

SAFETY DATA SHEET

Preparation Date: 07/07/2015

Revision Date: 07/07/2015

Revision Number: G1

1. IDENTIFICATION

Product identifier

Product code: C1231
Product Name: CHLOROSULFONIC ACID, REAGENT

Other means of identification

Synonyms: Chlorosulfuric acid
 Monochlorosulfuric acid
 Sulfonic acid, monochloride
 Sulfuric chlorohydrin
 Chlorosulphuric acid

CAS #: 7790-94-5
RTECS # FX5730000
Cl#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Chemical intermediate. Dyes. Pesticide. Ion-exchange resin. In pharmaceuticals. Condensing agent in organic synthesis. In synthetic detergents. Smoke-producing chemicals.

Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
 14422 South San Pedro St.
 Gardena, CA 90248
 (310) 516-8000

Order Online At: <https://www.spectrumchemical.com>

Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 2
Acute toxicity - Inhalation (Vapors)	Category 3
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3
Specific target organ toxicity (repeated exposure)	Category 2
Corrosive to metals	Category 1

Label elements

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Danger

Hazard statements

Fatal if swallowed

Toxic if inhaled

Causes severe skin burns and eye damage

May cause respiratory irritation. May cause drowsiness or dizziness

May cause damage to organs through prolonged or repeated exposure

May be corrosive to metals



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Reacts violently with water to evolve heat and toxic and corrosive gas.

Contact with combustible material may cause fire

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

Use only outdoors or in a well-ventilated area

Do not breathe dust/fume/gas/mist/vapors/spray

Wear protective gloves/protective clothing/eye protection/face protection

Keep only in original container

Precautionary Statements - Response

Specific treatment (see .? on this label)

Immediately call a POISON CENTER or doctor/physician

Specific treatment (see .? on this label)

Absorb spillage to prevent material damage

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 or doctor/physician.

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

Wash contaminated clothing before reuse

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. Call a POISON CENTER or doctor/physician if you feel unwell.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

Rinse mouth

Do NOT induce vomiting

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Precautionary Statements - Storage

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

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %	Trade Secret
Chlorosulfonic Acid 7790-94-5	7790-94-5	100	*

4. FIRST AID MEASURES

First aid measures

General Advice:

Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126).

Skin Contact:

Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. Immediate medical attention is required. Call a physician immediately.

Eye Contact:

Flush eye with water for 15 minutes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

Inhalation:

Toxic by inhalation. Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. WARNING! It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or 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. Immediate medical attention is required.

Ingestion:

Fatal if swallowed. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Call a physician or Poison Control Center immediately.

Most important symptoms and effects, both acute and delayed

Symptoms

Causes severe skin burns and eye damage. Vapors irritating to eyes and respiratory tract. Irritating to mucous membranes. Coughing and wheezing. Dyspnea (Shortness of breath and difficulty breathing). Skin contact may result in redness, pain, inflammation, itching, scaling. Inflammation of the eye is characterized by redness, watering and itching.

Indication of any immediate medical attention and special treatment needed

Notes to Physician:

Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media:

The product is not flammable. The product itself does not burn. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

Unsuitable Extinguishing Media: Water.

Specific hazards arising from the chemical

Hazardous Combustion Products: Hydrogen chloride. Sulfur oxides

Specific hazards: Explosive in presence of reducing materials.
Keep away from combustible materials (wood, paper, oil, clothing, etc.)
Containers may explode when heated or if contaminated with water
Produce toxic and/or corrosive substances on contact with water

Special Protective Actions for Firefighters

Specific Methods: When material is not involved in a fire, do not use water on material itself. Water mist may be used to cool closed containers. Do not get water inside containers.

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Evacuate personnel to safe areas. Avoid breathing dust. Avoid dust formation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not get water inside containers. Keep combustibles (wood, paper, oil, clothing, etc.) away from spilled material. Use spark-proof tools and explosion-proof equipment.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers, basements or confined areas.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Absorb or cover with dry earth, sand or other non-combustible material.

Methods for cleaning up Neutralize the residue with a dilute solution of sodium carbonate. Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Do not ingest. Do not smoke. Keep away from combustible material. Never add water to this product. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Keep container tightly closed in a dry and well-ventilated place. Do not store near combustible materials. Store away from incompatible materials. Store in a segregated and approved area. May corrode metallic surfaces. Do not store in uncoated metallic containers. Store in a coated fiberboard drum using a strong polyethylene inner package.

