

## SAFETY DATA SHEET

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

1.1. Product identifier:

**CYCLOHEXANECARBONYL CHLORIDE**

Chemical name: Cyclohexanecarbonyl chloride

CAS number: 2719-27-9

EC number: 220-322-7

Registration number: 01-2120099076-48-0005; 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:

**FRAMOChem FRENCH-HUNGARIAN FINE CHEMICALS LTD.**

3700 Kazincbarcika, Szerviz Str. 5., POB. 504

Tel.: +36 48 311-991

Fax: (48) 512-162

E-mail: [info@framochem.hu](mailto:info@framochem.hu)

1.3.1. Responsible person:

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E-mail: [info@framochem.hu](mailto:info@framochem.hu)

1.4. Emergency telephone number:

**Public Toxicological Health Service (ETTSZ)**

1096 Budapest, Nagyváradi 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):

Acute toxicity (oral), Hazard Category 4 – H302

Skin corrosion/irritation, Hazard Category 1B – H314

Specific target organ toxicity – Single exposure, Hazard Category 3, Respiratory tract irritation – H335

**Warning H statements:**

**H302** – Harmful if swallowed.

**H314** – Causes severe skin burns and eye damage.

**H335** – May cause respiratory irritation.

2.2. Label elements:

Chemical name: Cyclohexanecarbonyl chloride

CAS number: 2719-27-9

EC number: 220-322-7



DANGER

**Warning H statements:**

**H302** – Harmful if swallowed.

**H314** – Causes severe skin burns and eye damage.

**H335** – May cause respiratory irritation.

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**Precautionary P statements:**

**P260** – Do not breathe gas/mist/vapours/spray.

**P280** – Wear protective gloves/protective clothing/eye protection/face protection.

**P301 + P330 + P331** – IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

**P303 + P361 + P353** – IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

**P304 + P340** – IF INHALED: Remove victim to fresh air and keep at rest in a position 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.

**P310** – Immediately call a POISON CENTER/doctor.

**P404** – Store in a closed container.

2.3. Other hazards:

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

### SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance:

Chemical name: Cyclohexanecarbonyl chloride

Synonym: Hexahydrobenzoyl chloride

CAS number: 2719-27-9

EC number: 220-322-7

Formula: C<sub>7</sub>H<sub>11</sub>ClO

Molar weight: 146.5 g/mol

Purity: ≥ 99.5 %

### SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures:

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

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 and give him plenty of water to drink.
- Show the label or the safety data sheet to the physician.
- Do not induce vomiting.

IN CASE OF INHALATION:

Measures:

- Take the victim into fresh air, loosen his clothes and let him rest.
- If the victim is unconscious and breathing, place him into recovery position and protect from cooling down!
- Obtain medical attention and show him the label or this safety data sheet.

IN CASE OF SKIN CONTACT:

Measures:

- Immediately remove the contaminated clothing and shoes.
- Wash the skin surface with plenty of water and soap (for 15 minutes).
- If symptoms occur, obtain immediate medical attention and show him the label.

IN CASE OF EYE CONTACT:

Measures:

- Flush with plenty of flowing water holding eyelids apart (for at least 15 minutes).
- Obtain immediate medical help and/or take the victim to the hospital.

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:

No special treatment needed; treat symptomatically.

### 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.

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- 5.2. Special hazards arising from the substance or mixture:  
Hazardous decomposition products:  
Smoke and other combustion products (carbon monoxide, carbon dioxide and hydrochloric acid).  
The inhalation of such combustion products can cause serious adverse effects on health.
- 5.3. Advice for fire fighters:  
Wear appropriate full protective clothing and self-contained breathing apparatus (self-rescue breathing apparatus). These means can protect from the skin and eye contact and from the inhalation of the hazardous gases and smoke.

## 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 from 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 for disposal. During disposal wear suitable personal protective equipment.
- 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 skin, eyes and clothing, avoid inhalation.  
Do not eat, drink and smoke in the workplace.  
Use adequate personal protective equipment (see section 8).  
The condemned 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 / local extraction.  
Precautions against fire and explosion:  
No specific prescription.
- 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.  
Follow all instructions on the label.  
Incompatible materials: see section 10.5.  
Packaging material: metal drum lined with adequate polyethylene.
- 7.3. Specific end use(s):  
No specific instructions available.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

- 8.1. Control parameters:  
  
Occupational exposure limit values (Commission Directive 2000/39/EC of 8 June 2000):  
The substance is not regulated with exposure limit value.

DNEL	Routes of exposure:	Exposure frequency:	Remarks:
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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.

The inhalation exposure should be avoided.

Ensure adequate ventilation, especially in closed areas.

Do not eat or smoke during the processing.

In the place of regular use/in the workplace, hand washing facility should be available. Disinfectant should be available.

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.

