

SECTION-1: Identification of the substance / mixture and the company / undertaking

Catalogue Number	CS-O-16891
Product Name	Thionyl chloride
CAS No.	7719-09-7
Category	Intermediate
Synonyms	Thionyl chloride
Brand	Clearsynth Labs Ltd.
Identified uses	Laboratory Chemicals
Uses advised against	Not available
Company	Clearsynth Labs Ltd. Mumbai, India
Emergency Phone #	+91-22-245045900
REACH No.	Not available

SECTION 2: Hazards identification

Disclaimer: This is sample MSDS. Please email sales@clearsynth.com for more details.

2.1 Classification of the substance or mixture-Regulation (EC) No 1272/2008:

- Skin irritation (Category 2)
- Serious eye damage/eye irritation (Category 2)
- Acute toxicity (Category 4)

2.2 Label Elements

Signal Word: Warning



Hazard Statement(s)

Code	Statement
H302	Harmful if swallowed.
H314	Not available

H332	Harmful if inhaled.
H318	Causes serious eye damage.
H331	Not available
H335	Not available
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H334	Not available
H301	Not available
H330	Not available
H370	Not available

Precautionary Statement(s)

Code	Statement
P260	Not available
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash hands thoroughly after handling.
P270	Not available
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P317	Not available
P301+P330+P331	Not available
P302+P361+P354	Not available
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P354+P338	Not available
P316	Not available
P317	Not available
P321	Specific treatment (see ... on this label).
P330	Not available
P363	Not available
P405	Store locked up.

P501	Dispose of contents/container in accordance with local/regional/national/international regulation
P264+P265	Not available
P319	Get medical help if you feel unwell.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P233	Not available
P284	Not available
P302+P352	IF ON SKIN: Wash with plenty of water and soap.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present
P332+P317	If skin irritation occurs: Get medical help.
P337+P317	If eye irritation persists: Get medical help.
P342+P316	Not available
P362+P364	Take off contaminated clothing and wash it before reuse.
P403	Not available
P301+P316	Not available
P308+P316	Not available
P320	Not available

SECTION 3: Composition / information on ingredients

3.1 Substance

Component : Thionyl chloride

CAS Number : 7719-09-7

Molecular Formula : SOCl₂

Molecular Weight : 118.95

Parent Chemical : Fine chemical

Synonyms : Thionyl chloride

Concentration : Not available

SECTION 4: First aid measures

SECTION 4: First-aid measures

4.1 Description of first aid measures

General advice:

- Corrosive/reactive material. Remove victim from exposure. Seek immediate medical attention.
- Show this SDS to the physician in attendance.

Inhalation:

- Move person to fresh air. Keep at rest in a position comfortable for breathing.
- If breathing is difficult, administer oxygen by trained personnel.
- If not breathing, give artificial respiration by trained personnel.
- Get immediate medical attention.

Skin contact:

- Immediately remove contaminated clothing and shoes.
- Rinse skin with plenty of water for at least 15 minutes.
- Do not attempt to neutralize on skin.
- Get immediate medical attention.

Eye contact:

- Immediately flush eyes with plenty of water for at least 15 minutes, lifting upper and lower eyelids.
- Remove contact lenses if present and easy to do; continue rinsing.
- Get immediate medical attention.

Ingestion:

- Rinse mouth with water if conscious.
- Do NOT induce vomiting.
- Never give anything by mouth to an unconscious person.
- Get immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

- Causes severe burns to skin and eyes.
- Inhalation may cause severe irritation/burns to respiratory tract; coughing, choking, shortness of breath.
- Reacts with water/moisture releasing corrosive/toxic gases (e.g., hydrogen chloride, sulfur dioxide).
- Delayed effects: pulmonary edema may be delayed after inhalation exposure.

4.3 Indication of any immediate medical attention and special treatment needed

- Treat symptomatically.
- Consider risk of delayed respiratory effects; medical observation may be required.
- Decontaminate carefully; avoid contact with water during spill/cleanup on patient clothing due to reactive nature.

SECTION 5: Firefighting measures

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media:

- Use dry chemical powder or dry sand.
- Use extinguishing media appropriate for surrounding fire.

Unsuitable extinguishing media:

- Do NOT use water or water spray directly on product.

5.2 Special hazards arising from the substance or mixture

- Not available (specific flammability data).
- Reacts violently with water/moisture producing corrosive/toxic gases (hydrogen chloride, sulfur dioxide).
- Thermal decomposition and fire conditions may generate corrosive/toxic fumes.

5.3 Advice for firefighters

- Wear self-contained breathing apparatus (SCBA) and full protective gear.

- Keep containers cool with water spray from a distance; avoid water contact with leaking material.
- Prevent runoff from entering drains/waterways.
- Approach from upwind; evacuate area as necessary.

