

1. Identification

Product identifier	Sulfuric Acid (77 to 100%)
Other means of identification	
SDS number	150000002271
Recommended use	Raw material. Manufacture of inorganic base chemicals. Catalyst for oil refining industry. Manufacturing of pharmaceutical products. Textile products (incl. nonwoven fabric processing) - Bleaching agents, discharging agents. Paper and board products - Bleaching agents, stabilizers for bleaching bath. Chemical plating of metals.
Recommended restrictions	Not to be used as a biocidal product. Not to be used as a drain cleaner. Not to be used as a direct component of a cleaning product. Not to be used for cleaning sludge out of oil tanks.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company Name	Veolia North America Regeneration Services LLC
Address	131 Continental Dr. Suite 300 Newark, DE 19713 United States of America
Telephone	1-800-441-9362
Website	veolionorthamerica.com/resources/sds
Emergency phone number	CHEMTREC: 1-800-424-9300 (outside the U.S. 1-703-527-3887)

2. Hazard(s) identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Acute toxicity, dermal	Category 4
	Skin corrosion/irritation	Category 1A
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 3
	Hazardous to the aquatic environment, long-term hazard	Category 3
OSHA defined hazards	Not classified.	

Label elements



Signal word	Danger
Hazard statement	May be corrosive to metals. Harmful in contact with skin. 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 container. Do not breathe mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.
Response	If swallowed: Rinse mouth. Do NOT induce vomiting. If inhaled: Remove person to fresh air and keep comfortable for breathing. 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 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 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)	Reacts violently with water.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Sulfuric acid	7664-93-9	77 - 100
Water	7732-18-5	0 - 23

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Flush thoroughly with water for at least 15 minutes. Call a physician or poison control center immediately. Apply compresses of ice water while patient is being transported to medical facilities. 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 warm. 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. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media	The product itself does not burn. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Reaction with water and surrounding materials will generate heat.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed. Combustion products include: Sulfur oxides.
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	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. In the event of fire, cool tanks with water spray. Do not get water inside container.
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. Do not breathe mist or vapor. 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.
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Methods and materials for containment and cleaning up

This product is miscible in water. Should not be released into the environment. Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Remove product with clean and dry vacuum truck or pump to storage/salvage vessel. Following product recovery, flush area with water. Neutralize with lime, soda ash or other alkali material.

Small Spills: Neutralize with lime, soda ash or other alkali material. Flush with plenty of water. Clean surface thoroughly to remove residual contamination.

Retain all contaminated water for removal and treatment. Put material in suitable, covered, labeled containers. 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 breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Wash contaminated clothing before reuse. 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 original tightly closed 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 Limits for Air Contaminants (29 CFR 1910.1000)

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

US. ACGIH Threshold Limit Values

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

US. NIOSH: Pocket Guide to Chemical Hazards

Components	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 (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 when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear chemical splash goggles in combination with a full-length face shield or an acid hood.

Skin protection

Hand protection

Wear appropriate chemical resistant gloves. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Skin protection

Other

Wear appropriate chemical resistant clothing. Full body chemical protective clothing. Chemical resistant gloves. Chemical resistant boots.

Respiratory protection

Wear a NIOSH-approved (or equivalent) respirator as needed.

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

Appearance

Physical state	Liquid.
Form	Liquid.
Color	Colorless to light grey.

Odor Acrid.

Odor threshold Not available.

pH < 1

Melting point/freezing point -31 - 51.8 °F (-35 - 11 °C)

Initial boiling point and boiling range 379.4 - 620.6 °F (193 - 327 °C) (@ 760 mmHg)

Flash point Not available.

Evaporation rate < 1 (Butyl Acetate = 1.0)

Flammability (solid, gas) Not applicable.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure < 0.3 mmHg (77°F/25°C)
< 0.6 mmHg (100 °F/38 °C)

Vapor density 3.4 (Air = 1)

Relative density 1.706 - 1.844

Relative density temperature 60.08 °F (15.6 °C)

Solubility(ies)

Solubility (water) Completely soluble. Reacts violently with water liberating sulfuric acid mist cloud.

Partition coefficient (n-octanol/water) Not available.

Auto-ignition temperature Not available.

Decomposition temperature Not available.

Viscosity Not available.

Other information

Explosive properties Not explosive.

Oxidizing properties Not oxidizing.

10. Stability and reactivity

Reactivity Reacts violently with water. Reacts violently with strong alkaline substances. This product may react with reducing agents.

Chemical stability Material is stable under normal conditions.

Possibility of hazardous reactions Hazardous polymerization does not occur.

Conditions to avoid Excessive heat. Contact with incompatible materials. Do not mix with other chemicals.

Incompatible materials Water. Organic material. Nitrates. Chlorates. Perchlorates. Carbides. Picrates. Cyanides. Sulfides. Bases. Strong oxidizing agents. Reducing agents. Metals.

Hazardous decomposition products Sulfur oxides.

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. Harmful in contact with skin.

Eye contact Causes serious eye damage.

Ingestion Causes digestive tract burns. May be harmful if swallowed.

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.

Information on toxicological effects

Acute toxicity Harmful in contact with skin. May be harmful if swallowed.

Components	Species	Test Results
Sulfuric acid (CAS 7664-93-9)		
Acute		
Dermal		
LD50	Rabbit	2000 mg/kg
Oral		
LD50	Rat	2140 mg/kg

Skin corrosion/irritation Causes severe skin burns.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity The International Agency for Research on Cancer (IARC) has classified "strong inorganic acid mists containing sulfuric acid" as a known human carcinogen, (IARC category 1). This classification applies only to mists containing sulfuric acid and not to sulfuric acid or sulfuric acid solutions.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not regulated.

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

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful.

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.

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

Persistence and degradability The product is not expected to be biodegradable.

Bioaccumulative potential	The product is not expected to bioaccumulate.
Mobility in soil	This product is miscible in water.
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. 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 (see: Disposal instructions).
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 risk	-
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 risk	-
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 risk	-
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 Annex II of MARPOL 73/78 and the IBC Code	Not established. However, this product is a liquid and if transported in bulk covered under MARPOL 73/78, Annex I.

15. Regulatory information

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

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) Listed.

SARA 304 Emergency release notification

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

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not regulated.

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
Acute toxicity (any route of exposure)
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	77 - 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)

Safe Drinking Water Act (SDWA)

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

US state regulations WARNING: This product contains a chemical known to the State of California to cause cancer.

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.

California Proposition 65 - CRT: Listed date/Carcinogenic substance

Sulfuric acid (CAS 7664-93-9)

Listed: March 14, 2003

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

Sulfuric acid (CAS 7664-93-9)

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
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies 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	09-May-2017
Revision date	11-July-2018
Version #	03
NFPA ratings	

**Disclaimer**

Veolia North America Regeneration Services LLC cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.