VALSYNTHESE

# Material Safety Data Sheet
**according to Regulation (EC) No. 1907/2006**

## HEXYL CHLOROFORMATE

| | |
|---|---|
| Revision date | 26.05.2025 |
| Version | 1 |
| Replaces version from | - |

## 1. Identification of the substance/Mixture and of the company/undertaking

### 1.1 Product identifier

| | |
|---|---|
| Product name | Hexyl chloroformate |
| CAS-No. | 6092-54-2 |
| EC-No. | 228-036-4 |

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

| | |
|---|---|
| Identified uses | Laboratory chemicals, Manufacture of substances. |

### 1.3 Details of the supplier of the safety data sheet

| | |
|---|---|
| Name | Valsynthese SA |
| Factory address | Valsynthese SA<br>Fabrikstrasse 48<br>PO Box 636<br>3900 Brig / Switzerland |
| Office address | Valsynthese SA<br>Societe Suisse des Explosifs Group<br>PO Box 636<br>3900 Brig / Switzerland |
| Information Departement | This number is available only during office hours.<br>Phone +41 27 922 71 11<br>E-Mail (Responsible person):<br>msds@sse-group.com |
| **1.4 Emergency Phone Number** | +41 27 922 71 11 (only during office hours) or<br>Toxicological Information Centre in Switzerland: Tel. 145 or +41 (0) 44 251 51 51 |

## 2. Hazards Identification

### 2.1 Classification of the substance or mixture

**Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Acute toxicity, (Category 3), H301
Skin corrosion, (Sub-category 1B), H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

### 2.2 Label elements

**Labelling according Regulation (EC) No 1272/2008**

Hazard pictogram(s)

| | |
|---|---|
| Signal word | Danger |
| Hazard statement(s) | |
| H301+H311+H331 | Toxic if swallowed, in contact with skin or if inhaled. |
| H314 | Causes severe skin burns and eye damage. |
| Precautionary statement(s) | |
| P261 | Avoid breathing mist or vapors. |
| P271 | Use only outdoors or in a well-ventilated area. |
| P280 | Wear protective gloves/ protective clothing/ eye protection/ Face protection. |
| P303+P361+P353 | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. |
| P304+P340+P310 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor. |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| Supplemental Hazard Statements | none |

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information:
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Lachrymator.

## 3. Composition / Information on ingredients

### 3.1 Substance

| | |
|---|---|
| Product name | Hexyl chloroformate |
| Molecular formula | $C_7H_{13}ClO_2$ |
| Molecular weight | 164,63 g/mol |
| CAS-No. | 6092-54-2 |
| EC-No. | 228-036-4 |

**Hazardous ingredients according to Regulation (EC) No 1272/2008**

| Component | Classification | Concentration |
|---|---|---|
| **Hexyl chloroformate** | | |
| CAS-No. 6092-54-2<br>EC-No. 228-036-4 | Acute Tox. 3; Skin Corr. 1B; H331, H311, H301, H314 | <=100% |

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16.

## 4. First-aid measures

### 4.1 Description of first aid measures

| | |
|---|---|
| General advice | First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance. |
| If swallowed | If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise. |
| If inhaled | After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen. |
| In case of skin contact | In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately. |

| | |
|---|---|
| In case of eye contact | After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses. |

### 4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

### 4.3 Indication of any immediate medical attention and special treatment needed

No data available

## 5. Fire fighting measures

### 5.1 Extinguishing media

| | |
|---|---|
| Suitable extinguishing media | Water, Foam, Carbon dioxide (CO2), Dry powder. |
| Unsuitable extinguishing media | For this substance/mixture no limitations of extinguishing agents are given. |

### 5.2 Special hazards arising from the substance or mixture

Carbon oxides
Hydrogen chloride gas
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

### 5.3 Advice for fire fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### 5.4 Additional information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

## 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

### 6.2 Environmental precautions

Do not let product enter drains.

### 6.3 Methods and material for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

### 6.4 Reference to other sections

For further and detailed information see section 8 and 13.

## 7. Handling and storage

### 7.1 Precautions for safe handling

**Advice on safe handling**
Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

**Advice on protection against fire and explosion**
Keep away from open flames, hot surfaces and sources of ignition.Take precautionary measures against static discharge.

**Hygiene measures**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
For precautions see section 2.2.

### 7.2 Conditions for safe storage, including any incompatibilities

**Storage conditions**
Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

**Storage stability**
Recommended storage temperature
2 - 8 °C
Vent periodically. Handle and open container with care. Moisture sensitive.

