CONTAINERS

Bulk transport

Bulk car

SHIPPING REGULATIONS (US DOT / TDG)

Classification: DOT: Sulfuric Acid with More Than 51% Acid; TDG: Sulphuric Acid with More Than 51% Acid
Hazard Class: 8 ID Number: UN 1830 Packing Group: II
RQ: The EPA reportable quantity (RQ) for sulfuric acid is 1000 lbs.

PRODUCT SAFETY INFORMATION

Causes severe skin burns and eye damage. Causes serious eye damage. Fatal if inhaled. May cause cancer. Do not breathe fume, mist, vapors, or spray. Wash hands and forearms thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear eye protection, face protection, protective gloves, and protective clothing. Wear respiratory protection. Anyone procuring, using or disposing of these products or their containers must be familiar with the appropriate safety and handling precautions. Such information may be found in the **Safety Data Sheets (SDS)** for these products or you may contact Chemtrade at 416-496-5856. In the event of an emergency with these products, call the 24 hour **Emergency Number: USA (CHEMTREC) 800-424-9300 or Canada (CANUTEC) 613-996-6666.**

For additional information contact:

Merchant Sulphuric Acid Contacts:

North America: acid@chemtradelogistics.com

Chile: chile@chemtradelogistics.com

CHE-1010P-4

Revision Date: September 28, 2017

All information, statements, data, advice and/or recommendations, including, without limitation, those relating to storage, loading/unloading, piping and transportation (collectively referred to herein as "information") are believed to be accurate and reliable. However, no representation or warranty, express or implied, is made as to its completeness, accuracy, fitness for a particular purpose or any other matter, including, without limitation, that the practice or application of any such information is free of patent infringement or other intellectual property misappropriation. Chemtrade Logistics Inc. and its affiliates (collectively, "Chemtrade") are not engaged in the business of providing technical, operational, engineering or safety information for a fee, and, therefore, any such information provided herein has been furnished as an accommodation and without charge. All information provided herein is intended for use by persons having requisite knowledge, skill and experience in the chemical industry. Chemtrade shall not be responsible or liable for the use, application or implementation of the information provided herein, and all such information is to be used at the risk, and in the sole judgment and discretion, of such persons, their employees, advisors and agents.



Sulfuric Acid, $\geq 93\%$

Safety Data Sheet

Safety Data Sheet #: CHE-1011S

Revision Date: May 1, 2023

Version: 1.0

1. Identification

Product identifier

Product Identity

Sulfuric Acid $\geq 93\%$

Other means of identification

Sulfuric Acid, $\geq 93\%$

Product Form

Mixture

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

Municipal and industrial water and wastewater treatment for pH control. Production of synthetic alcohols. Aluminum, ammonium, and iron salts manufacture. Boric acid and borate manufacture. Catalyst and silica gel manufacture. Production of rayon and cellophane. Production of S-type rubber. Chlorine manufacture by drying chlorine gas. Chromium chemical manufacture. Dye and intermediate manufacture. Fertilizer and detergent manufacture through production of phosphoric acid and superphosphate. Leaching metal out of ore. Hydrochloric and hydrofluoric acid manufacture. Pickling iron, steel and other metals. Petroleum refining via alkylation. Production of titanium dioxide pigment. Generation of chlorine dioxide. Production of tall oil. Storage battery manufacture as electrolyte additive.

Restrictions on use:

Not available.

Details of the supplier of the safety data sheet

Company Name

Chemtrade Logistics Inc. (Canada)
155 Gordon Baker Road Suite 300
Toronto, Ontario M2H 3N5

Chemtrade Logistics Inc. (US)
90 East Halsey Road, Suite 200
Parsippany, NJ 07054

Emergency

24 hour Emergency Telephone No.

Chemtrade Emergency Contact: (866) 416-4404
(Toronto)
CHEMTREC +1-800-424-9300
For Chemical Emergency, Spill, Leak, Fire, Exposure,
or Accident, call CHEMTREC – Day or Night

Customer Service: Chemtrade Logistics Inc. (Canada) For SDS Info: (416) 496-5856
www.chemtradelogistics.com

2. Hazard(s) identification

Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

Classification of the substance or mixture

Metal corrosion; H290

May be corrosive to metals.

