

SAFETY DATA SHEET

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY/UNDERTAKING

- 1.1. Product identifier:
Methyl chloroformate
- CAS number 79-22-1
EU number 201-187-3
Index number: 607-019-00-9
REACH registration number: 01-2119463323-44-0002; Transported isolated intermediate.
- 1.2. Relevant identified uses of the substance and uses advised against:
Organic synthesis intermediate for industrial use.
- 1.3. Details of the supplier of the safety data sheet:
Name of the manufacturer and distributor:
FRAMOCHEM FRENCH-HUNGARIAN FINE CHEMICALS LTD.
3700 Kazincbarcika,
Szerviz str. 5., POB. 504.
Telephone: +36 (48) 311-991
Fax: +36 (48) 512-162
E-mail: framochem@framochem.hu
- 1.3.1. Responsible person: -
E-mail: info@framochem.hu
- 1.4. Emergency telephone number: **Public Toxicological Health Service (ETTSZ)**
1096 Budapest, Nagyvárad tér 2.
Tel.: 06 1 476 6464, 06 80 201 199 (0-24 h)

SECTION 2: HAZARDS IDENTIFICATION

- 2.1. Classification of the substance
- Classification according to Regulation 1272/2008/EC (CLP):
Flam. Liq. 2 – H225
Acute Tox. 4 (oral) – H302
Acute Tox. 4 (dermal) - H312
Acute Tox. 2 (inhalation) – H330
Skin Corr. 1B – H314

Warning H statements:

H225 – Highly flammable liquid and vapour.
H302 – Harmful if swallowed.
H312 – Harmful in contact with skin.
H314 – Causes severe skin burns and eye damage.
H330 – Fatal if inhaled.

Classification according to Directive 67/548/EEC:
F; Highly flammable – R11
Xn; Harmful – R21/22
T+; Very toxic – R26
C; Corrosive - R34

R phrases referring to the hazards/risks:

- R 11** - Highly flammable.
- R 21/22** - Harmful in contact with skin and if swallowed.
- R 26** - Very toxic by inhalation
- R 34** - Causes burns.

2.2. Label elements:

IUPAC name: Methyl chloroformate
CAS number 79-22-1
EU number 201-187-3



DANGER

Warning H statements:

- H225** – Highly flammable liquid and vapour.
- H302** – Harmful if swallowed.
- H312** – Harmful in contact with skin.
- H314** – Causes severe skin burns and eye damage.
- H330** – Fatal if inhaled.

Precautionary P statements:

- P210** – Keep away from heat, sparks, open flame and hot surfaces. No smoking.
- P280** – Wear protective gloves/protective clothing/eye protection/face protection.
- P284** – Wear respiratory protection.
- P303 + P361 + P353** – IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304 + P340** – IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305 + P351 + P338** – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P309 + P310** – IF exposed or if you feel unwell: immediately call a POISON CENTER or doctor/physician.
- P405** – Store locked up.

2.3. Other hazards:

The substance does not meet the PBT and vPvB criteria according to Annex XIII of Regulation 1907/2006/EC.
Information concerning specific hazards for human and environment: See Section 11 and 12.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Chemical name: Methyl chloroformate
CAS number 79-22-1
EU number 201-187-3
Index number: 607-019-00-9
Formula: C₂H₃ClO₂
Molar mass: 94.5 g/mol
Synonym: Chlorformate methyl ester
Purity: > 99,3 %

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures:

IN CASE OF INGESTION:

Measures:

- Obtain immediate medical help or transport to a hospital and show the label.

IN CASE OF INHALATION:

Measures:

- In case of inhalation take the victim into fresh air and take him into comfortable position (recovery position is recommended) and protect him from hypothermia.
- Obtain immediate medical help or transport to a hospital and show the label.

IN CASE OF SKIN CONTACT:

Measures:

- Remove the contaminated clothes and shoes.
- The affected skin surface should be flushed/cleaned with plenty of water and soap for at least 15 minutes, if possible, under a shower.
- Obtain immediate medical help or transport to a hospital and show the label.

IN CASE OF EYE CONTACT:

Measures:

- In case of contact with eyes flush with plenty of water holding eyelids apart and moving the eyeballs (for at least 15 minutes).
- Call a specialist.

