

SAFETY DATA SHEET

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

1.1. Product identifier:

Phenyl chloroformate

Chemical name: Phenyl chloroformate

CAS number: 1885-14-9

EC number: 217-547-8

Registration number: 01-2119957121-45-0001; transported isolated intermedier

1.2. Relevant identified uses of the substance and uses advised against:

Organic synthesis intermedier for industrial use.

1.3. Details of the supplier of the safety data sheet:

Information about the manufacturer/distributor:

Framochem French-Hungarian Fine Chemicals Ltd.

3700 Kazincbarcika, Szervíz str. 5., PO Box 504

Telephone: +36 (48) 311-991

Fax: +36 (48) 512-162

1.3.1. Responsible person:

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E-mail:

info@framochem.hu

1.4. Emergency telephone number:

Public Toxicological Health Service (ETTSZ)

1097 Budapest, Albert Flórián út 2-6.

Tel.: +36 80 201 199 (0-24, free of charge – only from Hungary)

Tel.: +36 1 476 6464 (0-24, normal charge – also from foreign countries)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance:

Classification according to Regulation (EC) No 1272/2008 (CLP):

Corrosive to metals, Hazard Category 1 – H290

Acute toxicity (oral), Hazard Category 4 – H302

Skin corrosion/irritation, Hazard Category 1A – H314

Serious eye damage/eye irritation, Hazard Category 1 – H318

Acute toxicity (inhalation), Hazard Category 1 – H330

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

Hazardous to the aquatic environment – Chronic Hazard, Category 3 – H412

Hazard statements:

H290 – May be corrosive to metals.

H302 – Harmful if swallowed.

H314 – Causes severe skin burns and eye damage.

H318 – Causes serious eye damage.

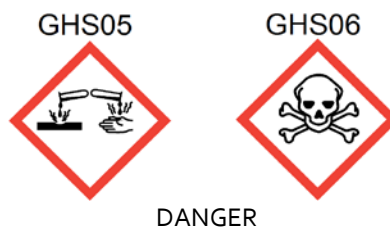
H330 – Fatal if inhaled.

H335 – May cause respiratory irritation.

H412 – Harmful to aquatic life with long lasting effects.

2.2. Label elements:

IUPAC name: Phenyl chloroformate
CAS number: 1885-14-9
EU number: 217-547-8



Hazard statements:

H290 – May be corrosive to metals.
H302 – Harmful if swallowed.
H314 – Causes severe skin burns and eye damage.
H330 – Fatal if inhaled.
H335 – May cause respiratory irritation.
H412 – Harmful to aquatic life with long lasting effects.

Precautionary statements:

P273 – Avoid release to the environment.
P280 – Wear protective clothing/eye protection/face protection.
P284 – Wear respiratory protection.
P303 + P361 + P353 – IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P305 + P351 + P338 + P310 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
P304 + P340 + P310 – IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.

2.3. Other hazards:

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

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance:

Chemical name: Phenyl chloroformate
Synonym: Chlorformate-phenyl ester
CAS number: 1885-14-9
EC number: 217-547-8
Molecular formula: $C_5H_5O_3$
Molecular weight: 156.57 g/mol
Purity: > 99,8%

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures:

General information: Transport the injured into the hospital.

INGESTION:

Measures:

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

INHALATION:

Measures:

- Take the victim into fresh air, loosen his clothes and let him rest (recovery position is recommended) and protect from cooling down.
- Obtain immediate medical help and/or take the victim to the hospital.

SKIN CONTACT:

Measures:

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

EYE CONTACT:

Measures:

- In case of contact with eyes flush with plenty of flowing water holding eyelids apart and moving the eyeballs (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: FIREFIGHTING MEASURES

5.1. Extinguishing media:

5.1.1. Suitable extinguishing media:

Carbon dioxide, dry powder, foam.

5.1.2. Unsuitable extinguishing media:

Do not use water.

5.2. Special hazards arising from the substance or mixture:

In case of thermal decomposition, toxic and corrosive vapours, fumes (such as carbon dioxide, carbon monoxide, hydrochloric acid) can form, the inhalation of such combustion products may seriously damage health!

In case of hydrolysis: hydrochloric acid and phenol are formed.

5.3. Advice for firefighters:

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:

Allow only well-trained experts wearing suitable protective clothing to abide in the field of the 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. Wear appropriate protective equipment.

