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# Material Safety Data Sheet

## Methyl Chloroformate MSDS

### Section 1: Chemical Product and Company Identification

**Product Name:** Methyl Chloroformate

**Catalog Codes:** SLM1117

**CAS#:** 79-22-1

**RTECS:** FG3675000

**TSCA:** TSCA 8(b) inventory: Methyl Chloroformate

**CI#:** Not available.

**Synonym:** Carbonochloridic Acid Methyl Ester

**Chemical Name:** Methyl Chloroformate

**Chemical Formula:** C2-H3-CL-O2

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Methyl Chloroformate	79-22-1	100

**Toxicological Data on Ingredients:** Methyl Chloroformate: ORAL (LD50): Acute: 67 mg/kg [Mouse]. 140 mg/kg [Guinea pig]. 60 mg/kg [Rat]. DERMAL (LD50): Acute: 1750 mg/kg [Mouse]. 7120 mg/kg [Rabbit]. VAPOR (LC50): Acute: 44 ppm 4 hour(s) [Rat]. 33.8 ppm 4 hour(s) [Mouse].

### Section 3: Hazards Identification

**Potential Acute Health Effects:**

Very hazardous in case of skin contact (irritant, sensitizer, permeator), of eye contact (irritant), of ingestion, of inhalation (lung irritant, lung sensitizer). Corrosive to skin and eyes on contact. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

**Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Classified A5 (Not suspected for human.) by ACGIH. MUTAGENIC EFFECTS: Classified POSSIBLE for human. TERATOGENIC EFFECTS: Classified POSSIBLE for human. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male, Development toxin [None.]. The substance is toxic to lungs, cardiovascular system, muscle tissue. Repeated or prolonged exposure to the substance can produce target

organs damage. 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 4: First Aid Measures

**Eye Contact:** Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.

**Skin Contact:**

If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands : Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhalation:** Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

**Ingestion:**

Do not induce vomiting. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**Serious Ingestion:** Not available.

#### Section 5: Fire and Explosion Data

**Flammability of the Product:** Flammable.

**Auto-Ignition Temperature:** 504.8°C (940.6°F)

**Flash Points:** CLOSED CUP: 22.78°C (73°F). OPEN CUP: 24.4°C (75.9°F).

**Flammable Limits:** LOWER: 6.7%

**Products of Combustion:** These products are carbon oxides (CO, CO<sub>2</sub>).

**Fire Hazards in Presence of Various Substances:** Extremely flammable in presence of open flames and sparks, of heat.

**Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Extremely explosive in presence of metals.

**Fire Fighting Media and Instructions:**

Flammable liquid, insoluble in water. **SMALL FIRE:** Use DRY chemical powder. **LARGE FIRE:** Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

#### Section 6: Accidental Release Measures

**Small Spill:** Absorb with an inert material and put the spilled material in an appropriate waste disposal.

**Large Spill:**

Toxic flammable liquid, insoluble or very slightly soluble in water. Corrosive liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

**Precautions:**

Keep locked up Keep container dry. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapour/spray. Never add water to this product In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes Keep away from incompatibles such as oxidizing agents, metals.

**Storage:**

Flammable materials should be stored in a separate safety storage cabinet or room. Keep away from heat. Keep away from sources of ignition. Keep container tightly closed. Keep in a cool, well-ventilated place. Ground all equipment containing material. A refrigerated room would be preferable for materials with a flash point lower than 37.8°C (100°F).

## Section 8: 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 stations and safety showers are proximal to the work-station location.

**Personal Protection:**

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

Russia: STEL: 0.05 (mg/m<sup>3</sup>) SKIN Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid.

**Odor:** Strong.

**Taste:** Not available.

**Molecular Weight:** 94.5 g/mole

**Color:** Colorless.

**pH (1% soln/water):** Not applicable.

**Boiling Point:** 71.4°C (160.5°F)

**Melting Point:** -81°C (-113.8°F)

**Critical Temperature:** 252°C (485.6°F)

**Specific Gravity:** Not available.

**Vapor Pressure:** 108.5 mm of Hg (@ 20°C)

**Vapor Density:** >1 (Air = 1)

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** Not available.

**Ionicity (in Water):** Not available.

**Dispersion Properties:**

Dispersed in diethyl ether. Partially dispersed in methanol, n-octanol. Is not dispersed in cold water. See solubility in methanol, diethyl ether, n-octanol.

**Solubility:**

Soluble in diethyl ether. Partially soluble in methanol, n-octanol. Insoluble in cold water.

### Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Highly reactive with oxidizing agents, metals.

**Corrosivity:** Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Decompose with hot water but stable in cold water

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** No.

### Section 11: Toxicological Information

**Routes of Entry:** Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 60 mg/kg [Rat]. Acute dermal toxicity (LD50): 1750 mg/kg [Mouse]. Acute toxicity of the vapor (LC50): 33.8 ppm 4 hour(s) [Mouse].

**Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified A5 (Not suspected for human.) by ACGIH. MUTAGENIC EFFECTS: Classified POSSIBLE for human. TERATOGENIC EFFECTS: Classified POSSIBLE for human. DEVELOPMENTAL TOXICITY: Classified Reproductive system/toxin/female, Reproductive system/toxin/male, Development toxin [None.]. The substance is toxic to lungs, cardiovascular system, muscle tissue.

**Other Toxic Effects on Humans:**

Very hazardous in case of skin contact (irritant, sensitizer, permeator), of ingestion, of inhalation (lung irritant, lung sensitizer).

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** Not available.

**Special Remarks on other Toxic Effects on Humans:** Not available.

### Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are less toxic than the product itself.

**Special Remarks on the Products of Biodegradation:** Not available.

### Section 13: Disposal Considerations

**Waste Disposal:**

### Section 14: Transport Information

**DOT Classification:** CLASS 6.1: Poisonous material.

**Identification:** : Methyl Chloroformate Poison Inhalation Hazard Zone A : UN1238 PG: I

**Special Provisions for Transport:** Not available.

### Section 15: Other Regulatory Information

**Federal and State Regulations:**

Pennsylvania RTK: Methyl Chloroformate: (environmental hazard) Florida: Methyl Chloroformate Massachusetts RTK: Methyl Chloroformate New Jersey: Methyl Chloroformate New Jersey spill list: Methyl Chloroformate TSCA 8(b) inventory: Methyl Chloroformate TSCA 4(a) proposed test rules: Methyl Chloroformate TSCA 8(a) CAIR: Methyl Chloroformate SARA 313 toxic chemical notification and release reporting: Methyl Chloroformate: 1% CERCLA: Hazardous substances.: Methyl Chloroformate: 1000 lbs. (453.6 kg)

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

**Other Classifications:**

**WHMIS (Canada):**

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). 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.

**DSCL (EEC):**

R10- Flammable. R23- Toxic by inhalation. R34- Causes burns.

**HMIS (U.S.A.):**

**Health Hazard:** 3

**Fire Hazard:** 3

**Reactivity:** 1

**Personal Protection:** h

**National Fire Protection Association (U.S.A.):**

**Health:** 3

**Flammability:** 3

**Reactivity:** 1

**Specific hazard:**

**Protective Equipment:**

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

**Section 16: Other Information**

**References:** Not available.

**Other Special Considerations:** Not available.

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