4.2. Most important symptoms and effects, both acute and delayed:

See section 11 for information on health effects and symptoms.

4.3. Indication of any immediate medical attention and special treatment needed:

See section 11 for information on health effects and symptoms.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing media:

5.1.1. Suitable extinguishing media:

Dry extinguishing agent, carbon dioxide, appropriate foam.

5.1.2. Unsuitable extinguishing media:

Water.

5.2. Special hazards arising from the substance or mixture:

In case of thermal decomposition hydrochloric acid may be formed, the inhalation of such combustion products may seriously damage health. In case of heating, hydrochloric acid is formed.

5.3. Advise for fire fighters

Wear a self-contained respiratory device operating with overpressure and compressed air (self-rescue breathing apparatus) and appropriate full protective clothing and protective equipment which avoids contact of the product with skin, eyes and the inhalation of hazardous gases and smoke generated during the combustion.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:

6.1.1. For non-emergency personnel:

Keep unprotected people away, allow only well trained experts wearing suitable protective clothing to abide in the field of accident.

6.1.2. For emergency responders:

Evacuate the unauthorized persons for the place of the accident. Remove all ignition sources from the affected area. Close the designated area. Ensure adequate ventilation.

6.2. Environmental precautions:

Dispose of spillage and waste (product/packaging) in accordance with all applicable environmental laws. Do not allow to enter sewers/soil/surface or ground water. Notify the respective authorities in accordance with local law in the case of environmental pollution immediately.

6.3. Methods and material for containment and cleaning up:

Collect the spilled material with inert, non-combustible, mineral absorbent (sand, earth and perlite), then place into a suitable, closed, properly labelled chemical waste container till removal/disposal. During the collection/placement/disposal of the hazardous waste use appropriate personal protective equipment. Use carbonate or sodium bicarbonate solution to the neutralisation of the product.

- 6.4. Reference to other sections:
For further and detailed information see section 8 and 13.

SECTION 7: HANDLING AND STORAGE

- 7.1. Precautions for safe handling:
Observe conventional hygiene precautions.
Avoid contact of the product with skin, eyes and clothing.
Technical measures:
Ensure adequate ventilation / local extraction.
Precautions against fire and explosion:
No special measures required.
- 7.2. Conditions for safe storage, including any incompatibilities:
Technical measures and storage condition:
Keep in original, closed and appropriately labelled container.
The place of storage has to be properly ventilated and cleanable.
Store in cool and dry place.
Keep away from moisture.
Store away from heat.
Follow all instructions on the label.
Incompatible materials: water, alcohols, bases, amines.
Packaging material: Metal container lined with polyethylene. Do not use metal containers without lining.
- 7.3. Specific end use(s):
No specific instructions available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1. Control parameters:

Exposure limit values: none.

DNEL		Routes of exposure	Exposure frequency:	Remarks:
Worker	Consumer			
no data available	no data available	Dermal	Short term (acute) Long term (repeated)	no data available
no data available	no data available	Inhalative	Short term (acute) Long term (repeated)	no data available
no data available	no data available	Oral	Short term (acute) Long term (repeated)	no data available

PNEC			Exposure frequency:	Remarks:
Water	Soil	Air		
no data available	no data available	no data available	Short term (single use) Long term (continuous)	no data available
no data available	no data available	no data available	Short term (single use) Long term (continuous)	no data available
no data available	no data available	no data available	Short term (single use) Long term (continuous)	no data available

- 8.2. Exposure controls:
In case of a hazardous material with no controlled concentration limit it is the employer's duty to keep concentration levels down to a minimum achievable by existing scientific and technological means, where the hazardous substance poses no harm to workers.
- 8.2.1 Appropriate engineering controls
In pursuance of work is proper foresight needed to avoid spilling onto clothes and floors and to avoid contact with eyes and skin.
Ensure adequate ventilation, especially in closed areas.

Do not eat or smoke during the processing.
Do not inhale the vapours.
Wash and hand wash thoroughly after work.
In the vicinity of the workplace safety shower and eye wash fountain has to be installed.

