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A VanDeMark Company

SAFETY DATA SHEET

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

1.1. Product identifier:

Methyl chloroformate

Chemical name: Methyl chloroformate
CAS number 79-22-1
EC number: 201-187-3
Index number: 607-019-00-9
Registration number: 01-2119463323-44-0002

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:

Framochem Francia-Magyar Finomkémiai Kft.

3700 Kazincbarcika, Szervíz út 5., Pf. 504

Telephone: +36 (48) 311-991

Fax: +36 (48) 512-162

E-mail: info@framochem.hu

1.3.1. Name of the 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):

Flammable Liquids 2 – H225

Acute toxicity 2 (oral) – H300

Acute toxicity 4 (dermal) – H312

Acute toxicity 1 (inhalation) – H330

Skin corrosion 1B – H314

Warning H statements:

H225 – Highly flammable liquid and vapour.

H300 – Fatal if swallowed.

H312 – Harmful in contact with skin.

H330 – Fatal if inhaled.

H314 – Causes severe skin burns and eye damage.

2.2. Label elements:

Chemical name: Methyl chloroformate

CAS number 79-22-1

EC number: 201-187-3

GHS02



GHS06



GHS05



DANGER

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Warning H statements:

- H225** – Highly flammable liquid and vapour.
- H300** – Fatal if swallowed.
- H312** – Harmful in contact with skin.
- H330** – Fatal if inhaled.
- H314** – Causes severe skin burns and eye damage.

EUH071 - Corrosive to the respiratory tract.

Precautionary P statements:

- P210** – Keep away from sparks, open flame, heat and other ignition sources. No smoking.
- P223** – Do not allow contact with water.
- P234** – Keep only in original container.
- P240** – Ground/bond container and receiving equipment.
- P241** – Use explosion-proof electrical/ventilating/lighting/equipment.
- P242** – Use only non-sparking tools.
- P243** – Take precautionary measures against static discharge.
- P280** – Wear protective gloves/protective clothing/eye protection/face protection.
- P284** – Wear respiratory protection.
- P390** – Absorb spillage to prevent material damage.
- P303 + P361 + P353** - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P370 + P378** – In case of fire: Use dry extinguishing power, alcohol resistant foam or carbon dioxide for extinction.
- P403 + P235** – Store in a well-ventilated place. Keep cool.
- P501** – Dispose of contents/container as hazardous waste according to the local regulations.

2.3. Other hazards:

See Section 11.

Results of PBT and vPvB assessment: not considered a PBT or vPvB substance.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances:

Description:

IUPAC name: Methyl chlorocarbonate

Chemical name: Methyl chloroformate

Synonym: Chlorformate methyl ester; Methoxycarbonyl chloride

CAS number: 79-22-1

EC number: 201-187-3

Index number: 607-019-00-9

Formula: C₂H₃ClO₂

Molar mass: 94,5 g/mol

Purity: >99,3 %

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures:

General

In all cases keep the victim at physical and mental rest and warm. In all serious events and always in case of eye contact, seek for medical help.

IN CASE OF INGESTION:

Measures:

- Rinse the mouth with clean water, make him drink 0,1-0,2 l of water.
- Do not induce vomiting.
- Obtain immediate medical help.

IN CASE OF INHALATION:

Measures:

- Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- Obtain immediate medical help.

IN CASE OF SKIN CONTACT:

Measures:

- Immediately remove the contaminated clothes.

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- Clean the affected skin surface with plenty of flowing water.
- Obtain immediate medical help.

IN CASE OF EYE CONTACT:

Measures:

- Remove contact lenses.
- In case of contact with eyes flush immediately with plenty of flowing water for 15 minutes holding eyelids apart (for at least 15 minutes).
- Obtain immediate medical help.

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

See Section 11.

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

Symptomatic treatment.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media:

5.1.1. Suitable extinguishing media:

Dry extinguishing powder, alcohol resistant foam, carbon dioxide.

5.1.2. Unsuitable extinguishing media:

Water.

5.2. Special hazards arising from the substance or mixture

In case of fire, smoke and other combustion products (hydrogen chloride, phosgene / carbonyl chloride, nitrogen oxides, carbon oxides, halogenated compounds) may be formed, the inhalation of such combustion products can have serious adverse effects on health.

5.3. Advice for fire fighters:

Wear full protective clothing and self-contained breathing apparatus.

Knock down gases/vapours/mists with water spray.

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:

Wear respiratory protection and protective clothes. Avoid inhaling vapours, mist or gases.

