



SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING METHACRYLOYL CHLORIDE

CAS number 920-46-7
EU number 213-058-9
Formula C₄ H₂ Cl O
Molar weight: 104, 5

- 1.1. Use of the substance/preparation (industrial, professional, private):
Use of the substance/mixture: Organic synthesis intermediar
- 1.2. Manufacturer: **FRAMOCHEM FRENCH-HUNGARIAN FINE CHEMICALS LTD.**
3700 Kazincbarcika
Szerviz str. 5., POB. 200.
Telephone: +36 (48) 311-991
Fax: +36 (48) 512-162
- 1.3. Supplier: **FRAMOCHEM FRENCH-HUNGARIAN FINE CHEMICALS LTD.**
3700 Kazincbarcika
Szerviz str. 5., POB. 200.
Telephone: +36 (48) 311-991
Fax: +36 (48) 512-162
- 1.4. Responsible person: framochem@hu.isochem.eu
- 1.5. Emergency telephone number: Local toxicological centre
<http://www.who.int/ipcs/poisons/centre/directory/en/>

2. HAZARDS IDENTIFICATION



Highly flammable



Corrosive

R 11 - Highly flammable
R 14 - Reacts violently with water.
R 20/22 - Harmful by inhalation and if swallowed.
R 34 - Causes burns.
R 36/37 - Irritating to eyes and respiratory system.

Classification according to the CLP regulation:

Acute toxicity: Category 4
Flammability: Category 2
Skin corrosion/skin irritation: Category 1
Specific target organ toxicity category (single exposition): Category 3



DANGER

H225 – Highly flammable liquid and vapour.
H302 – Harmful if swallowed.
H314 – Causes severe skin burns and eye damage.
H319 – Causes serious eye irritation.
H332 – Harmful if inhaled.
H335 – May cause respiratory irritation.
EUH 014 – Reacts violently with water.

2.1. Information concerning specific hazards for human and environment:
See section 11.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Description: Stabilized with 200 ppm phenothiazine.

Description	CAS number	EU number	REACH number	Concentration (%)	Hazard letter(s)	R-phrase	CLP classification:
Methacryloyl chloride *	920-46-7	213-058-9	-	≥ 99, 3	F;C	11-14-20/22-34 -36/37	GHS02 GHS07 GHS05 DANGER H225 H302 H314 H319 H332 H335 EUH014

* Substance classified by the manufacturer or substance which has no obligatory classification according to the EU regulations.

Synonym: 2-methyl-2-propenoyl chloride

4. FIRST AID MEASURES

GENERAL INFORMATION: Obtain immediate medical attention and show him the label.

INFORMATION TO THE PHYSICIAN: No specific prescription.

Symptoms: None known.

Treatment: No specific prescription.

4.1. IN CASE OF INGESTION:

Measures:

- Obtain immediate medical help and/or take the victim to the hospital.
- Flush the mouth of the victim with plenty of water.
- Show the label or the safety data sheet to the physician.

4.2. IN CASE OF INHALATION:

Measures:

- Obtain immediate medical help and/or take the victim to the hospital!
- 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.



4.3. IN CASE OF SKIN CONTACT:

Measures:

- Obtain immediate medical help and/or take the victim to the hospital.
- Immediately remove the contaminated clothing 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.

4.4. IN CASE OF EYE CONTACT:

Measures:

- Obtain immediate medical help and/or take the victim to the hospital.
- In case of contact with eyes flush immediately with plenty of flowing water for 15 minutes holding eyelids apart.

5. FIRE-FIGHTING MEASURES

5.1. Suitable extinguishing media:

Carbon dioxide, dry powder, foam.

5.2. Unsuitable extinguishing media for safety reasons:

Do not use water jet!

5.3. Special protective equipment:

Wear full protective clothing (against phosgene and hydrochloric acid vapors) and self-contained breathing apparatus. These means can protect from the skin and eye contact and from the inhalation of the hazardous gases and smoke.

5.4. Hazardous combustion products:

In case of combustion, hydrochloric acid vapour is formed.

5.5. Other:

The extinguishing water should not be allowed to drains or watercourses. The extinguishing water and the residues should be treated as hazardous waste! The closed containers should be cooled with water!

6. ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS:

Keep unprotected people away, allow only well trained experts wearing suitable protective clothing to abide in the field of accident. Ensure adequate ventilation. Remove any heat sources. Designate the contaminated area. Avoid contact with skin and eyes, avoid inhalation.

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 FOR CLEANING UP:

Collect the spilled material with inert, non-combustible, mineral absorbent (sand, earth), then place into a suitable, closed, properly labelled chemical waste container for disposal. During disposal wear suitable personal protective equipment. The wastewater and the residues should be treated as hazardous waste.

7. HANDLING AND STORAGE

7.1. Handling:

Precautions for safe handling:

Observe conventional hygiene precautions.