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 inert, non-combustible, mineral absorbent (sand, earth, perlite), 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.

6.4. Reference to other sections:

For further and detailed information see Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling:

Observe conventional hygiene precautions.

Personal protective equipment should be selected based on the task to be performed and the risks involved.

Technical measures:

Ensure adequate ventilation (local exhaustion).

Precautions against fire and explosion:

No special prescription.

7.2. Conditions for safe storage, including any incompatibilities:

Technical measures and storage condition:

Keep in original, tightly closed and properly labelled container.

The place of storage has to be properly ventilated and cleanable.

Store in a cool, dry, well-ventilated place.

Protect from moisture and heat.

Follow all instructions on the label.

Incompatible materials: See Section 10.5

Packaging material: Metal container lined with polyethylene, with inert material or polyethylene container.

Avoid the use of non-protected metal containers.

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 (EC) No 2000/39 of 8 June 2000):

The substance is not regulated with exposure limit value.

In case of hydrolysis: hydrochloric acid and phenol are formed.

Phenol (CAS: 108-95-2):

Long-term exposure limit (8-hr TWA reference period): 2 ppm, 7,8 mg/m³;

Short-term exposure limit (15-minute reference period): 4 ppm, 16 mg/m³

Hydrogen chloride (gas and aerosol mists) (CAS: 7647-01-0):

Long-term exposure limit (8-hr TWA reference period): 1 ppm, 2 mg/m³;

Short-term exposure limit (15-minute reference period): 5 ppm, 8 mg/m³

DNEL values		Oral exposure		Dermal exposure		Inhalative exposure	
		Short term (acute)	Long term (chronic)	Short term (acute)	Long term (chronic)	Short term (acute)	Long term (chronic)
Consumer	Local	no data	no data	no data	no data	no data	no data
	Systemic	no data	no data	no data	no data	no data	no data
Worker	Local	no data	no data	no data	no data	no data	no data
	Systemic	no data	no data	no data	no data	no data	no data

PNEC values		
Compartment	Value	Note(s)
Freshwater	no data	no notes
Marine water	no data	no notes
Freshwater sediment	no data	no notes
Marine water sediment	no data	no notes
Sewage Treatment Plant (STP)	no data	no notes
Intermittent release	no data	no notes
Secondary poisoning	no data	no notes
Soil	no data	no notes

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.

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:**

Do not inhale the vapours.

Do not eat or smoke during the processing.

Before the breaks and after the work hours wash your hands and yourself thoroughly.

Apply proper technique when removing protective clothing and clean contaminated clothing before reuse.

The information regarding personal protective equipment is only for informative purposes. A complete risk assessment is required before the use of the product for the determination of the appropriate personal protective equipment, taking local circumstances into account.

1. **Eye/face protection:** Use appropriate protective glasses/protective mask (EN ISO 16321-1:2022; EN 166).

2. **Skin protection:**

a. **Hand protection:** Use appropriate protective gloves according to EN 374 (made of PVC or rubber).

b. **Other:** Use appropriate, 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 hazards:** No thermal hazards known.

8.2.3. **Environmental exposure controls:**

Emissions from ventilation or work process equipment should be checked to ensure compliance with environmental regulations. In some cases, technical modifications of fume scrubbers, filters or engineering modifications are necessary to reduce emissions of the process equipment to acceptable levels.

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 is necessary before deciding upon further protective measures.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. **Information on basic physical and chemical properties:**

Parameter	Value / Test method / Remarks
1. Physical state	liquid
2. Colour	colourless, clear
3. Odour, odour threshold	pungent odour
4. Melting point/freezing point	-38 °C
5. Boiling point or initial boiling point and boiling range	185 °C
6. Flammability	no data*
7. Lower and upper explosion limit	no data*
8. Flash point	69 °C
9. Auto-ignition temperature	500 °C
10. Decomposition temperature	no data*
11. pH	not applicable (in aqueous solution)
12. Kinematic viscosity	no data*

13. Solubility in water in other solvents	in case of contact with water, decomposes soluble in common solvents
14. Partition coefficient n-octanol/water (log value)	no data*
15. Vapour pressure	102 Pa (20 °C), 27 x 10 ² Pa (89 °C)
16. Density and/or relative density	1.25 g/cm ³ (20 °C)
17. Relative vapour density	5,4 (air = 1)
18. Particle characteristics	no data*

9.2. Other information:

9.2.1. Information with regard to physical hazard classes:

No further data available or not applicable for the product.