SECTION 6: Accidental release measures

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

- Evacuate unnecessary personnel.
- Ensure adequate ventilation.
- Avoid breathing vapors/mists.
- Wear appropriate PPE: chemical-resistant gloves, protective clothing, chemical splash goggles and face shield; respiratory protection as required.

6.2 Environmental precautions

- Prevent entry into sewers, drains, and waterways.
- Notify authorities if release enters the environment.

6.3 Methods and material for containment and cleaning up

- Do NOT use water for cleanup.
- Contain spill with dry inert absorbent (e.g., dry sand, vermiculite).
- Collect into compatible, dry, tightly closed containers for disposal.
- Ventilate area and wash contaminated surfaces only after material has been fully removed and area is controlled; avoid generating corrosive gases.

6.4 Reference to other sections

- See Section 8 for exposure controls/personal protection and Section 13 for disposal considerations.

SECTION-7: Handling and storage

SECTION 7: Handling and storage

7.1 Precautions for safe handling

- Handle under dry conditions; protect from moisture.
- Use only in a chemical fume hood or well-ventilated area.
- Avoid contact with skin, eyes, and clothing.
- Avoid breathing vapors/mists.
- Keep away from water, alcohols, amines, bases, oxidizers, and other incompatible materials.
- Use corrosion-resistant equipment; keep containers tightly closed.

7.2 Conditions for safe storage, including any incompatibilities

- Store in a cool, dry, well-ventilated area.
- Keep container tightly closed in a dry place; protect from humidity.
- Store away from incompatible materials (water/moisture, alcohols, amines, bases, oxidizers).
- Use secondary containment due to corrosive/reactive nature.

7.3 Specific end use(s)

- Not available.

SECTION 8: Exposure controls / personal protection

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits:

- Not available.

8.2 Exposure controls

Engineering controls:

- Use local exhaust ventilation (chemical fume hood).
- Provide eyewash station and safety shower.

Personal protective equipment (PPE):

Eye/face protection:

- Chemical splash goggles plus face shield.

Skin protection:

- Chemical-resistant gloves (material selection dependent on use conditions; consult glove supplier).
- Chemical-resistant protective clothing/apron.

Respiratory protection:

- If ventilation is inadequate or exposure is possible, use appropriate NIOSH/EN-approved respirator for acid gases/organic vapors as applicable.

Hygiene measures:

- Wash hands thoroughly after handling.
- Remove contaminated clothing and wash before reuse.

Environmental exposure controls:

- Avoid release to the environment; use containment and scrubbers where appropriate.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Test	Result
Appearance	No data available
IR spectrum	No data available
pH	No data available
Solubility	No data available

Property	Value
a) Physical State	No data available
b) Color	No data available

Property	Value
c) Odor	No data available
d) pH	No data available
e) Vapour Pressure	No data available
f) Viscosity	No data available
g) Initial Boiling Point and boiling range	No data available
h) Melting Point / Freezing Point	No data available
i) Auto Ignition Temperature	No data available
j) Flash Point	No data available
k) Explosion Limit, Lower	No data available
l) Explosion Limit, Upper	No data available
m) Decomposition Temperature	No data available
n) Loss on Drying	No data available
o) Relative Density	No data available
p) Solubility (in DMSO)	No data available
q) Oxidizing Properties	No data available

SECTION 10: Stability and reactivity

SECTION 10: Stability and reactivity

10.1 Reactivity

- Reacts with water/moisture with evolution of heat and corrosive/toxic gases.

10.2 Chemical stability

- Stable under recommended dry storage conditions.

10.3 Possibility of hazardous reactions

- Violent reaction with water.
- Reacts with alcohols, amines, bases and other nucleophiles; may be vigorous.

10.4 Conditions to avoid

- Moisture, water, heat, and incompatible materials.

10.5 Incompatible materials

- Water/moisture.
- Alcohols.
- Amines.
- Bases.

- Oxidizing agents.
- Not available (additional incompatibilities).

10.6 Hazardous decomposition products

- Hydrogen chloride.
- Sulfur dioxide.
- Not available (other decomposition products).