Incompatible Materials:

Water. Bases. Ammonia. Cresol. Acids. Combustible materials. Nitrates. chlorates. Finely divided metals. Carbides. Reducing agents. Organic materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
Chlorosulfonic Acid 7790-94-5	None	None	None	= 0.1 mg/m ³ Ceiling

Canada

Components	Alberta	British Columbia	Ontario	Quebec
Chlorosulfonic Acid 7790-94-5	None	None	None	None

Australia and Mexico

Components	Australia	Mexico
Chlorosulfonic Acid 7790-94-5	1 mg/m ³ TWA 0.209 ppm TWA	None

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Face-shield

Skin and body protection: Chemical resistant protective suit. Gloves. Boots.

Respiratory protection: Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

Hygiene measures: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

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Physical state: Liquid.	Appearance: Fuming.	Color: Colorless to pale yellow.
Odor: Sharp.	Taste Strong.	Molecular/Formula weight: 116.52
Formula: ClSO ₃ H	Flammability: Non-flammable	Flash point (°C): No data available
Flashpoint (°C/°F): No information available.	Flash Point Tested according to: Not available	Autoignition Temperature (°C/°F): No information available
Lower Explosion Limit (%): No information available	Upper Explosion Limit (%): No information available	pH: 1
Melting point/range(°C/°F): -80°C/ -112°F	Boiling point/range(°C/°F): 158°C/ 316.4°F	Bulk density: No information available
Decomposition temperature(°C/°F): No information available	Density (g/cm³): No information available	Specific gravity: 1.76
Vapor pressure @ 20°C (kPa): No information available	Evaporation rate: No information available	Vapor density: 4.02
VOC content (g/L): No information available	Odor threshold (ppm): No information available	Partition coefficient (n-octanol/water): No information available
Viscosity: No information available	Miscibility: No information available	Solubility: Easily soluble in cold water Easily soluble in hot water

10. STABILITY AND REACTIVITY

Reactivity

Reactive with water, strong acids, strong bases, alcohols, cresol, ketones, aldehydes, oxidizing agents, finely divided metals, amines, organic materials, rubber plastics

Chemical stability

Stability:

Reacts violently with water. Stable under recommended storage conditions.

Possibility of Hazardous Reactions:

Hazardous polymerization does not occur

Conditions to avoid:

Avoid temperature at 158°C/ 316.4°C. Incompatible materials. Exposure to water.

Incompatible Materials:

Water. Bases. Ammonia. Cresol. Acids. Combustible materials. Nitrates. chlorates. Finely divided metals. Carbides. Reducing agents. Organic materials.

Hazardous decomposition products:

Hydrogen. Hydrogen chloride gas. Sulfur oxides.

Other Information

Corrosivity:

Highly corrosive in the presence of aluminum, of zinc
Corrosive in presence of steel
Corrosive in presence of copper
Slightly corrosive in presence of stainless steel (304)
Slightly corrosive in presence of stainless steel (316)
Non-corrosive in the presence of glass

Special Remarks on Corrosivity: No information available

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11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:

Skin. Eyes. Inhalation. Ingestion.

Acute Toxicity

Component Information

Chlorosulfonic Acid - 7790-94-5

LD50/oral/rat = 50 mg/kg Oral LD50 Rat

LD50/oral/mouse = No information available

LD50/dermal/rat = No information available

LD50/dermal/rabbit = No information available

LC50/inhalation/rat = 0.0385 mg/L Inhalation LC50 Rat 4 h
4779 mg/m³ 4 h

LC50/inhalation/mouse = No information available

Other LD50 or LC50 information = No information available

Product Information

LD50/oral/rat =

VALUE- Acute Tox Oral = 50mg/kg

LD50/oral/mouse =

Value - Acute Tox Oral = No information available

LD50/dermal/rabbit

VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat

VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat

VALUE-Vapor = 0.0385mg/l

VALUE-Gas = No information available

VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse

VALUE-Vapor = No information available

VALUE - Gas = No information available

VALUE - Dust/Mist = No information available

Symptoms

Skin Contact:

Corrosive. Causes severe irritation and burns.

Eye Contact:

Corrosive. Causes severe irritation and burns. Risk of serious damage to eyes.