Avoid contact with skin, eyes and clothing, avoid inhalation.

Do not eat, drink and smoke in the workplace.

Use adequate personal protective equipments (see point 8).

The contaminated clothes should be removed immediately and should be cleaned before re-use.

After the handling of the product and before breaks or before eating wash your hands, after the work hours thorough washing (warm water hand washing and showering with soap) is required.

Technical measures:

Ensure adequate ventilation.

Precautions against fire and explosion:

No specific prescription.



- 7.2. Storage:
 Technical measures and storage condition:
 Keep in original, closed and labelled container.
 The place of storage has to be properly ventilated and cleanable.
 Store in cool and dry place.
 Keep in original, closed and labelled container, protected from humidity.
 The place of storage has to be dry, properly ventilated and cleanable!
 Storage temperature: $\leq - 0$ oC.
 Follow all instructions on the label.
 Incompatible materials. : water, alcohols, amines, bases, acides.
 Packaging material: Metal container lined with polyethylene only.

- 7.3. Specific uses:
 No specific instructions available.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Exposure limit values:

DNEL		Routes of exposure	Exposure frequency:	Remarks:
Worker:	Consumer:			
		Dermal:	Short term (acute) Long term (repeated)	
		Inhalative	Short term (acute) Long term (repeated)	
		Oral	Short term (acute) Long term (repeated)	

PNEC			Exposure frequency:	Remarks:
Water	Soil	Air		
			Short term (single use) Long term (repeated)	
			Short term (single use) Long term (repeated)	
			Short term (single use) Long term (repeated)	

- 8.2. Occupational 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.

- 8.3. Engineering measures:
 In pursuance of work is proper foresight needed to avoid spilling onto clothes and floors and to avoid contact with eyes and skin.
 In the place of regular use/in the workplace, hand washing facility should be available. Disinfectant should be available.
 Do not eat or smoke during the handling.
 Avoid contact with skin, eyes and clothing, avoid inhalation.
 Before the breaks and after the work hours wash thoroughly (hand and body).
 The contaminated clothes should be removed immediately and should be cleaned before re-use.
 Avoid contact with skin, eyes and clothing, avoid inhalation.

- 8.4. Personal protective equipment:
1. Respiratory protection: Conform to EN 136,141. Suitable respiratory protection resistant to solvent vapours and in pursuance of work self-contained breathing apparatus.
 2. Skin protection: Conform to EN 369. Use adequate acid resistant protective clothes.
 3. Hand protection: Conform to EN 374. Use appropriate protective gloves.
 4. Eye protection: Conform to EN 166. Use adequate protective goggles/ protective mask. In the vicinity of the workplace, eye washing fountain should be available.

- 8.5. Occupational exposure controls:
 No specific prescription.
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.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Physical and chemical properties:

Parameter		Test method:	Remarks:
1. Physical state:	liquid		
2. Colour:	colourless		
3. Odour:	unpleasant		
4. Melting point:	no data available		
5. Density (20 °C):	1, 07 g/cm ³		
6. Solubility & Miscibility:	Reacts with water. Well soluble in common solvents.		
7. Boiling point:	96 °C		
8. Viscosity:	no data available		
9. Degradation temperature:	no data available		
10. Flash point:	2 °C		
11. Self-ignition temperature:	no data available		
12. pH value, aqueous solution (20 °C): pH value, in supplied form (20 °C):	not applicable		
13. Flammability:	no data available		
14. Oxidizing properties:	no data available		
15. Vapour pressure(20 °C):	6,26 x 10 ² Pa 27 x 10 ² Pa	20 °C 100 °C	
16. Evaporation rate (butyl acetate):	no data available		
17. Partition co-efficient (n-Octanol/water):	not applicable		
18. Vapour density (air =1):	3,6		

9.2. Other information:

No data available.

10. STABILITY AND REACTIVITY

10.1. Stability:

- under 10 °C temperature: stabile at general conditions of work. Violently react with water, toxic and combustible gases are formed.
- Hazardous decomposition products: during the thermal decomposition, HCl is formed. In case of heating, polymerise.
- Hazardous reactions, materials to avoid: Reacts with water while hydrochloric acid and methacryloyl acid are formed, reacts with alkalies, amines and alcohol.

11. TOXICOLOGICAL INFORMATION

11.1. Acute toxicity (LD₅₀):

LC₅₀ (inhalative, rat, 4h): 7,1 mg/l

LD₅₀ (oral, rat): 1320 mg/kg.

11.2. Other:

Acute effects:

Ingestion: No data available.

Inhalation: No data available.

Skin contact: corrosive.

Eye contact: Causes serious eye burns.

Irritation: May cause eye irritation.

Sensitisation: No data available.

Subacute toxicity:

Symptoms by intensive or prolonged exposition: not known

CMR effects:

Carcinogenity: The substance is not listed in the list of carcinogen substances.

Reproductive toxicity: None known.

Mutagenicity: None known.