SECTION 11: Toxicological information

11.1 Information on toxicological effects

- Acute toxicity: LC50 (rat) = 500 ppm/1h /CASE REPORTS/ ... A case /was reported/ of a pharmaceutical production plant worker exposed for two minutes to an unknown amount of thionyl chloride vapor during repair of a vent pipe. The worker experienced burning of the eyes, upper airway, and chest followed by feelings of suffocation. He began coughing with expulsion of blood. He was hospitalized ... with cough, sero-mucosal excretion, pharyngeal and chest burning. His respiratory function test showed insufficient ventilation and examination revealed vesicular murmur with wheezing at end of expiration. He was diagnosed with acute asthmatic tracheal bronchitis, was treated with bronchodilators and antibiotics, and recovered.
- Skin corrosion/irritation: A corrosive irritant that causes burns to the skin and eyes.
- Serious eye damage/eye irritation: /LABORATORY ANIMALS: Acute Exposure/ ... 6 male and 6 female Wistar rats /were exposed/ to 196, 371, 593, 954, or 1241 ppm to 99.9% pure (a.i.) thionyl chloride vapor in a nose-only chamber for one hour and observed ... 14 days post exposure. Gas chromatography was used to analyze thionyl chloride during exposure. The LC50 was 736 ppm for males and females combined. No deaths were recorded in the 196 or 371 ppm exposure groups. Five of six males and two of six females died at 593 ppm. Five of six males and two of six females died at 954 ppm. Six of six males and four of six females died at 1241 ppm. Prior to death, audible respiration was observed. Hyperinflation of the lungs, perinasal and periorcular encrustation were noted in some of the animals that died in the 954 and 1241 ppm exposure groups. One control male rat died during exposure and it was thought to be due to incorrect positioning in the chamber. The BMCL05 /benchmark concentration, 95% lower confidence limit with 5% response/ and BMC01 /benchmark concentration with 1% response/ were 193 and 222 ppm, respectively.
- Respiratory or skin sensitization: No data available.
- Germ cell mutagenicity: No data available.
- Carcinogenicity: No data available.
- Reproductive toxicity: No data available.
- STOT-single exposure: No data available.
- STOT-repeated exposure: No data available.
- Aspiration hazard: No data available.

Likely routes of exposure

- IDENTIFICATION AND USE: Thionyl chloride is a colorless to pale yellow or reddish liquid. Thionyl chloride is an industrially produced liquid used to make acyl chlorides and to synthesize pharmaceuticals including drugs and vitamins. It is used to make dyes, to prepare organic chlorine compounds, as a solvent in the production of herbicides, and as an electrolyte in lithium batteries. Thionyl chloride is also used to prepare polyacrylate-type engineering thermoplastics made from iso- and tere-phthaloyl chlorides. It is required in the manufacture of methylphosphonic dichloride, a key precursor for the nerve gas Sarin. HUMAN STUDIES: Potential symptoms of overexposure are irritation of eyes, skin, mucous membranes, as well as eye and skin burns. Symptoms of exposure range from mild irritation to death and include dyspnea, burns, pulmonary edema, and inflammation. Cases of thionyl chloride-induced lung injury have been noted. ANIMAL STUDIES: A 20-min exposure to 17.5 ppm proved

fatal to cats. Male rats were exposed to 99% pure thionyl chloride in a whole-body inhalation chamber. Two of five males died at 1239 ppm, three of five died at 1509 ppm, and four of five died at 1989 ppm. All deaths occurred within 48 hours of exposure. Severe lung irritation and edema were reported as the cause of death.

Symptoms related to the physical, chemical and toxicological characteristics

- Potential symptoms of overexposure are irritation of eyes, skin, mucous membranes; eye, skin burns.

SECTION 12: Ecological information

SECTION 12: Ecological information

12.1 Toxicity

- No data available.

12.2 Persistence and degradability

- No data available.

12.3 Bioaccumulative potential

- No data available.

12.4 Mobility in soil

- No data available.

12.5 Results of PBT and vPvB assessment

- Not available.

12.6 Endocrine disrupting properties

- Not available.

12.7 Other adverse effects

- Reacts with water to form acidic/corrosive products; may cause pH changes in aquatic environments.
- No data available (additional effects).

SECTION 13: Disposal considerations

SECTION 13: Disposal considerations

13.1 Waste treatment methods

- Dispose of contents/container in accordance with local/regional/national/international regulations.
- Do not discharge to drains.
- Do not allow contact with water during disposal handling.
- Disposal by a licensed hazardous waste contractor is recommended.
- Contaminated packaging: treat as hazardous; empty containers may retain residues and vapors.

SECTION 14: Transport information

SECTION 14: Transport information

14.1 UN number

- Not available.

14.2 UN proper shipping name

- Not available.

14.3 Transport hazard class(es)

- Not available.

14.4 Packing group

- Not available.

14.5 Environmental hazards

- Not available.

14.6 Special precautions for user

- Protect from moisture. Keep containers tightly closed and upright.
- Avoid transport with incompatible materials.

14.7 Maritime transport in bulk according to IMO instruments

- Not available.

SECTION 15: Regulatory information

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

- Not available (specific national/international inventories and regulations).

15.2 Chemical safety assessment

- Not available.

SECTION 16: Other information

SECTION 16: Other information

Revision information:

- Not available.

Key/legend:

- Not available.

Disclaimer:

- The information provided is believed to be accurate based on available product identification. It is intended for guidance in safe handling, use, processing, storage, transportation, disposal and release and is not considered a warranty or quality specification. Users must determine applicability for their particular purposes and comply with all applicable laws and regulations.

DISCLAIMER

This MSDS is system-generated. Please verify and confirm all data, statements, and values with the Support Team before use or distribution.