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 adequate protective gloves according to EN 374.
  - b. Other: use adequate acid resistant protective clothes according to EN ISO 6529.
3. Respiratory protection: use adequate respirator (for organic vapours) according to EN 136, EN 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. <b>Appearance:</b>	colourless liquid		
2. <b>Odour:</b>	pungent		
3. Odour threshold:	no data available*		
4. pH value:	not applicable		
5. Melting point/freezing point:	< - 30 °C		
6. Initial boiling point/boiling range:	148 °C		
7. Flash point:	90 °C		
8. Evaporation rate:	no data available*		
9. Flammability (solid, gas):	no data available*		
10. Upper/lower flammability or explosive limits:	no data available*		
11. Vapour pressure:	66 Pa	20 °C	
12. Vapour density:	5.05	air = 1	

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13. Relative density: no data available\*
14. Solubility(ies): it decomposes in water while hydrochloric acid is formed, soluble in solvents
15. Partition coefficient: n-octanol/water: not applicable
16. Auto-ignition temperature: no data available\*
17. Decomposition 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 (20 °C): 1.09 g/cm<sup>3</sup>  
\*: The manufacturer did not carry out any tests on this parameter for the product or the results of the tests are not available at the time of publication of the data sheet.

## SECTION 10: STABILITY AND REACTIVITY

- 10.1. **Reactivity:**  
Stable at room temperature and general conditions of work.
- 10.2. **Chemical stability:**  
Stable at room temperature and general conditions of work.
- 10.3. **Possibility of hazardous reactions:**  
Reacts with water.
- 10.4. **Conditions to avoid:**  
Contact with water.
- 10.5. **Incompatible materials:**  
Metals, bases, water, amines and alcohol.
- 10.6. **Hazardous decomposition products:**  
In case of thermal decomposition: carbon dioxide, carbon monoxide and hydrogen chloride are formed.

## SECTION 11: TOXICOLOGICAL INFORMATION

- 11.1. **Information on toxicological effects:**  
Acute toxicity: Harmful if swallowed.  
Skin corrosion/irritation: Causes severe skin burns.  
Serious eye damage/eye irritation: Causes serious eye damage.  
Respiratory or skin sensitisation: Based on available data, the classification criteria are not met.  
Germ cell mutagenicity: Based on available data, the classification criteria are not met.  
Carcinogenicity: Based on available data, the classification criteria are not met.  
Reproductive toxicity: Based on available data, the classification criteria are not met.  
STOT-single exposure: May cause respiratory irritation.  
STOT-repeated exposure: Based on available data, the classification criteria are not met.  
Aspiration hazard: Based on available data, the classification criteria are not met.
- 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:  
**Acute toxicity:**  
LD50 (oral, rat): 975 mg/kg  
**Irritation:** irritates the mucous membranes.  
**Sensitization:** no data available.  
**Subacute and chronic toxicity:**  
Intensive or prolonged exposition: none known.
- 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: harmful.  
Inhalation: may cause pulmonary edema (even several hours later).  
Skin contact: corrosive, may cause burning.  
Eye contact: corrosive, may cause burning.
- 11.1.5. Delayed and immediate effects as well as chronic effects from short and long-term exposure:

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Harmful if swallowed.  
Causes severe skin burns and eye damage.  
May cause respiratory irritation.

- 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:  
Based on available data, the classification criteria are not met.
- 12.2. Persistence and degradability:  
No data available.
- 12.3. Bioaccumulation potential:  
No data available.
- 12.4. Mobility in soil:  
No data available.
- 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.  
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 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:  
ADR/RID; IMDG; IATA: UN 3265
- 14.2. UN proper shipping name:  
ADR/RID: CORROSIVE, ACIDIC, ORGANIC LIQUID, N.O.S. (Hexahydrobenzoyl chloride)  
IMDG; IATA: CORROSIVE, ACIDIC, ORGANIC LIQUID, N.O.S. (Hexahydrobenzoyl chloride)
- 14.3. Transport hazard class(es):  
ADR/RID: 8 C3  
IMDG; IATA: 8
- 14.4. Packaging group:  
ADR/RID; IMDG; IATA: II
- 14.5. Environmental hazards:  
ADR/RID; IMDG; IATA: no
- 14.6. Special precautions for user:  
No relevant information available.
- 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code:  
Not applicable.

## SECTION 15: REGULATORY INFORMATION

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- 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 (EU) 2015/830 (Section 1-16).

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, Very Bioaccumulative. n.d.: not defined. n.a.: not applicable. ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road. RID: Regulations Concerning the International Carriage of Dangerous Goods by Rail. IATA: International Air Transport Association. IMDG: International Maritime Dangerous Goods.

Key literature references and sources for data:

Previous version of the safety data sheet (30. 01. 2015, version CLP \_ B),  
REACH registration dossier.

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

**H302** – Harmful if swallowed.

**H314** – Causes severe skin burns and eye damage.

**H335** – May cause respiratory irritation.

Training advice: no data available.

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 Kft.

Professional help regarding the explanation of the safety data sheet  
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