

Material Safety Data Sheet

Thionyl chloride, 99.5+%

ACC# 19477

Section 1 - Chemical Product and Company Identification

MSDS Name: Thionyl chloride, 99.5+%

Catalog Numbers: AC169490000, AC169490010, AC169490250, AC169491000, AC169495000, AC382660000 AC382660000, AC382660010, AC382660025, AC382662500

Synonyms: Sulfinyl Chloride; Thionyl Chloride; Sulfur Chloride Oxide; Sulfurous Dichloride.

Company Identification:

Acros Organics N.V.

One Reagent Lane

Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01

For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
7719-09-7	Thionyl chloride	>99.5	231-748-8

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear colorless to slightly yellow liquid.

Danger! May be fatal if inhaled. Exposure through inhalation may result in delayed pulmonary edema, which may be fatal. Onset of acute lung injury after toxic exposure may be delayed up to 72 hours after initial exposure. Causes burns by all exposure routes. Water-reactive. Contact with water liberates toxic gas. Lachrymator (substance which increases the flow of tears). Harmful if inhaled or swallowed. Light sensitive.

Target Organs: Respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes eye burns. Causes redness and pain. Lachrymator (substance which increases the flow of tears). May cause chemical conjunctivitis and corneal damage.

Skin: Causes skin burns. May be absorbed through the skin in harmful amounts. Causes redness and pain.

Ingestion: Harmful if swallowed. May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns.

Inhalation: Causes chemical burns to the respiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Exposure through inhalation may result in delayed pulmonary edema which may be fatal. Death may result hours after initial exposure. Toxic exposure to fumes of Thionyl Chloride reacting with water may result in a delayed pulmonary response (longer than two weeks) of bronchiolitis Obliterans-inflammation of the bronchioles.

Chronic: Chronic exposure may cause effects similar to those of acute exposure.

Section 4 - First Aid Measures

Eyes: Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water reactive. Material will react with water and may release a flammable and/or toxic gas. Containers may explode in the heat of a fire. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Contact with metals may evolve flammable hydrogen gas.

Extinguishing Media: Do NOT use water directly on fire. If water is the only media available, use in flooding amounts. Do NOT get water inside containers. Cool containers with flooding quantities of water until well after fire is out. For small fires, use dry chemical or carbon dioxide.

Flash Point: Not applicable.

Autoignition Temperature: Not available.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 4; Flammability: 0; Instability: 2; Special Hazard: -W-

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Use a spark-proof tool. Do not get water inside containers. Cover with dry earth, dry sand, or other non-combustible material followed with plastic sheet to minimize spreading and contact with water.

Section 7 - Handling and Storage

Handling: Keep container tightly closed. Do not get on skin or in eyes. Do not ingest or inhale. Use with adequate ventilation. Store protected from light. Do not allow contact with water. Discard contaminated shoes.

Storage: Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from water. Corrosives area. Keep away from acids. Do not store in metal containers. Store protected from light.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Thionyl chloride	1 ppm Ceiling	none listed	none listed

OSHA Vacated PELs: Thionyl chloride: No OSHA Vacated PELs are listed for this chemical.

Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear nitrile-latex gloves, apron, and/or clothing.

Clothing: Wear nitrile-latex gloves, apron, and/or clothing.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and

ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: clear colorless to slightly yellow
Odor: Suffocating odor
pH: Not available.
Vapor Pressure: 110 mm Hg @ 26 deg C
Vapor Density: 4.1
Evaporation Rate: Not available.
Viscosity: 0.801 deg C
Boiling Point: 76 deg C @ 760.00mm Hg
Freezing/Melting Point: -105 deg C
Decomposition Temperature: 140 deg C
Solubility: reacts with water forming sulfur dioxide
Specific Gravity/Density: 1.6310g/cm³
Molecular Formula: Cl₂OS
Molecular Weight: 118.97

Section 10 - Stability and Reactivity

Chemical Stability: Reacts violently with water to form the toxic gases hydrogen chloride and sulfur dioxide.
Conditions to Avoid: Light, contact with water, temperatures above 140°C.
Incompatibilities with Other Materials: Water, metals, acids, bases, alcohols, amines, ammonia, dimethyl sulfoxide, dimethyl formamide, lithium, sodium, alkalies.
Hazardous Decomposition Products: Hydrogen chloride, chlorine, oxides of sulfur.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 7719-09-7: XM5150000
LD50/LC50:
CAS# 7719-09-7:
Inhalation, rat: LC50 = 500 ppm/1H;

Carcinogenicity:

CAS# 7719-09-7: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: Healthy 23-year old male had a short-term exposure to Thionyl chloride fumes. Within 18 days he complained of dyspnea. Pulmonary function tests indicated broncholitis obliterans. Progressive respiratory failure developed (Konichezky, et al, 1993).

Teratogenicity: No information found

Reproductive Effects: No information found

Mutagenicity: No information found

Neurotoxicity: No information found

Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	THIONYL CHLORIDE	THIONYL CHLORIDE
Hazard Class:	8	8
UN Number:	UN1836	UN1836
Packing Group:	I	I

Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 7719-09-7 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 7719-09-7: immediate, reactive.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depletors.

This material does not contain any Class 2 Ozone depletors.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

CAS# 7719-09-7 is considered highly hazardous by OSHA.

STATE

CAS# 7719-09-7 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

C

Risk Phrases:

R 14 Reacts violently with water.

R 20/22 Harmful by inhalation and if swallowed.

R 29 Contact with water liberates toxic gas.

R 35 Causes severe burns.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 7719-09-7: 1

Canada - DSL/NDSL

CAS# 7719-09-7 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1A, E, F.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 7719-09-7 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 4/26/1999

Revision #5 Date: 9/29/2006

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.