- 8.2.2. Individual protection measures, such as personal protective equipment:
1. Eye/face protection: use appropriate protective glasses/protective mask according to EN 166.
 2. Skin protection:
 - a. Hand protection: use appropriate protective gloves according to EN 374.
 - b. Other: use appropriate, acid resistant protective clothes according to EN ISO 6529.
 3. Respiratory protection: use appropriate respiratory device (against organic vapours) according to EN 136, 141.
 4. Thermal hazard: none known.

- 8.2.3. Environmental exposure controls:
No special measures required.

The requirements detailed in Section 8 assume skilled work under normal conditions and usage of the product for appropriate aims. If conditions differ from normal or work is carried out under extreme conditions an expert's advice should be sought out before deciding upon further protective measures.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties:

Parameter		Test method:	Remarks:
1. Appearance:	colourless, clean liquid		
2. Odour:	pungent		
3. Odour threshold:	no data available		
4. pH value:	n.a.		
5. Melting point/ freezing point:	< -81 °C		
6. Initial boiling point/boiling range:	71 °C		
7. Flash point:	18 °C		
8. Evaporation rate:	no data available		
9. Flammability:	no data available		
10. Upper/lower flammability or explosive limits:	no data available		
11. Vapour pressure:	500 * 10 ² Pa	50 °C	
	137 * 10 ² Pa	20 °C	
12 Vapour density:	3,3		
13. Relative density:	no data available		
14. Solubility(ies):	In case of contact with water, decomposes. Soluble in common organic solvents.		
15. Partition coefficient: n-octanol/water:	n.a.		
16. Self-ignition temperature:	500 °C		
17. Degradation temperature:	no data available		
18. Viscosity:	no data available		
19. Explosive properties:	no data available		
20. Oxidizing properties:	no data available		

9.2. Other information:

Density: 1.22 g/cm³

Explosion limit: (lower/upper): 7.8 V % / 23.3 V %

SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity:
None known.
- 10.2. Chemical stability:
At normal temperature and general conditions of work stabile.
- 10.3. Possibility of hazardous reactions:

- Reacts with water.
- 10.4. Conditions to avoid:
Contact with water.
- 10.5. Incompatible materials:
Bases, water, amines and alcohol.
- 10.6. Hazardous decomposition products:
Hydrochloric acid, carbon dioxide, methanol.

SECTION 11: TOXICOLOGICAL INFORMATION

- 11.1. Information on toxicological effects:
Acute toxicity: harmful if swallowed. Harmful in contact with skin. Fatal if inhaled.
Skin corrosion/irritation: causes severe skin burns and eye damage.
Serious eye damage/eye irritation: none known.
Respiratory or skin sensitisation: none known.
Germ cell mutagenicity: none known.
Carcinogenicity: none known.
Reproductive toxicity: none known.
STOT-single exposure: none known.
STOT-repeated exposure: none known.
Aspiration hazard: none known.
- 11.1.1. For substances subject to registration, brief summaries of the information derived from the test conducted:
No data available.
- 11.1.2. Relevant toxicological properties of the hazardous substances:
LD₅₀ (oral, rat): 310 mg/kg.
LC₅₀ (inhalative, rat): 88 ppm/1h.
- 11.1.3. Information on likely routes of exposure:
Ingestion, inhalation, skin contact, eye contact.
- 11.1.4. Symptoms related to the physical, chemical and toxicological characteristics:
Acute effects:
Ingestion: No data available.
Inhalation: May cause pulmonary edema (the symptoms can be delayed, even hours after the exposition).
Skin contact: No data available.
Eye contact: No data available.
Irritation: irritate the skin and the eyes. Irritates the mucous membranes.
Sensitisation: some chloroformates may be sensitizing (not frequent).
Subacute toxicity:
Symptoms by intensive or prolonged exposition: not known
- 11.1.5. Delayed and immediate effects as well as chronic effects from short and long-term exposure:
Harmful if swallowed.
Harmful in contact with skin.
Causes severe skin burns and eye damage.
Fatal if inhaled.
- 11.1.6. Interactive effects:
No data available.
- 11.1.7. Absence of specific data:
No information.
- 11.1.8. Other information:
CMR effects:
Carcinogenicity: none known.
Toxicity for reproduction: none known.
Mutagenicity: none known.
Summarized evaluation of the CMR properties: no data available.
Specific symptoms observed in animal studies: none known.