Skin corrosion/irritation category 1A; H314

Causes severe skin burns and eye damage.

Serious eye damage / eye irritation, category 1;
H318

Causes serious eye damage.

Label elements

Danger

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

[Prevention]:

P234 Keep only in original container.

P260 Do not breathe dust, fume, mist, vapours or spray.

P264 Wash thoroughly after handling.

P273 Avoid release to the environment.

P280 Wear protective gloves, eye protection, face protection.

[Response]:

P301+330+331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+361+353 IF ON SKIN (or hair): Remove, take off immediately all contaminated clothing. Rinse skin with water, shower.

P304+340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER, doctor or physician.

P331 Do NOT induce vomiting.

P363 Wash contaminated clothing before reuse.

P390 Absorb spillage to prevent material damage.

[Storage]:

P405 Store locked up.

P406 Store in a corrosive resistant, container with a resistant inner liner.

[Disposal]:

P501 Dispose of contents or container in accordance with local and national regulations.

2.3. Other hazards

This product contains no PBT/vPvB chemicals.

This product contains no endocrine disrupting chemicals.

3. Composition/information on ingredients

This product contains the following substances that present a hazard within the meaning of the Hazardous Products Regulations.

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
Sulfuric acid CAS Number: 0007664-93-9 Synonyms: Sulfuric acid (acid aerosols including mists, vapours, gas, fog, and other airborne forms of any particle size), Sulphuric acid	≥ 93%	Skin corrosion/irritation category 1A;H314: C ≥ 15 % Skin corrosion/irritation category 2;H315: 5 % ≤ C < 15 % Serious eye damage / eye irritation, category 2;H319: 5 % ≤ C < 15 % Metal corrosion;H290 Serious eye damage / eye irritation, category 1;H318	No data available

The actual concentration or concentration range is withheld as a trade secret.

*PBT/vPvB - PBT-substance or vPvB-substance.

The full texts of the phrases are shown in Section 16.

The specific chemical identity and/or exact percentage of composition are withheld as a trade secret within the meaning of the OSHA Hazard Communication Standard [29 CFR 1910.1200].

Section 4. First aid measures

Description of first aid measures

General	In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.
Inhalation	Remove to fresh air, keep patient warm and at rest. If unconscious, place in the recovery position and obtain immediate medical attention. Give nothing by mouth.
Eyes	Irrigate copiously with clean water for at least 30 minutes, holding the eyelids apart and seek medical attention. Remove contact lenses, if present and easy to do. Continue rinsing.
Skin	Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser. Drench affected area with water for at least 30 minutes. Obtain medical attention if irritation develops or persists.
Ingestion	If swallowed, rinse mouth. Obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

Most important symptoms and effects, both acute and delayed

Overview	Contact with skin causes severe skin burns and eye damage. Causes serious eye damage. Corrosive to the respiratory track.
Acute Health Effects:	The substance causes serious eyes damage, severe burns, and is corrosive to the respiratory tract. Eye, skin, and lung burning may be caused with exposure to mist. EYE: Contact causes serious eye damage. Causes permanent damage to the cornea, iris, or conjunctiva with redness, pain, swelling, blurred vision, and severe burns (Immediate). No delayed effects from eye contact are expected. No chronic effects from eye contact are known. SKIN: Causes severe irritation which, will progress to chemical burns. Symptoms may include redness, pain, serious skin burns, and blisters. (Immediate). No delayed effects from skin contact are expected. No chronic effects from skin contact are known. INHALATION: May be corrosive to the respiratory tract. Prolonged exposure may cause irritation of the upper respiratory passages. (Immediate). May cause delayed pulmonary edema. No chronic effects from inhalation are known. INGESTION: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract (Immediate). No delayed symptoms from ingestion are expected. No chronic effects from ingestion are known. Target Organ Statement: Contains material which may cause damage to the gastrointestinal tract and respiratory tract. Indication of Any Immediate Medical Attention and Special Treatment Needed: If exposed or concerned, get medical advice and attention. See section 2 for further details.
Eyes	Causes serious eye damage.
Skin	Causes severe skin burns and eye damage.
Chronic effects	Chronic Symptoms: Strong inorganic acid mists containing sulfuric acid are carcinogenic to humans. Prolonged inhalation of fumes or mists may cause erosion of the teeth.

Section 5. Fire-fighting measures

Extinguishing media

Suitable Extinguishing Media: Use an extinguishing agent suitable for the surrounding fire. Dry chemical, foam, carbon dioxide.

Unsuitable Extinguishing Media: Do not use water. Do not get water inside containers. Do not apply water stream directly at source of leak.

Special hazards arising from the substance or mixture

Hazardous decomposition: Thermal decomposition generates corrosive vapours.

Keep only in original container.

Do not breathe dust, fume, mist, vapours or spray.

Advice for fire-fighters

As with all fires, wear positive pressure, self-contained breathing apparatus, (SCBA) with a full-face piece and protective clothing. Persons without respiratory protection should leave area. Wear SCBA during clean up immediately after fire. No smoking.

Fire Hazard: Product is not flammable.

Explosion Hazard: Product is not explosive.

Reactivity: May be corrosive to metals. Contact with metals may evolve flammable hydrogen gas. May react exothermically with water releasing heat. Adding an acid to a base or base to an acid may cause a violent reaction. This product may act as an oxidizer.

Firefighting Instructions: Do not enter fire area without proper protective equipment, including respiratory protection. Use water spray or fog for cooling exposed containers.

Exercise caution when fighting any chemical fire. Under fire conditions, hazardous fumes will be present. Hazardous reactions will not occur under normal conditions.

Hazardous Combustion Products: Corrosive vapours. Toxic fumes may be released.

Other Information: Do not allow run-off from firefighting to enter drains or water ways.

ERG Guide No. 137

Section 6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

General Measures: Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk-through spilled material. Avoid contact with eyes, skin and clothing. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. See Section 8.

Use good personal hygiene practices. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Promptly remove soiled clothing and wash thoroughly before reuse.

Use only outdoors or in a well-ventilated area. Do not breathe mist, spray, and vapours.

Do not get in eyes, on skin, or on clothing. Use appropriate personal protection equipment (PPE). Wear protective gloves, eye protection, face protection (refer to section 8 for more details).

Environmental precautions

Prevent entry to sewers and public waters. Avoid release to environment.

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

Methods and material for containment and cleaning up

Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

Ventilate area.

Methods for Clean up: Clean up spills immediately and dispose of waste safely. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. As an immediate precautionary measure, isolate spill or leak area in all directions. Ventilate area.

Equip cleanup crew with proper protection.

Section 7. Handling and storage

Precautions for safe handling

Handle containers carefully to prevent damage and spillage.

Store locked up.

Do not add water to contents while in container because of violent reaction. Always add slowly and in small amounts. Never use hot water. Never add water to acids-always add acids to water.

See section 2 for further details. - [Prevention]:

Conditions for safe storage, including any incompatibilities

Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from extremely high or low temperatures and incompatible materials. Store in original container or corrosive resistant container with an acid-resistant liner.

Comply with applicable regulations.

Incompatible materials: Combustible materials. Reducing agents. Strong oxidizers. Strong bases. Metals. Water.

Use good personal hygiene practices. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Promptly remove soiled clothing and wash thoroughly before reuse.

Use only outdoors or in a well-ventilated area. Do not breathe mist, spray, and vapours.

Do not get in eyes, on skin, or on clothing. Use appropriate personal protection equipment (PPE). Wear protective gloves, eye protection, face protection (refer to section 8 for more details).