**Storage class**
Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

### 7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

## 8. Exposure controls / Personal protection

### 8.1 Control parameters

**Ingredients with workplace control parameters**

### 8.2 Exposure controls

**Personal protective equipment**

| | |
|---|---|
| Eye/face protection | Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles. |

| | |
|---|---|
| Skin protection | Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.<br>The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it. |
| Body Protection | protective clothing. |
| Respiratory protection | required when vapours/aerosols are generated.<br>Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.<br>Recommended Filter type: Filter type ABEK.<br>The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented. |
| Environmental exposure controls | Do not let product enter drains. |

## 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

| | |
|---|---|
| Physical state | liquid |
| Color | colorless |
| Odor | No data available |
| pH value | No data available |
| Melting point/freezing point | No data available |
| Initial boiling point and boiling range | 60 - 61 °C at 9 hPa - lit. |
| Flash point | 62 °C - closed cup |
| Evaporation rate | No data available |
| Flammability (solid, gas) | No data available |
| Upper/lower flammability or explosive limits | No data available |
| Vapour pressure | 4,136 hPa at 20 °C<br>39,978 hPa at 55 °C |
| Density | 1,007 g/cm3 at 25 °C - lit. |
| Relative density | No data available |
| Water solubility | No data available |
| Partition coefficient: n-octanol/water | No data available |

| | |
|---|---|
| Auto-ignition temperature | No data available |
| Decomposition temperature | No data available |
| Viscosity | Viscosity, kinematic: No data available<br>Viscosity, dynamic: No data available |
| Particle characteristics | No data available |
| Explosive properties | No data available |
| Oxidizing properties | No data available |

### 9.2 Other information

No data available

## 10. Stability and reactivity

### 10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Strong heating.

### 10.5 Incompatible materials

Strong bases, Bases, Alcohols, Amines.

### 10.6 Hazardous decomposition products

In the event of fire: see section 5

## 11. Toxicological information

### 11.1 Information on toxicological effects

| | |
|---|---|
| Acute toxicity | Oral: No data available<br>LC50 Inhalation - 4 h - 3 mg/l - vapor<br><br>(Acute toxicity estimate)<br>LD50 Dermal - 300 mg/kg |
| Skin corrosion/irritation | No data available |
| Serious eye damage/eye irritation | No data available |

| | |
|---|---|
| Respiratory or skin sensitisation | No data available |
| Germ cell mutagenicity | No data available |
| Carcinogenicity | No data available |
| Reproductive toxicity | No data available |
| STOT-single exposure | No data available |
| STOT-repeated exposure | No data available |
| Aspiration hazard | No data available |

### 11.2 Additional information

**Endocrine disrupting properties**

**Product** (Assessment)
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Material is extremely destructive to tissue of the mucous membranes and upper Respiratoy tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea.

## 12. Ecological information

### 12.1 Toxicity

No data available

### 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/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6 Endocrine disrupting properties

**Product** (Assessment)
The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### 12.7 Other adverse effects

No data available

## 13. Disposal considerations

### 13.1 Waste treatment methods

**Product**

No data available

## 14. Transport information

### 14.1 UN Number

| ADR/RID: 3277 | IMDG: 3277 | IATA: 3277 |
|---|---|---|

### 14.2 UN proper shipping name

| ADR/RID: | IMDG: | IATA: |
|---|---|---|
| CHLOROFORMATES, TOXIC, CORROSIVE, N.O.S. (Hexyl chloroformate) | CHLOROFORMATES, TOXIC, CORROSIVE, N.O.S. (Hexyl chloroformate) | Chloroformates, toxic, corrosive, n.o.s. (Hexyl chloroformate) |

### 14.3 Transport hazard class(es)

| ADR/RID: 6.1 (8) | IMDG: 6.1 (8) | IATA: 6.1 (8) |
|---|---|---|

### 14.4 Packing group

| ADR/RID: II | IMDG: II | IATA: II |
|---|---|---|

### 14.5 Environmental hazards

| ADR/RID: no | IMDG Marine pollutant: no | IATA: no |
|---|---|---|

### 14.6 Special precautions for user

Tunnel restriction code : (D/E)

**Further information**

No data available

## 15. Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

**National legislation**

| | | |
|---|---|---|
| Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances. | H2 | ACUTE TOXIC |

**Other regulations**

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

### 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

## 16. Other information

### 16.1 Information regarding the revision of the safety data sheet

Version 1 based on the classification according to Regulations (EC) No 1272/2008, (EU) 878/2020 and (EU) 707/2023.

### 16.2 Full text of H-Statements referred to under sections 2 and 3

| | |
|---|---|
| H301 | Toxic if swallowed. |
| H311 | Toxic in contact with skin. |
| H314 | Causes severe skin burns and eye damage. |
| H331 | Toxic if inhaled. |

### 16.3 Additional information

The information contained herein is in conformity with EU Directive EC 1907/2006 and EC 1272/2008, and is believed to be accurate and represents the best information currently available to us on the date of publication. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Valsynthese SA be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Valsynthese SA has been advised of the possibility of such damages.