9.2.2. Other safety characteristics:

Reacts with water with formation of HCl and phenol.

May be corrosive to metals.

*: 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, or the property is not applicable for the product.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity:

No reactivity known.

10.2. Chemical stability:

Stable at normal temperature and under general work conditions.

10.3. Possibility of hazardous reactions:

Reacts with water.

See Section 10.5.

10.4. Conditions to avoid:

Avoid contact with water.

10.5. Incompatible materials:

Bases, water, amines, acids and alcohol.

10.6. Hazardous decomposition products:

In case of thermal decomposition: Carbon dioxide, carbon monoxide and hydrogen chloride, in case of hydrolysis: hydrochloric acid and phenol are formed.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008:

Acute toxicity: Harmful if swallowed. Fatal if inhaled.

Skin corrosion/irritation: Causes severe skin burns and eye damage.

Serious eye damage/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. Summaries of the information derived from the test conducted:

No data available.

11.1.2. Relevant toxicological properties:

Acute toxicity:

LD₅₀ (oral, rat): 1581 mg/kg

LD₅₀ (dermal, rabbit): 4800 mg/kg

LC₅₀ (inhalative, rat): 44 ml/m³/4h

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 oedema (even several hours later).

Skin contact: May cause serious irritation and burning.

Eye contact: May cause serious irritation and burning.

Irritation:

Extremely irritates the mucuous membranes. Extremely skin and eyes irritating substance.

11.1.5. Delayed and immediate effects as well as chronic effects from short and long-term exposure:

Harmful if swallowed.

Causes severe skin burns and eye damage.

Fatal if inhaled.

May cause respiratory irritation.

11.1.6. Interactive effects:

No data available.

11.1.7. Absence of specific data:

No information.

11.2. Information on other hazards:

Endocrine disrupting properties:

Endocrine disrupting property: Not an endocrine disruptor.

Other information:

No data available.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity:

Harmful to aquatic life with long lasting effects.

LC₅₀ (Pimephales promelas): 11.6 mg/l/48h;

EC₅₀ (Daphnia magna): 29 mg/l/24h

12.2. Persistence and degradability:

No data available about the substance.

Phenol (degradation product): Rapidly biodegradable.

12.3. Bioaccumulative potential:

No data available about the substance.

Phenol (degradation product): Very slightly bioaccumulative.

12.4. Mobility in soil:

The substance decomposes with hydrolysis and hydrochloric acid and phenol is formed, which are soluble in water.

Phenol: Solubility in water: 8 w % 20 °C.

12.5. Results of PBT and vPvB assessment:

This substance does not meet the criteria of PBT or vPvB.

12.6. Endocrine disrupting properties:

Endocrine disrupting property: Not an endocrine disruptor.

12.7. 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.

List of Waste Code:

No waste disposal key according to the List of Waste Code (LoW code) can be determined for this product, as only the purpose of application defined by the user enables an allocation. The LoW code number has to be determined after a discussion with a waste disposal specialist.

13.1.2. Information regarding the disposal of the packaging:

Dispose according to the relevant regulations.

The contaminated packaging should be cleaned with alkaline solution.

13.1.3. Physical/chemical properties that may affect waste treatment options shall be specified:

No data available.

- 13.1.4. **Sewage disposal:**
No data available.
- 13.1.5. **Special precautions for any recommended waste treatment:**
No data available.

SECTION 14: TRANSPORT INFORMATION

- 14.1. **UN number or ID number:**
UN 2746
- 14.2. **UN proper shipping name:**
ADR/RID: PHENYL CHLOROFORMATE
IMDG: PHENYL CHLOROFORMATE
IATA: Phenyl chloroformate
- 14.3. **Transport hazard class(es):**
ADR/RID: 6.1. TC1
Labels: 6.1 + 8
IMDG: 6.1
IATA: 6.1
- 14.4. **Packing group:**
II
- 14.5. **Environmental hazards:**
ADR/RID: Yes.
IMDG: Yes.
IATA: No.
- 14.6. **Special precautions for user:**
IMDG:
EmS: F-A,S-B
- 14.7. **Maritime transport in bulk according to IMO instruments:**
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 (EC) No 1999/45 and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive (EEC) No 76/769 and Commission Directives (EEC) No 91/155, (EEC) No 93/67, (EC) No 93/105 and (EC) No 2000/21
- 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 (EEC) No 67/548 and (EC) No 1999/45, and amending Regulation (EC) No 1907/2006
- COMMISSION REGULATION (EU) 2020/878** of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- 15.2. **Chemical safety assessment:** No information.