See section 2 for further details. - [Storage]:

Specific end use(s)

Municipal and industrial water and wastewater treatment for pH control. Production of synthetic alcohols. Aluminum, ammonium, and iron salts manufacture. Boric acid and borate manufacture. Catalyst and silica gel manufacture. Production of rayon and cellophane. Production of S-type rubber. Chlorine manufacture by drying chlorine gas. Chromium chemical manufacture. Dye and intermediate manufacture. Fertilizer and detergent manufacture through production of phosphoric acid and superphosphate. Leaching metal out of ore. Hydrochloric and hydrofluoric acid manufacture. Pickling iron, steel and other metals. Petroleum refining via alkylation. Production of titanium dioxide pigment. Generation of chlorine dioxide. Production of tall oil. Storage battery manufacture as electrolyte additive.

Restrictions on use:

Not available.

Section 8. Exposure controls / personal protection

Control parameters

Exposure

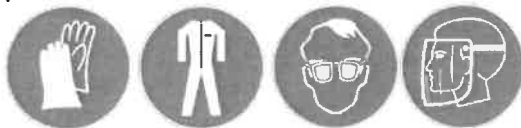
CAS No.	Ingredient	Source	Value
0007664-93-9	Sulfuric acid	ACGIH	TWA: 0.2 mg/m ³
		OSHA	TWA 1 mg/m ³
		NIOSH	TWA 1 mg/m ³
		Alberta	1 mg/m ³ TWA 3 mg/m ³ STEL

	British Columbia	0.2 mg/m ³ TWA (contained in strong inorganic acid mists, thoracic)
	Manitoba	0.2 mg/m ³ TWA (thoracic particulate matter)
	New Brunswick	1 mg/m ³ TWA 3 mg/m ³ STEL
	Newfoundland and Labrador	0.2 mg/m ³ TWA (thoracic particulate matter)
	Nova Scotia	0.2 mg/m ³ TWA (thoracic particulate matter)
	Northwest Territories	0.2 mg/m ³ TWA (thoracic fraction, strong acid mists only) 0.6 mg/m ³ STEL (thoracic fraction, strong acid mists only)
	Nunavut	0.2 mg/m ³ TWA (thoracic fraction) 0.6 mg/m ³ STEL (thoracic fraction)
	Ontario	0.2 mg/m ³ TWA (thoracic)
	Prince Edward Island	0.2 mg/m ³ TWA (thoracic particulate matter)
	Quebec	1 mg/m ³ TWA _{EV} 3 mg/m ³ STEV
	Saskatchewan	0.2 mg/m ³ TWA (thoracic fraction) 0.6 mg/m ³ STEL (thoracic fraction)
	Yukon	1 mg/m ³ TWA 1 mg/m ³ STEL

Exposure controls

Respiratory

If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.



Eyes

Wear chemical safety goggles and face shield. **Where higher splash potential exists** (e.g., loading, unloading, line breaking, sampling of sulfuric acid), wear goggles and face shield with side and chin protection: chemical and impact resistant.

Skin

Wear chemical resistant gloves: Poly vinyl chloride (PVC), nitrile, viton™ (a trademark of the Chemours company), butyl or butyl rubber. Wear chemical resistant clothing. **Where higher splash potential exists** (e.g., loading, unloading, line breaking, sampling of sulfuric acid), wear hardhat and chemical splash shroud, chemical resistant jacket and pants or bib overalls: PVC, neoprene, PVC coated polyester, or CPC Polyester Trilaminate Gore®. Follow all posted PPE requirements.

Engineering Controls

Exposure Controls Appropriate Engineering Controls: Emergency eyewash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Other Work Practices

Put on appropriate personal protective equipment. Chemically compatible gloves (e.g., PVC, nitrile, Viton™ (a trademark of the Chemours company), butyl or butyl rubber), Chemical resistant clothing (e.g., PVC, neoprene, PVC coated polyester, or CPC Polyester Trilaminate Gore®), and chemical resistant safety goggles and face shield. Where there is insufficient ventilation: wear respiratory protection. **WHERE HIGHER SPASH POTENTIAL EXISTS** (e.g., loading, unloading, line breaking, sampling of sulfuric acid), wear hard hat and chemical splash shroud, chemical

resistant jacket and pants or bib overalls: PVC, neoprene, PVC coated polyester, or CPC Polyester Trilaminate Gore®. Follow all posted PPE requirements **AND** wear goggles and face shield with side and chin protection: chemical and impact resistant. Use good personal hygiene practices. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Promptly remove soiled clothing and wash thoroughly before reuse. Use only outdoors or in a well-ventilated area. Do not breathe mist, spray, and vapours.

Do not get in eyes, on skin, or on clothing. Use appropriate personal protection equipment (PPE). Wear protective gloves, eye protection, face protection (refer to section 8 for more details).

See section 2 for further details.

Section 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State	Liquid
Color	Clear, Colorless to Amber, Oily
Odor	Odourless
Freezing point	-27 C (16.6 F) @ 93%
Initial boiling point and boiling range	279 °C (535 °F)
Flammability (solid, gas)	Not applicable
Upper/lower flammability or explosive limits	Lower Explosive Limit: No available information Upper Explosive Limit: No available information
Flash Point	Not flammable
Auto-ignition temperature	No available information
Decomposition temperature	No available information
pH	0
Viscosity (cSt)	No available information
Solubility in Water	Completely Soluble in water.
Partition coefficient n-octanol/water (Log Kow)	No available information
Vapour pressure (Pa)	0.00027 - 0.16 kPa at 25 °C (77 °F)
Relative Density	3.4 (air = 1)
Vapour Density	No available information
Evaporation rate (Ether = 1)	No available information
Specific Gravity	1.8347 @ 93%
Density (pounds/gallon)	15.302
Other information	
No other relevant information.	

Section 10. Stability and reactivity

Reactivity

May be corrosive to metals. Contact with metals may evolve flammable hydrogen gas. May react exothermically with water releasing heat. Adding an acid to a base or base to an acid may cause a violent reaction. This product may act as an oxidizer.

Chemical stability

Stable under recommended handling and storage conditions (see section 7).

Possibility of hazardous reactions

Hazardous polymerization will not occur.

Conditions to avoid

Extremely high or low temperatures, ignition sources, combustible materials, incompatible materials.

Incompatible materials

Combustible materials. Reducing agents. Strong oxidizers. Strong bases. Metals. Water.

Hazardous decomposition products

Thermal decomposition generates: corrosive vapours.

Section 11. Toxicological information

Acute toxicity

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation vapour LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Product Acute Toxicity Estimates	2301	NA	NA	NA	NA

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation vapour LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
Sulfuric acid - (7664-93-9)	2,140.00, Rat - Category: 5	No data available	510.00, Rat - Category: NA	No data available	No data available

Carcinogen Data

CAS No.	Ingredient	Source	Value
0007664-93-9	Sulfuric acid	IARC	Group 1: Yes; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;
		ACGIH	A2 (in strong inorganic acid mists)

Classification	Category	Hazard Description
Acute toxicity (oral)	---	Not Applicable
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	1A	Causes severe skin burns and eye damage.
Serious eye damage/irritation	1	Causes serious eye damage.
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable

Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

Possible routes of entry:

Symptoms and effects, both acute and delayed:

Contact with skin causes severe skin burns and eye damage. Causes serious eye damage. Corrosive to the respiratory track.

Acute Health Effects: The substance causes serious eyes damage, severe burns, and is corrosive to the respiratory tract. Eye, skin, and lung burning may be caused with exposure to mist.

EYE: Contact causes serious eye damage. Causes permanent damage to the cornea, iris, or conjunctiva with redness, pain, swelling, blurred vision, and severe burns (Immediate). No delayed effects from eye contact are expected. No chronic effects from eye contact are known.

SKIN: Causes severe irritation which, will progress to chemical burns. Symptoms may include redness, pain, serious skin burns, and blisters. (Immediate). No delayed effects from skin contact are expected. No chronic effects from skin contact are known.

INHALATION: May be corrosive to the respiratory tract. Prolonged exposure may cause irritation of the upper respiratory passages. (Immediate). May cause delayed pulmonary edema. No chronic effects from inhalation are known.

INGESTION: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract (Immediate). No delayed symptoms from ingestion are expected. No chronic effects from ingestion are known.

Target Organ Statement: Contains material which may cause damage to the gastrointestinal tract and respiratory tract.

Indication of Any Immediate Medical Attention and Special Treatment Needed: If exposed or concerned, get medical advice and attention.

Most likely route(s) of exposure Skin, Eyes

Eyes Causes serious eye damage.

Skin Causes severe skin burns and eye damage.

Chronic effects **Chronic Symptoms:** Strong inorganic acid mists containing sulfuric acid are carcinogenic to humans. Prolonged inhalation of fumes or mists may cause erosion of the teeth.

Section 12. Ecological information

Toxicity

No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/l	48 hr EC50 crustacea, mg/l	ErC50 algae, mg/l
Sulfuric acid - (7664-93-9)	27.00, Lepomis macrochirus	101.00, Daphnia magna	101.00 (72 hr), Desmodesmus subspicatus

Persistence and degradability

There is no data available on the preparation itself.

Bioaccumulative potential

No available information

Mobility in soil

No available information

Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

Other adverse effects

No available information

Section 13. Disposal considerations

Waste treatment methods

Dispose of waste material in accordance with all local, regional, federal, provincial, state, territorial and international regulations.

Ecology - Waste Materials: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.

Section 14. Transport information



Classification Method: Classified as per Part 2, Sections 2.1 - 2.8 of the Transportation of Dangerous Goods Regulations.

	DOT / TDG (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
UN number	UN1830	UN1830	UN1830
UN proper shipping name	UN1830,Sulfuric acid with more than 51 percent acid,8,II	Sulfuric acid with more than 51 percent acid	Sulfuric acid with more than 51 percent acid
Transport hazard class(es)	TDG Hazard Class: 8 Sub Class: Not Applicable	IMDG: 8 Sub Class: Not Applicable	Air Class: 8 Sub Class: Not Applicable
Packing group	II	II	II

Environmental hazards

Marine Pollutant: No;

Special precautions for user

No available information

Section 15. Regulatory information

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

NFPA Ranking

Health (blue) :3

Fire (red) :0

Reactivity (yellow) :2

Special (white) :ACID



Note: Strong inorganic acid mists containing sulfuric acid are listed on the California Proposition 65 Carcinogen List. [Sulfuric acid, in and of itself, is not listed under Proposition 65. However, if one has sulfuric acid, which through its intended use generates an acid mist that in turn contains sulfuric acid that would meet the listing. The term "strong" does not refer to the concentration of the acid, but rather the strength of the acid mist. The basis for the listing of strong inorganic acid mists containing sulfuric acid was the formal identification by the National Toxicology Program (NTP), in its Ninth Report on Carcinogens, that this chemical mixture is "known to be a human carcinogen." (Public notice available at http://www.oehha.ca.gov/prop65/CRNR_notices/admin_listing/intent_to_list/noil19b4.html.)]

This product has been classified in accordance with the hazard criteria Hazardous Products Regulations (SOR/2015-17) and the SDS contains all of the information required by those regulations.

Toxic Substance Control Act (TSCA):

Sulfuric acid (Present)

Water ()

EPCRA 311/312 Chemicals and RQs (lbs):

Sulfuric acid (1,000.00)

Canadian Domestic Substance List (DSL):

Sulfuric acid

Water

Canadian Non-Domestic Substance List (NDSL):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

New Jersey RTK Substances (>1%):

Sulfuric acid

Pennsylvania RTK Substances (>1%):

Sulfuric acid

Proposition 65 - Carcinogens (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

The specific CAS# 0007664-93-9 is not listed on the most current California Proposition 65 list. However, strong inorganic acid mists containing sulfuric acid are listed on the California Proposition 65 Carcinogen List. [Sulfuric acid, in and of itself, is not listed under Proposition 65. However, if one has sulfuric acid, which through its intended use generates an acid mist that in

turn contains sulfuric acid that would meet the listing. The term "strong" does not refer to the concentration of the acid, but rather the strength of the acid mist. The basis for the listing of strong inorganic acid mists containing sulfuric acid was the formal identification by the National Toxicology Program (NTP), in its Ninth Report on Carcinogens, that this chemical mixture is "known to be a human carcinogen." (Public notice available at http://www.oehha.ca.gov/prop65/CRNR_notices/admin_listing/intent_to_list/noil19b4.html.) This product has been classified in accordance with the hazard criteria Hazardous Products Regulations (SOR/2015-17) and the SDS contains all of the information required by those regulations

Proposition 65 - Developmental Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 Label Warning:

This product contains no chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

The specific CAS# 0007664-93-9 is not listed on the most current California Proposition 65 list. However, strong inorganic acid mists containing sulfuric acid are listed on the California Proposition 65 Carcinogen List. [Sulfuric acid, in and of itself, is not listed under Proposition 65. However, if one has sulfuric acid, which through its intended use generates an acid mist that in turn contains sulfuric acid that would meet the listing. The term "strong" does not refer to the concentration of the acid, but rather the strength of the acid mist. The basis for the listing of strong inorganic acid mists containing sulfuric acid was the formal identification by the National Toxicology Program (NTP), in its Ninth Report on Carcinogens, that this chemical mixture is "known to be a human carcinogen." (Public notice available at http://www.oehha.ca.gov/prop65/CRNR_notices/admin_listing/intent_to_list/noil19b4.html.) This product has been classified in accordance with the hazard criteria Hazardous Products Regulations (SOR/2015-17) and the SDS contains all of the information required by those regulations

Chemical Name (CAS Number)	US TSCA	Australia AICS	Korea ECL	EU EINECS	EU ELINCS	EU SVHC	EN NLP	Mexico INSQ
Sulfuric acid (0007664-93-9)	Yes	Yes	Yes	Yes	No	No	No	Yes

Chemical Name (CAS Number)	China IECSC	Japan ENCS	Japan ISHL	Japan PDSCL	Japan PRTR 1	Japan PRTR 2	Philippines PICCS	New Zealand NZIOC

Sulfuric acid (0007664-93-9)	Yes	Yes	Yes	Yes	No	No	Yes	Yes
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Section 16. Other information

Revision Date 05/01/2023

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H319 Causes serious eye irritation.

Disclaimer: The information presented herein is supplied as a guide to those who handle or use this product. Safe work practices must be employed when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.

Handle product with due care and avoid unnecessary contact. This information is supplied under U.S. OSHA'S "Right to Know" (29 CFR 1910.1200) and Canada's WHMIS regulations. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist. The information contained herein is based on data available to us and is believed to be true and accurate but it is not offered as a product specification. No warranty, expressed or implied, regarding the accuracy of this data, the hazards connected with the use of the product, or the results to be obtained from the use thereof, is made and Chemtrade and its affiliates assume no responsibility. Chemtrade is a member of the CIAC (Chemistry Industry Association of Canada) and adheres to the codes and principles of Responsible Care™.





The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Monday, February 19, 2024** at 12:15 a.m. Eastern Time. Please contact NSF to confirm the status of any Listing, report errors, or make suggestions.

Alert: NSF is concerned about fraudulent downloading and manipulation of website text. Always confirm this information by clicking on the below link for the most accurate information:

<http://info.nsf.org/Certified/PwsChemicals/Listings.asp?>

[Company Name=Chemtrade&Trade Name=SULFURIC&Plant State=California+CA&Plant Country=UNITED+STATES&](http://info.nsf.org/Certified/PwsChemicals/Listings.asp?CompanyName=Chemtrade&TradeName=SULFURIC&PlantState=California+CA&PlantCountry=UNITED+STATES&)

NSF/ANSI/CAN 60 Drinking Water Treatment Chemicals - Health Effects

Chemtrade Solutions LLC (formerly General Chemical LLC)

155 Gordon Baker Road

Suite 300

Toronto, ON M2H 3N5

Canada

1-866-887-8805

416-496-5856

Visit this company's website

(<http://www.chemtradelogistics.com>)

Facility : Richmond, CA

Sulfuric Acid

Trade Designation

Sulfuric Acid (All Grades)

Product Function

Corrosion & Scale Control
pH Adjustment

Max Use

50mg/L

Number of matching Manufacturers is 1

Number of matching Products is 1

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