Ensure adequate ventilation.

Remove the ignition sources.

Evacuate personnel to safe areas.

Beware of vapours accumulating to form explosive concentrations.

Vapours can accumulate in low areas.

6.2. Environmental precautions:

Dispose of spillage and waste (product/packaging) in accordance with all applicable environmental laws. Do not allow the substance and the resulting waste 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 non-combustible absorbent (e.g. sand, earth, vermiculite), then place into a suitable, closed, properly labelled chemical waste container for disposal.

During the collection/placement/disposal of the hazardous waste use appropriate personal protective equipment. Use carbonate or sodium bicarbonate solution to the neutralization 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 with eyes and skin.

Avoid inhalation of vapour/mist/spray.

Wear appropriate personal protective equipment.

Do not eat, drink or smoke during the work.

Technical measures:

If vapour/mist may be generated, ensure adequate ventilation/local exhaust.

Precautions against fire and explosion:

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Keep away from sparks, open flame, heat and other ignition sources. No smoking.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting/equipment.
Use only non-sparking tools. Take precautionary measures against static discharge.

7.2. Conditions for safe storage, including any incompatibilities:

Technical measures and storage condition:
Keep in original, tightly closed and appropriately labelled container.
Store in cool and dry place, protected from moisture.
Protect from direct weather conditions (light, heat, frost, moisture).
The place of storage has to be properly ventilated.
Incompatible materials: see Section 10.5.
Packaging material: no data available.

7.3. Specific end use(s):

No specific instructions available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:

Occupational exposure limit values:
The substance is not regulated with exposure limit value.

Information about the decomposition products:

Methanol (CAS: 67-56-1): 8 hours: 260 mg/m³, 200 ppm (Regulation 2006/15/EC)

Phosgene (CAS: 75-44-5): 8 hours: 0,08 mg/m³, 0,02 ppm; Short term: 0,4 mg/m³, 0,1 ppm (Regulation 2000/39/EC)

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.

Do not breathe gas/mist/spray. Ensure adequate ventilation where vapour/mist/spray is generated.

The body protection suitable for the given workplace should be chosen according to the quantity of the hazardous material and its concentration.

8.2.2. Individual protection measures, such as personal protective equipment:

1. Eye/face protection: use adequate, tightly sealed protective goggles/face shield (EN 166).

2. Skin protection:

a. Hand protection: in case of short term contact or splash risk, use appropriate protective gloves (EN 374).
Material: butyl rubber. Thickness: 0,7 mm. Breakthrough time: >30 min.

b. Other: use appropriate protective clothes, apron, boots, cap. The resistance of the protective clothing to chemicals should be ascertained with the respective supplier.

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3. Respiratory protection: if gases, vapours are formed, use appropriate respiratory protective device (against vapours of organic compounds, e.g. EN 14387 - type A). In case of higher concentrations or for long term contact: self-contained breathing apparatus.
4. Thermal hazard: None known.
- 8.2.3. Occupational exposure controls
Avoid uncontrolled escape of material into the environment.
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 liquid		
2. Odour:	pungent		
3. Odour threshold:	no data available*		
4. pH:	not applicable		
5. Melting point/ freezing point:	< -81 °C		
6. Initial boiling point and boiling range:	71 °C		
7. Flash point:	18 °C	Closed Cup	
8. Evaporation rate:	no data available*		
9. Flammability (solid, gas):	no data available*		
10. Upper/lower flammability or explosive limits:	7,8 vol % / 23,3 vol %		
11. Vapour pressure:	500 * 10 ² Pa 137 * 10 ² Pa	50,50 °C 20 °C	
12. Vapour density:	3,3	air = 1	
13. Relative density:	no data available*		
14. Solubility(ies):	decomposes on contact with water; soluble in organic solvents		
15. Partition coefficient: n-octanol/water:	not applicable		
16. Auto-ignition temperature:	500 °C		
17. Decomposition temperature:	no data available*		
18. Viscosity:	no data available*		
19. Explosive properties:	no data available*		
20. Oxidising properties:	no data available*		

9.2. Other information:

Density (20 °C): 1,22 g/cm³

*: The manufacturer did not carry out any studies on this parameter for the product or the results of the examinations were not available at the time the data sheet was issued.

SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity:
Reacts violently with water.
- 10.2. Chemical stability:
Stable within normal temperature and general work conditions.
- 10.3. Possibility of hazardous reactions:
Air sensitive.
Reacts violently with water.
Decomposes to the effect of heat.
- 10.4. Conditions to avoid:
Keep away from sparks, open flame, heat and other ignition sources. No smoking.
Avoid direct contact with sunlight.
Take precautionary measures against static discharge.
- 10.5. Incompatible materials:
Oxidizing agents. Water, alcohols, bases, amines.
- 10.6. Hazardous decomposition products:
Methyl chloride, hydrogen chloride, carbon dioxide, methanol.

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SECTION 11: TOXICOLOGICAL INFORMATION

- 11.1. Information on toxicological effects:
Acute toxicity: Fatal 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: Causes serious eye damage.
Respiratory or skin sensitisation: Based on the information available, the criteria for classification are not fulfilled.
Germ cell mutagenicity: Based on the information available, the criteria for classification are not fulfilled.
Carcinogenicity: Based on the information available, the criteria for classification are not fulfilled.
Reproductive toxicity: Based on the information available, the criteria for classification are not fulfilled.
STOT-single exposure: Based on the information available, the criteria for classification are not fulfilled.
STOT-repeated exposure: Based on the information available, the criteria for classification are not fulfilled.
Aspiration hazard: Based on the information available, the criteria for classification are not fulfilled.
- 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) value: 310 mg/kg
LC50 (inhalational, rat): 88 ppm/1 h
- 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:
Inhalation: May cause pulmonary oedema (the symptoms can be delayed, even hours after the exposition).
Irritation: severely irritates the skin and the eyes. Irritates the mucous membranes.
Sensitisation: Some chloroformates may be sensitizing (not frequent).
- 11.1.5. Delayed and immediate effects as well as chronic effects from short and long-term exposure:
Fatal if swallowed.
Harmful in contact with skin.
Fatal if inhaled.
Causes severe skin burns and eye damage.
- 11.1.6. Interactive effects:
No data available.
- 11.1.7. Absence of specific data:
No information.
- 11.1.8. Other information:
No data available.

SECTION 12: ECOLOGICAL INFORMATION

- 12.1. Toxicity:
Not classified as dangerous for the environment.
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. Bioaccumulative potential:
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:
Not considered a PBT or vPvB substance.
- 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:
Incinerate in incinerating plant for danger waste in accordance with local regulations.
European Waste Code:
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 EWC codes indicated below are only recommendations, but they may have to be changed due to special circumstances, in such cases new classification may be needed.
- 13.1.2. Information regarding the disposal of the packaging:

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Dispose according to the national regulations.

Cleaning contaminated packaging: with aqueous solution of sodium hydroxide or ammonia.

- 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:
ADR/RID; IMDG: UN 1238
IATA: Transport by air is forbidden.
- 14.2. UN proper shipping name:
ADR/RID: METHYL CHLOROFORMATE
IMDG: METHYL CHLOROFORMATE
- 14.3. Transport hazard class(es):
6.1 TFC
- 14.4. Packaging group:
I
- 14.5. Environmental hazards:
Environmental hazard: none.
Marine pollutant: no.
- 14.6. Special precautions for user:
Labels: 6.1 + 3 + 8
- 14.7. Transport in bulk according to Annex II of MARPOL 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
- 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) 2015/830 of 28 May 2015 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:
The safety data sheet has been revised according to Regulation 830/2015/EU (Section 1-16).
The classification of the substance has been modified compared to the previous version (see data provided in REACH registration dossier).

Full text of the abbreviations in the safety data sheet:

DNEL: Derived no effect level. PNEC: Predicted no effect concentration. CMR effects: carcinogenicity, mutagenicity and toxicity for reproduction. PBT: Persistent, bioaccumulative and toxic. vPvB: very persistent and very bioaccumulative. n.d.: not defined. n.a.: not applicable. - VOC: volatile organic compound

Data sources:

previous version of the safety data sheet (15. 10. 2014., version: CLP _ C),
ECHA database (REACH registration).

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

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H225 – Highly flammable liquid and vapour.
H300 – Fatal if swallowed.
H312 – Harmful in contact with skin.
H330 – Fatal if inhaled.
H314 – Causes severe skin burns and eye damage.
EUH071 - Corrosive to the respiratory tract.

Training instructions: no data available.

This safety data sheet had been prepared on the basis of information provided by the manufacturer/supplier of the product and meets the requirements of 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. During the use and handling of the product – within given circumstances – additional, hereby non-indicated considerations may 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 Kft.

Professional help regarding the explanation of the safety data sheet:
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