Inhalation

Toxic by inhalation. Causes respiratory tract and mucous membrane irritation. Causes nose and throat irritation with coughing and wheezing.. Can cause dyspnea (shortness of breath and difficulty breathing). Higher exposures can cause a build-up of fluid in the lungs (pulmonary).

Ingestion Fatal if swallowed. Corrosive. Causes severe irritation and burns of the digestive tract.

Aspiration hazard No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity Chronic exposure may affect the liver and kidneys.

Sensitization: No information available

Mutagenic Effects: No information available

Carcinogenic effects: Not considered carcinogenic

Components	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
Chlorosulfonic Acid	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

Reproductive toxicity No data is available

Reproductive Effects: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure lungs. Mucous Membrane.

STOT - repeated exposure liver. kidney.

Target Organs: Liver. Kidneys. Lungs. Mucous membrane.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Chlorosulfonic Acid	None	None	None	None

14. TRANSPORT INFORMATION**DOT**

UN-No: UN1754
Proper Shipping Name: Chlorosulfonic acid
Hazard Class: 8
Subsidiary Risk: 6.1
Packing Group: I
ERG No: 137
Marine Pollutant: No data available
DOT RQ (lbs): No information available
Symbol(s): +, R4

TDG (Canada)

UN-No: UN1754
Proper Shipping Name: Chlorosulfonic acid
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: I
Description: No information available

ADR

UN-No: UN1754
Proper Shipping Name: Chlorosulphonic acid
Hazard Class: 8
Packing Group: I
Subsidiary Risk: No information available
Classification Code: No information available
Description: No information available
CEFIC Tremcard No: No information available

IMO / IMDG

UN-No: UN1754
Proper Shipping Name: Chlorosulphonic acid
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: I
Description: No information available
IMDG Page: No information available
Marine Pollutant: No information available
EMS: F-A
MFAG: No information available
Maximum Quantity: No information available

RID

UN-No: UN1754
Proper Shipping Name: Chlorosulphonic acid
Hazard Class: 8
Subsidiary Risk: No information available

14. TRANSPORT INFORMATION

Packing Group: I
Classification Code: No information available
Description: No information available

ICAO

UN-No: UN1754
Proper Shipping Name: Chlorosulphonic acid
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: No information available
Description: No information available

IATA

UN-No: UN1754
Proper Shipping Name: Chlorosulphonic acid
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: No information available
ERG Code: 8W
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>Chlorosulfonic Acid</i>	Present	Present KE-05909	Present	Present (1)-222	Present	Present	Present 232-234-6

U.S. Regulations

Chlorosulfonic Acid

Massachusetts RTK: Present
New Jersey RTK Hazardous Substance List: 0413
New Jersey - Discharge Prevention - List of Hazardous Substances: Present
Pennsylvania RTK: Environmental hazard
Pennsylvania RTK - Environmental Hazard List: Present
Pennsylvania RTK - Special Hazardous Substances: Present
Minnesota - Hazardous Substance List: Present
New York Release Reporting - List of Hazardous Substances:
 = 100 lb RQ
 = 1000 lb RQ
Louisiana Reportable Quantity List for Pollutants: Listed
California Directors List of Hazardous Substances: Present

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
<i>Chlorosulfonic Acid</i>	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting <i>de minimis</i>
Chlorosulfonic Acid	= 1000 lb final RQ	None	None	None	None

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Chlorosulfonic Acid	Not Applicable	Not Applicable

Canada

WHMIS hazard class:

D2A Very toxic materials
E Corrosive material

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components	WHMIS Ingredient Disclosure List -
Chlorosulfonic Acid	1 %

Inventory

Components	Canada (DSL)	Canada (NDSL)
Chlorosulfonic Acid	Present	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Chlorosulfonic Acid	Not listed	Not listed

EU Classification

R-phrase(s)

R14 - Reacts violently with water.
R35 - Causes severe burns.
R37 - Irritating to respiratory system.

S -phrase(s)

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 1/2 - Keep locked up and out of the reach of children.

Components	Classification	Concentration Limits:	Safety Phrases
Chlorosulfonic Acid	R14 C; R35 Xi; R37	No information	S1/2 S26 S45

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

C - Corrosive.

Xi - Irritant.

**16. OTHER INFORMATION**

Preparation Date: 07/07/2015
Revision Date: 07/07/2015
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet