

SAFETY DATA SHEET

1. Identification

Product identifier **SULFURIC ACID**

Other means of identification

CAS number 7664-93-9

Recommended use General purpose solvent.

Recommended restrictions Use in accordance with manufacturer's recommendations.

Manufacturer/Importer/Supplier/Distributor information

Company Name Greenfield Global USA Inc. (The technical data referenced below applies to products sold by Greenfield Global Inc., under the names Greenfield Global, Pharmco, and Commercial Alcohols.)

Address 58 Vale Road
Brookfield, CT 06804
USA

Telephone 203.740.3471

Fax 203.740.3481

Company Name Greenfield Global USA Inc.

Address 1101 Isaac Shelby Drive
Shelbyville, KY 40065
USA

Telephone 502.232.7600

Emergency phone number

USA CHEMTREC: +1.800.424.9300 (CCN 17213)

International CHEMTREC: +1.703.527.3887 (CCN 17213)

2. Hazard(s) identification

Hazards for the product as sold

Physical hazards Corrosive to metals Category 1

Hazards for the product as sold

Health hazards Skin corrosion/irritation Category 1A
Serious eye damage/eye irritation Category 1
Specific target organ toxicity, single exposure Category 3 respiratory tract irritation

Hazards for the product as sold

Environmental hazards Hazardous to the aquatic environment, acute hazard Category 3
Hazardous to the aquatic environment, long-term hazard Category 3

Hazards for the product as sold

OSHA defined hazards Not classified.

Label elements



Signal word Danger

Hazard statement	May be corrosive to metals. Causes severe skin burns and eye damage. May cause respiratory irritation. Harmful to aquatic life with long lasting effects.
Precautionary statement	
Prevention	Keep only in original packaging. Do not breathe dust or mists. Avoid breathing mist/vapors. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling.
Response	If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. Wash contaminated clothing before reuse. 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/doctor. Absorb spillage to prevent material-damage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in a corrosion 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 additional hazards are known to be associated with the expected conditions of use at the time of publication. This document does not address hazards that may arise from uses not reasonably anticipated by the manufacturer.
Supplemental information	None.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Sulfuric acid		7664-93-9	100

Composition comments All concentrations are in percent by weight.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. Call a poison center or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.
General information	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Foam. Powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Water runoff can cause environmental damage.

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

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up The product is completely soluble in water. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Should not be released into the environment.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. 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. Following product recovery, flush area with water.

Small Spills: Absorb spillage with suitable absorbent material. Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Do not get in eyes, on skin, or on clothing. Avoid breathing mist/vapors. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Store locked up. Store in a cool, dry place out of direct sunlight. Store in corrosive resistant container with a resistant inner liner. Store in tightly closed container. Keep only in the original container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Permissible Exposure Limits (PEL) for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
Sulfuric acid (CAS 7664-93-9)	PEL	1 mg/m3

US. ACGIH Threshold Limit Values (TLV)

Material	Type	Value	Form
Sulfuric acid (CAS 7664-93-9)	TWA	0.2 mg/m3	Thoracic fraction.

NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended

Material	Type	Value
Sulfuric acid (CAS 7664-93-9)	IDLH	15 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
Sulfuric acid (CAS 7664-93-9)	TWA	1 mg/m3

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

Appropriate engineering controls Good general ventilation 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 when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection	Chemical goggles and face shield are recommended.
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.
Skin protection	
Other	Wear appropriate chemical resistant clothing.
Respiratory protection	In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA 29 CFR 1910.134. Appropriate respirator selection should be made by a qualified professional.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Physical state	Liquid.
Form	Oily liquid.
Color	Clear. Colorless.
Odor	Pungent.
Melting point/freezing point	-31 - 50 °F (-35 - 10 °C)
Boiling point or initial boiling point and boiling range	249.8 - 518 °F (121 - 270 °C)
Flammability	Not determined.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Flash point	Not available.
Auto-ignition temperature	Property has not been measured.
Decomposition temperature	Not available.
pH	< 1
Kinematic viscosity	Not available.
Solubility	
Solubility (water)	100 % Completely soluble
Partition coefficient (n-octanol/water)	Not available.
Vapor pressure	< 1 mmHg
Density and/or relative density	
Density	12.3 - 15.3 lb/gal
Relative density	Not available.
Vapor density	3.4
Particle characteristics	Not available.
Other information	
Dynamic viscosity	6.8 - 23 cP
Dynamic viscosity temp	68 °F (20 °C)
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

10. Stability and reactivity

Reactivity	Reacts violently with strong alkaline substances. This product may react with reducing agents. May be corrosive to metals.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Bases. Strong oxidizing agents. Reducing agents. Metals.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns.

Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.
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Information on toxicological effects

Acute toxicity	Not known.
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Product	Species	Test Results
Sulfuric acid (CAS 7664-93-9)		
<u>Acute</u>		
Oral		
LD50	Rat	2140 mg/kg

Skin corrosion/irritation	Causes severe skin burns and eye damage.
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Serious eye damage/eye irritation	Causes serious eye damage.
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Respiratory or skin sensitization

Respiratory sensitization	Not a respiratory sensitizer.
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Skin sensitization	This product is not expected to cause skin sensitization.
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Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
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Carcinogenicity	Risk of cancer cannot be excluded with prolonged exposure.
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IARC Monographs. Overall Evaluation of Carcinogenicity

Sulfuric acid (CAS 7664-93-9)	1 Carcinogenic to humans.
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NTP Report on Carcinogens

Sulfuric acid (CAS 7664-93-9)	Known To Be Human Carcinogen.
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OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
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Specific target organ toxicity - single exposure	May cause respiratory irritation.
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Specific target organ toxicity - repeated exposure	Not classified.
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Aspiration hazard	Not an aspiration hazard.
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Chronic effects	Prolonged inhalation may be harmful.
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12. Ecological information

Ecotoxicity Harmful to aquatic life with long lasting effects. Because of the low pH of this product, it would be expected to produce significant ecotoxicity upon exposure to aquatic organisms and aquatic systems.

Product		Species	Test Results
Sulfuric acid (CAS 7664-93-9)			
Aquatic			
Acute			
Crustacea	EC50	Daphnia magna	29 mg/l, 24 Hours
Fish	LC50	Lepomis macrochirus	> 16 - < 28 mg/l, 96 Hours
Chronic			
Crustacea	NOEC	Invertebrates (Invertebrates)	0.15 mg/l
Fish	NOEC	Brook trout (Salvelinus fontinalis)	0.13 mg/l

Persistence and degradability No data is available on the degradability of this substance.

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects No data available.

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. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D002: Waste Corrosive material [pH ≤2 or ≥12.5, or corrosive to steel]
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.

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN1830
UN proper shipping name	Sulfuric acid
Transport hazard class(es)	
Class	8
Subsidiary hazard	-
Label(s)	8
Packing group	II
Environmental hazards	
Marine pollutant	No
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	A3, A7, B3, B83, B84, IB2, N34, T8, TP2
Packaging exceptions	154
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1830
UN proper shipping name	Sulphuric acid
Transport hazard class(es)	
Class	8
Subsidiary hazard	-

Packing group II
Environmental hazards No
ERG Code 8L
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN1830
UN proper shipping name SULPHURIC ACID
Transport hazard class(es)
Class 8
Subsidiary hazard -
Packing group II
Environmental hazards
Marine pollutant No
EmS F-A, S-B
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Not established.

IMO instruments

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Toxic Substances Control Act (TSCA) This substance is on the TSCA 8(b) inventory and is designated "active".

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sulfuric acid (CAS 7664-93-9)

SARA 304 Emergency release notification

Sulfuric acid (CAS 7664-93-9) 1000 LBS

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
Sulfuric acid	7664-93-9	1000	1000		

SARA 311/312 Hazardous chemical

Classified hazard categories
 Corrosive to metal
 Skin corrosion or irritation
 Serious eye damage or eye irritation
 Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Sulfuric acid	7664-93-9	100

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Sulfuric acid (CAS 7664-93-9)

Clean Water Act (CWA) Hazardous substance
Section 112(r) (40 CFR 68.130)

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Sulfuric acid (CAS 7664-93-9) 6552

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Sulfuric acid (CAS 7664-93-9) 20 %WV

DEA Exempt Chemical Mixtures Code Number

Sulfuric acid (CAS 7664-93-9) 6552

Food and Drug Administration (FDA) Total food additive
Direct food additive
GRAS food additive

US state regulations

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Sulfuric acid (CAS 7664-93-9)

US. Massachusetts RTK - Substance List

Sulfuric acid (CAS 7664-93-9)

US. New Jersey Worker and Community Right-to-Know Act

Sulfuric acid (CAS 7664-93-9)

US. Pennsylvania Worker and Community Right-to-Know Law

Sulfuric acid (CAS 7664-93-9)

US. Rhode Island RTK

Sulfuric acid (CAS 7664-93-9)

California Proposition 65



WARNING: This product can expose you to Sulfuric acid, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

California Proposition 65 - CRT: Listed date/Carcinogenic substance

Sulfuric acid (CAS 7664-93-9) Listed: March 14, 2003

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	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
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	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 revision

Issue date 18-June-2019
Revision date 28-January-2026
Version # 02

HMIS® ratings

Health: 3

Flammability: 0

Physical hazard: 4

Disclaimer

This product is subject to Greenfield Global USA Inc.'s terms and conditions, which can be found at <http://www.greenfield.com/tc-po-us/>. Greenfield cannot anticipate all conditions under which this information and this product, or the products of other manufacturers in combination with this product, may be used. The user is responsible for the proper and safe use, handling, storage and disposal of the product, and assumes liability for any loss, injury, damage or expense arising from any failure to do so. The data in this sheet is based on information and experience available at the time of writing.