SECTION 12: ECOLOGICAL INFORMATION

- 12.1. Toxicity:
The substance decomposes with hydrolysis and during the process hydrochloric acid, carbon dioxide and alcohol is formed.
- 12.2. Persistence and degradability
No data available.
- 12.3. Bioaccumulation potential:
FRAMOChem FRENCH-HUNGARIAN
FINE CHEMICALS LTD.

- No data available.
- 12.4. Mobility in soil
The substance decomposes with hydrolysis while methyl alcohol is formed, which is fully soluble in water.
- 12.5. Results of PBT and vPvB assessment
This substance does not meet the criteria of PBT or vPvB.
- 12.6. Other adverse effects:
No data available.

SECTION 13: DISPOSAL CONSIDERATIONS

- 13.1. Waste treatment methods:
Disposal according to the local regulations.
- 13.1.1. Information regarding the disposal of the product:
The product can be incinerated in a chemical incinerator equipped with an afterburner and scrubber.
No appropriate EWC code can be given for the substance, since the identification of the proper code can be done with the method of use defined by the user of the substance. The European waste code number has to be determined after a discussion with a specialist dealing with waste disposal.
- 13.1.2. Information regarding the disposal of the packaging:
According to the consideration regarding the product. The contaminated packaging should be cleaned with alkaline solution.
- 13.1.3. Physical/chemical properties that may affect waste treatment options shall be specified:
None known.
- 13.1.4. Sewage disposal:
None known.
- 13.1.5. Special precautions for any recommended waste treatment:
No data available.

SECTION 14: TRANSPORT INFORMATION

- 14.1. UN Number:
1238
- 14.2. UN proper shipping name:
METHYL CHLOROFORMATE
- 14.3. Transport hazard class(es)
ADR/RID: 6.1.
Classification code: TFC
IMDG: 6.1
IATA: Air transport: FORBIDDEN.
- 14.4. Packaging group
ADR/RID: I.
IMDG: I.
IATA: -
- 14.5. Environmental hazard
ADR/RID: no
IMDG: no
IATA: no
- 14.6. Special precautions for user:
No relevant information available.
- 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:
Not applicable.

SECTION 15: REGULATORY INFORMATION

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture:
REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

COMMISSION REGULATION (EC) No 790/2009 of 10 August 2009 amending, for the purposes of its adaptation to technical and scientific progress, Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures

REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006

COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

15.2. Chemical safety assessment: no information available.

SECTION 16: OTHER INFORMATION

Information regarding the revision of the safety data sheet: none.

Full text of the abbreviations in the safety data sheet:

DNEL: Derived no effect level. PNEC: Predicted no effect concentration. CMR effects: carcinogenity, mutagenicity and toxicity for reproduction. PBT: Persistent, bioaccumulative and toxic. vPvB: Very Persistent, Very Bioaccumulative. n.d.: not defined. n.a.: not applicable.

Data sources: safety data sheet (dated 15. 10. 2014) issued by the manufacturer.

Relevant R-Phrases (number and full text) of Section 2 and 3:

R 11 - Highly flammable.

R 21/22 - Harmful in contact with skin and if swallowed.

R 26 - Very toxic by inhalation

R 34 - Causes burns.

Relevant H-Phrases (number and full text) of Section 2 and 3:

H225 - Highly flammable liquid and vapour

H302 - Harmful if swallowed.

H312 - Harmful in contact with skin.

H314 - Causes severe skin burns and eye damage.

H330 - Fatal if inhaled.

Training instructions: n.d.

This safety data sheet had been prepared on the basis of information provided by the manufacturer/supplier and conform to the relevant regulations. The information, data and recommendations contained herein are provided in good faith, obtained from reliable sources and believed to be true and accurate as of the date issued; however, no representation is made as to the comprehensiveness of the information. The SDS shall be used only as a guide for handling the product; in the course of handling and using the product other considerations may arise or be required. Users are cautioned to determine the appropriateness and applicability of the above information to their particular circumstances and purposes and assume all risk associated with the use of this product. It is the responsibility of the user to fully comply with local, national and international regulations concerning the use of this product.

Safety data sheet was prepared by: ToxInfo Ltd.

Professional help regarding the explanation of the safety data sheet:
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Download of safety data sheet:

