Material Safety Data Sheet

Section I. Chemical Product and Company Identification

Chemical Name: Chloromethyl Methyl Ether

Catalog Number: C0202

Synonym: Methoxychloromethane

Chemical Formula: ClCH₂OCH₃

CAS Number: 107-30-2

Supplier: TCI America

9211 N. Harborgate St.
Portland OR
1-800-423-8616

In case of Emergency Call: Chemtrec®
(800) 424-9300 (U.S.)
(703) 527-3887 (International)

Section II. Composition and Information on Ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>Percent (%)</th>
<th>TLV/PEL</th>
<th>Toxicology Data</th>
</tr>
</thead>
</table>
| Chloromethyl Methyl Ether | 107-30-2   | Min. 95.0 (GC) | This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen. | Rat LC₅₀ (inhalation) 55ppm/7H
Rat LC₅₀ (inhalation) 179.8mg/m³/7H
Mouse LC₅₀ (inhalation) 1030mg/m³/3/2H |

Section III. Hazards Identification

Acute Health Effects: Highly toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Chronic Health Effects: CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: TUMORGENIC EFFECTS:
Mouse TLo (inhalation) 2ppm/82 Days, intermittent.
Toxic Effects: Tumorigenic- Equivocal tumorigenic agent by RTECS criteria.
Lung, Thorax, or Respiratory- Tumors.
Mouse TD (subcutaneous) 852mg/kg/71 Weeks, intermittent.
Toxic Effects: Tumorigenic- Neoplastic by RTECS criteria.
Tumorigenic- Tumors at site of application.
Mouse TDLo (subcutaneous) 312mg/kg/26 Weeks, intermittent.
Toxic Effects: Tumorigenic- Neoplastic by RTECS criteria.
Tumorigenic- Tumors at site of application.
DEVELOPMENTAL TOXICITY: Not available.
Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section IV. First Aid Measures

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Inhalation: If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Section V. Fire and Explosion Data

<table>
<thead>
<tr>
<th>Flammability</th>
<th>Flammable.</th>
<th>Auto-Ignition</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Points</td>
<td>16°C (60.8°F) (C.C.)</td>
<td>Flammable Limits</td>
<td>Not available.</td>
</tr>
<tr>
<td>Combustion Products</td>
<td>These products include toxic carbon oxides (CO, CO₂), halogenated compounds.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire Hazards</td>
<td>Not available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explosion Hazards</td>
<td>Risks of explosion of the product in presence of mechanical impact: Not available.</td>
<td>Risks of explosion of the product in presence of static discharge: Not available.</td>
<td></td>
</tr>
<tr>
<td>Fire Fighting Media and Instructions</td>
<td>Flammable liquid.</td>
<td>SMALL FIRE: Use DRY chemical powder.</td>
<td>LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. Consult with local fire authorities before attempting large scale fire-fighting operations.</td>
</tr>
</tbody>
</table>

Section VI. Accidental Release Measures

| Spill Cleanup Instructions | Highly toxic material. Flammable material. Corrosive material. Possible carcinogenic material. Lachrymatory material. Refrigerate material. Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT get water inside container. DO NOT touch spills material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Consult federal, state, and/or local authorities for assistance on disposal. |

Section VII. Handling and Storage

| Handling and Storage Information | TOXIC. FLAMMABLE. CORROSIVE. POSSIBLE CARCINOGEN. LACHRYMATOR. REFRIGERATE. Keep locked up. Keep container dry. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. DO NOT ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents. |

Section VIII. Exposure Controls/Personal Protection

| Engineering Controls | Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location. |
| Personal Protection | Face shield. Lab coat. Vapor respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. |
| Exposure Limits | This chemical is classified as a possible carcinogen. There is no acceptable exposure limit for a carcinogen. |

Section IX. Physical and Chemical Properties

| Physical state @ 20°C | Liquid. (Clear, colorless to light yellow.) |
| Specific Gravity | 1.06 (water=1) |
| Molecular Weight | 59°C (138.2°F) |
| Boiling Point | -103.5°C (-154.3°F) |
| Melting Point | 1.40 |
| Refractive Index | 1.40 |
| Critical Temperature | 24.5 kPa (@ 20°C) |
| Viscosity | Not available. |
| Solubility | Miscible with ethanol, ether and many other organic solvents. Soluble in acetone, chloroform, ethyl ether, ethyl alcohol, and oxygenated solvents. |
| Partition Coefficient | Not available. |
| Vapor Pressure | 2.8 (Air = 1) |
| Vapor Density | Not available. |
| Volatility | Odor |
| Taste | Irritating, pungent. |

Continued on Next Page

Emergency phone number (800) 424-9300
Section X. Stability and Reactivity Data

Stability
This material is stable if stored under proper conditions. (See Section VII for instructions)

Conditions of Instability
May decompose on exposure to moist air or water. Avoid excessive heat and light.

Incompatibilities
Reactive with oxidizing agents.

Section XI. Toxicological Information

RTECS Number
KN6650000

Routes of Exposure
Eye Contact. Ingestion. Inhalation. Skin contact.

Toxicity Data
- Rat LC₅₀ (inhalation) 55ppm/7H
- Rat LC₅₀ (inhalation) 179.8mg/m³/7H
- Mouse LC₅₀ (inhalation) 1030mg/m³/2H

Chronic Toxic Effects
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: TUMORIGENIC EFFECTS:
Mouse TCLo (inhalation) 2ppm/82 Days, intermittent.

Acute Toxic Effects
Highly toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death.
Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity
Not available.

Environmental Fate
Chloromethyl methyl ether might escape into the environment in industrial gases and fugitive emissions associated with its use as a chemical intermediate. It would not be found in waste water due to its very rapid hydrolysis (half-life < 1 sec). Its half-life in humid air has been measured in separate studies to be 3.5-6 min and 6.5 hours, respectively. Hydrolysis products in air include methanol, formaldehyde, HCl, and chloromethylformate. Chloromethyl methyl ether is relatively stable in dry air (estimated half-life of 4 days for photooxidation) and may therefore be an occupational contaminant if it escapes in exhaust gases in dry areas in the workplace. (HSDB)

Section XIII. Disposal Considerations

Waste Disposal
Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

Section XIV. Transport Information

DOT Classification
Forbidden to ship by Air
CLASS 6.1: Toxic material.
CLASS 3: Flammable liquid.

PIN Number
UN1239

Proper Shipping Name
Methyl chloromethyl ether

Packing Group (PG)
I (DOT: Zone A; RQ: 1lb (0.454kg))

DOT Pictograms

Continued on Next Page
Section XV. Other Regulatory Information and Pictograms

<table>
<thead>
<tr>
<th>TSCA Chemical Inventory (EPA)</th>
<th>This compound is ON the EPA Toxic Substances Control Act (TSCA) inventory list. This product is subject to SARA Section 313 reporting requirements. On EPA IRIS Database. Deminimus: 0.1%</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHMIS Classification (Canada)</td>
<td>CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS B-6: Reactive and very flammable material. CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid. On NDSL.</td>
</tr>
<tr>
<td>EINECS Number (EEC)</td>
<td>203-480-1</td>
</tr>
<tr>
<td>Japanese Regulatory Data</td>
<td>ENCS No. 2-378</td>
</tr>
</tbody>
</table>

Section XVI. Other Information

Version 1.0

Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, household, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.