SECTION 16: OTHER INFORMATION

Information regarding the revision of the safety data sheet:

The safety data sheet has been revised according to Regulation (EU) 2020/878 (Section 1-16).
The hazard classification of the substance was modified compared to the previous version.

This safety data sheet supersedes all previous versions according to Annex II of Regulation (EC) No 1907/2006.

Literature references / data sources:

Previous version of the safety data sheet (01. 09. 2017, version: CLP_D)

Relevant hazard statements (code and full text) of Sections 2 and 3:

H290 – May be corrosive to metals.
H302 – Harmful if swallowed.
H314 – Causes severe skin burns and eye damage.
H318 – Causes serious eye damage.
H330 – Fatal if inhaled.
H335 – May cause respiratory irritation.
H412 – Harmful to aquatic life with long lasting effects.

Training advice: No data available.

Full text of the abbreviations in the safety data sheet:

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
ADR: Agreement concerning the International Carriage of Dangerous Goods by Road.
ATE: Acute Toxicity Estimate.
AOX: Adsorbable organic halides.
BCF: Bioconcentration factor.
BOD: Biological Oxygen Demand.
CAS number: Chemical Abstract Service number.
CLP: Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.
CMR effects: Carcinogenic, mutagenic, reprotoxic effects.
COD: Chemical Oxygen Demand.
CSA: Chemical Safety Assessment.
CSR: Chemical Safety Report.
DNEL: Derived-No-Effect-Level.
ECHA: European Chemical Agency.
EC: European Community.
EC number: EINECS and ELINCS numbers (see also EINECS and ELINCS).
EEC: European Economic Community.
EEA: European Economic Area (EU + Iceland, Liechtenstein and Norway).
EINECS: European Inventory of Existing Commercial Chemical Substances.
ELINCS: European List of Notified Chemical Substances.
EN: European Norm.
EU: European Union.
EuPCS: European product categorisation system.
EWC: European Waste Catalogue (replaced by LoW – see below).
GHS: Globally Harmonized System of Classification and Labelling of Chemicals.
IATA: International Air Transport Association.
ICAO-TI: Technical Instructions for the Safe Transport of Dangerous Goods by Air.
IMDG: International Maritime Dangerous Goods.
IMO: International Maritime Organization.
IMSBC: International Maritime Solid Bulk Cargoes.
IUCLID: International Uniform Chemical Information Database.
IUPAC: International Union of Pure and Applied Chemistry.
Kow: n-Octanol - Water Partition Coefficient.
LC50: Lethal concentration resulting in 50 % mortality.
LD50: Lethal dose resulting in 50 % mortality (median lethal dose).
LoW: List of Waste.
LOEC: Lowest Observed Effect Concentration.
LOEL: Lowest Observed Effect Level.
NOEC: No Observed Effect Concentration.
NOEL: No Observed Effect Level.
NOAEC: No Observed Adverse Effect Concentration.
NOAEL: No Observed Adverse Effect Level.
OECD: Organization for Economic Cooperation and Development.
OSHA: Occupational Safety and Health Administration.
PBT: Persistent, Bioaccumulative and Toxic.
PNEC: Predicted No Effect Concentration.
QSAR: Quantitative Structure Activity Relationship.

REACH: Regulation 1907/2006/EC concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals.
RID: Regulations Concerning the International Transport of Dangerous Goods by Rail.
SCBA: Self Contained Breathing Apparatus.
SDS: Safety Data Sheet.
STOT: Specific Target Organ Toxicity.
SVHC: Substances of Very High Concern.
UN: United Nations.
UVCB: Chemical Substances of Unknown or Variable Composition, Complex Reaction Products and Biological Materials.
VOC: Volatile Organic Compound.
vPvB: very Persistent and very Bioaccumulative.

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:
MSDS-Europe
International branch of ToxInfo Kft.

Professional help regarding the explanation of
the safety data sheet:
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www.msds-europe.com