Summarized evaluation of the CMR properties: -

Specific symptoms observed in animal studies: not known.



12. ECOLOGICAL INFORMATION

Do not enter into drains, watercourses and soil.

Ecotoxicity: The sewage should be neutralised before entering into sewage works. In lower concentration it does not effect the cleaning processes.

LC₅₀ (96 h, Onchorynchus Mykyss) = 85mg/l: harmful for fish.

Mobility: No data available.

Persistence and biodegradation: biodegradation of methacryl acid: 86 % in 28 days.

Bioaccumulation potential: No data available.

Results of PBT assessments: No data available.

Other adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

Disposal according to the local regulations.

Product: Do not enter the waste material into soil, drains and watercourses.

European Waste Code: During the disposal of the product, its residue and its packaging the national and local prescriptions should be observed. 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.

Packaging: The packaging material contaminated with hazardous waste should be disposed according to the local regulations. The emptied packaging material should be collected and disposed according to the pertinent regulation.

14. TRANSPORT INFORMATION

Refrigerated transport!

14.1 GENERAL INFORMATION:

1. UN Number: 2924

2. Proper shipping name: FLAMMABLE LIQUID, CORROSIVE, N.O.S. (Methacryloyl chloride)

14.2. Land transport:

1. ADR/RID Class: 3.FC

2. Packing group: II

3. Labels: 3+8

4. Hazard number: 338

5. Tunnel restriction code: D/E

14.3. Marine transport:

1. IMO/IMDG Class: 3

2. Packing group: II

3. Labels: 3+8

4. EmS: F-E, S-C

14.4. Air transport:

1. ICAO/IATA Class: 3

2. Packing group: II

3. Labels: 3 (Flammable liquid) + 8 (Corrosive)

4. PAX 305 (1 l), CAO 307 (5 l)

15. REGULATORY INFORMATION

15.1. Chemical safety assessment-

15.2. Labelling:

Hazard symbols:

F



Highly flammable

C



Corrosive



Risk phrases:

- R 11** - Highly flammable
- R 14** - Reacts violently with water.
- R 20/22** - Harmful by inhalation and if swallowed.
- R 34** - Causes burns.
- R 36/37** - Irritating to eyes and respiratory system.

Safety phrases:

- S 16** - Keep away from sources of ignition – No smoking
- S 23** - Do not breathe gas/fumes/vapour/spray
- S 36/37/39** - Wear suitable protective clothing, gloves and eye/face protection.
- S 43**-In case of fire use foam. Never use water

Classification according to the CLP regulation:

- Acute toxicity: Category 4
- Flammability: Category 2
- Skin corrosion/skin irritation: Category 1
- Specific target organ toxicity category (single exposition): Category 3

GHS02



GHS07



GHS05



DANGER

H-phrases:

- H225** – Highly flammable liquid and vapour.
- H302** – Harmful if swallowed.
- H314** – Causes severe skin burns and eye damage.
- H319** – Causes serious eye irritation.
- H332** – Harmful if inhaled.
- H335** – May cause respiratory irritation.
- EUH 014** – Reacts violently with water.

P-phrases:

- P210** – Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
- P260** – Do not breathe dust/fume/gas/mist/vapours/spray.
- P280** – Wear protective gloves/protective clothing/eye protection/face protection.
- P305 + P351 + P338** – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Continue rinsing.
- P310** – Immediately call a POISON CENTER or doctor/physician.
- P370 + P378** – In case of fire: Use foam. Do not use water.

15.3. Packaging instructions: -

15.4. Authorisations/Restrictions: -

15.5. Relevant EU and national regulations:

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

DIRECTIVE 1999/45/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations

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)

16. OTHER INFORMATION

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

- R 11** - Highly flammable
- R 14** - Reacts violently with water.
- R 20/22** - Harmful by inhalation and if swallowed.
- R 34** - Causes burns.
- R 36/37** - Irritating to eyes and respiratory system.

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

- H225** – Highly flammable liquid and vapour.
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Training instructions-

Recommended restrictions on use (non-statutory recommendations by supplier): -

Data sources:

Transport information: HUNGÁRIA VESZÉLYESÁRU MÉRNÖKI IRODA Kft. <<http://www.hvesz.hu/>>

All information, data and recommendations contained in this safety data sheet are provided in good faith, obtained from reliable sources and believed to be true and accurate as of the date issued. The SDS shall be used only as a guide for handling the product and can not be considered as a warranty or quality specification. During the use and handling of the product, additional, hereby non indicated considerations may be required within given circumstances. Since the manufacturer does not know the circumstances of the use and handling of the product, no warranty is assumed regarding the accuracy, completeness or suitability of all or any of the information contained herein at the time of use. 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.

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 reproduction toxicity. **PBT**: Persistent, bioaccumulative and toxic. . n.d.: not defined. . n.a.: Not applicable. .

(*) Modified sections: -