SAFETY DATA SHEET

1. Identification

CHLOROSULFONIC ACID

Product identifier

130000005147

Other means of identification

SDS number

Recommended use

Sulfonating agent in surfactants, soaps, detergents and shampoo products. Manufacturing of pharmaceutical products. Raw material.

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	Nexpera LLC
Address	131 Continental Dr. Suite 300 Newark, DE 19713 United States of America
Website	Nexpera.com
Telephone	1-800-441-9362

1.4. Emergency telephone 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, inhalation	Category 1
	Skin corrosion/irritation	Category 1A
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation

OSHA defined hazards

Not classified.

Label elements

Signal word

Danger

Hazard statement

May be corrosive to metals. Causes severe skin burns and eye damage. Fatal if inhaled. May cause respiratory irritation.

Precautionary statement

Prevention

Keep only in original container. Do not breathe mist. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection.

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. If inhaled: Remove person to fresh air and keep comfortable for breathing. 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. Specific treatment is urgent (see this label). Wash contaminated clothing before reuse. 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. Reacts with most metals to form flammable hydrogen gas.

Supplemental information Corrosive to the respiratory tract.

3. Composition/information on ingredients

Substances

Chemical name	Common name and synonyms	CAS number	%
Chlorosulfonic acid		7790-94-5	100

Composition comments All concentrations are in percent by weight unless otherwise indicated.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.

Skin contact Take off immediately all contaminated clothing. Wash off with soap and water. 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. Prolonged exposure to mists from strong inorganic acids may cause cancer.

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 Powder. Carbon dioxide (CO_2).

Carefully apply fine water mist or mid-expansion foam to slowly dilute to non fuming sulfuric acid. This process may release sulfuric acid mists into the air. Reaction with water and surrounding materials will generate heat, hydrogen chloride gas, and sulfuric acid mist.

The product itself does not burn. Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media None known.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed. Combustion products may include: hydrogen chloride, sulfuric acid, and sulfur dioxide.

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/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	This product is miscible in water. Should not be released into the environment. Prevent entry into waterways, sewer, basements or confined areas. Large Spills: Dilute spill to non-fuming sulfuric acid (<100%) using a water fog or aqueous foam. Remove product with clean and dry vacuum truck or pump to storage/salvage vessel. Following product recovery, flush area with water. Large spills may be neutralized with dilute alkaline solutions of soda ash, or lime. Small Spills: Neutralize with alkaline material (Lime, crushed limestone, sodium bicarbonate or soda ash). Flush area with 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	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/vapors. Do not get in eyes, on skin, or on clothing. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. 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 a corrosive resistant container. Store in tightly closed container. Keep only in the original container. Store in a well-ventilated place. Never allow product to get in contact with water during storage. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
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	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 boots.
Respiratory protection	Use a NIOSH-approved respirator as appropriate.
Thermal hazards	Not available.
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	Clear to light yellow.
Odor	Not available.
Odor threshold	Not available.
pH	< 1
Melting point/freezing point	-112 °F (-80 °C)
Initial boiling point and boiling range	303.8 °F (151 °C)
Flash point	Does not flash.
Evaporation rate	< 1 (Butyl Acetate = 1.0)

Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not applicable.
Explosive limit - lower (%) temperature	Not applicable.
Explosive limit - upper (%)	Not applicable.
Explosive limit - upper (%) temperature	Not applicable.
Vapor pressure	< 3.8 mmHg at 40 °C (104 °F) < 1 mmHg at 20 °C (68 °F)
Vapor density	4.02 (Air = 1.0)
Relative density	1.75 at 20 °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.
Molecular formula	Cl-H-O3-S
Molecular weight	116.53 g/mol
Oxidizing properties	Not oxidizing.
Surface tension	72.39 mN/m (77 °F (25 °C))

10. Stability and reactivity

Reactivity	Reacts violently with water liberating hydrogen chloride gas and sulfuric acid mist. Reacts violently with strong alkaline substances. Contact with metal may release flammable hydrogen gas. 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	Contact with incompatible materials. Do not mix with other chemicals.
Incompatible materials	Water, moisture. Metals. Organic material. Nitrates. Chlorates. Perchlorates. Carbides. Strong oxidizing agents. Reducing agents. Cyanides. Bases. Sulfides.
Hazardous decomposition products	Sulfur oxides. Sulfuric acid. Hydrochloric acid.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Fatal if inhaled. Corrosive to the respiratory tract. Sulfuric acid is corrosive to eyes, skin and mucous membranes. Prolonged or repeated inhalation may damage respiratory tissue and may erode tooth enamel.
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. Prolonged exposure to mists from strong inorganic acids may cause cancer.

Information on toxicological effects

Acute toxicity	Fatal if inhaled.

Product	Species	Test Results
CHLOROSULFONIC ACID		
Acute		
Dermal		
LD50	Rabbit	2858 mg/kg, 24 Hours
Inhalation		
LC50	Rat	38.5 mg/m3, 4 Hours

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

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

Strong inorganic acid mists containing sulfuric acid (CAS N/A) 1 Carcinogenic to humans.

NTP Report on Carcinogens

Strong inorganic acid mists containing sulfuric acid (CAS N/A) Known To Be Human Carcinogen.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

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 Sulfuric acid is corrosive to eyes, skin and mucous membranes. Prolonged or repeated inhalation may damage respiratory tissue and may erode tooth enamel.

Aspiration hazard Not an aspiration hazard.

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.

Persistence and degradability Not applicable.

Bioaccumulative potential The product is not expected to bioaccumulate.

Mobility in soil The product is miscible with water.

Other adverse effects Chlorosulfonic acid violently reacts with water and readily hydrolyzes to hydrogen chloride and sulfuric acid.

13. Disposal considerations

Disposal instructions Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. Do not allow this material to drain into sewers/water supplies. If discarded, this product is considered a RCRA ignitable waste, D001. 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 UN1754
UN proper shipping name Chlorosulfonic acid (Chlorosulfonic acid RQ = 1000 LBS)
Transport hazard class(es)
Class 8
Subsidiary risk 6.1
Label(s) 8, 6.1
Packing group I
Environmental hazards
Marine pollutant No.
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions 2, B9, B10, B14, B32, T20, TP2, TP38, TP45
Packaging exceptions None
Packaging non bulk 227
Packaging bulk 244

IATA

UN number UN1754
UN proper shipping name FORBIDDEN DANGEROUS GOODS
Transport hazard class(es)
Class 8
Subsidiary risk -
Packing group Not applicable.
Environmental hazards No.
ERG Code 8W
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN1754
UN proper shipping name CHLOROSULPHONIC ACID
Transport hazard class(es)
Class 8
Subsidiary risk -
Packing group I
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.

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)

Chlorosulfonic acid (CAS 7790-94-5) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

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

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

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)
Not regulated.

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)
Not regulated.

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

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

US. Massachusetts RTK - Substance List
Chlorosulfonic acid (CAS 7790-94-5)

US. New Jersey Worker and Community Right-to-Know Act
Chlorosulfonic acid (CAS 7790-94-5)

US. Pennsylvania Worker and Community Right-to-Know Law
Chlorosulfonic acid (CAS 7790-94-5)

US. Rhode Island RTK
Chlorosulfonic acid (CAS 7790-94-5)

California Proposition 65

WARNING: This product can expose you to Strong inorganic acid mists containing 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

Strong inorganic acid mists containing sulfuric acid (CAS N/A) 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 09-May-2017

Revision date 28-September-2022

Version # 04

NFPA ratings

OX

Disclaimer Nexpera 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.