

## SAFETY DATA SHEET

Version 6.3  
Revision Date 08/06/2021  
Print Date 05/28/2022

**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Propyl chloroformate

Product Number : 249467  
Brand : Aldrich  
Index-No. : 607-142-00-8  
CAS-No. : 109-61-5

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

Identified uses : Laboratory chemicals, Synthesis of substances

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

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

**1.4 Emergency telephone**

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-  
527-3887 CHEMTREC (International) 24  
Hours/day; 7 Days/week

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Flammable liquids (Category 2), H225  
Acute toxicity, Oral (Category 4), H302  
Acute toxicity, Inhalation (Category 3), H331  
Skin corrosion (Category 1B), H314  
Serious eye damage (Category 1), H318

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

**2.2 GHS Label elements, including precautionary statements**

Pictogram



Signal word

Danger

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|                            |                                                                                                                                                                            |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hazard statement(s)        |                                                                                                                                                                            |
| H225                       | Highly flammable liquid and vapor.                                                                                                                                         |
| H302                       | Harmful if swallowed.                                                                                                                                                      |
| H314                       | Causes severe skin burns and eye damage.                                                                                                                                   |
| H318                       | Causes serious eye damage.                                                                                                                                                 |
| H331                       | Toxic if inhaled.                                                                                                                                                          |
| Precautionary statement(s) |                                                                                                                                                                            |
| P210                       | Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.                                                                                                        |
| P233                       | Keep container tightly closed.                                                                                                                                             |
| 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.                                                                                                                      |
| P261                       | Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.                                                                                                                      |
| P264                       | Wash skin thoroughly after handling.                                                                                                                                       |
| P270                       | Do not eat, drink or smoke when using this product.                                                                                                                        |
| P271                       | Use only outdoors or in a well-ventilated area.                                                                                                                            |
| P280                       | Wear protective gloves/ protective clothing/ eye protection/ face protection.                                                                                              |
| P301 + P312 + P330         | IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.                                                                                                |
| P301 + P330 + P331         | IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.                                                                                                                         |
| P303 + P361 + P353         | IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.                                                               |
| P304 + P340 + P310         | IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.                    |
| 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/ doctor. |
| P363                       | Wash contaminated clothing before reuse.                                                                                                                                   |
| P370 + P378                | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.                                                                                      |
| P403 + P233                | Store in a well-ventilated place. Keep container tightly closed.                                                                                                           |
| P403 + P235                | Store in a well-ventilated place. Keep cool.                                                                                                                               |
| P405                       | Store locked up.                                                                                                                                                           |
| P501                       | Dispose of contents/ container to an approved waste disposal plant.                                                                                                        |

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Lachrymator.

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

|                  |                                                  |
|------------------|--------------------------------------------------|
| Formula          | : C <sub>4</sub> H <sub>7</sub> ClO <sub>2</sub> |
| Molecular weight | : 122.55 g/mol                                   |
| CAS-No.          | : 109-61-5                                       |
| EC-No.           | : 203-687-7                                      |
| Index-No.        | : 607-142-00-8                                   |

| Component                   | Classification                                                                                             | Concentration |
|-----------------------------|------------------------------------------------------------------------------------------------------------|---------------|
| <b>Propyl chloroformate</b> |                                                                                                            |               |
|                             | Flam. Liq. 2; Acute Tox. 4;<br>Acute Tox. 3; Skin Corr.<br>1B; Eye Dam. 1; H225,<br>H302, H331, H314, H318 | <= 100 %      |

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

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## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

Consult a physician. Show this material safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

#### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 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

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

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

Carbon oxides

Hydrogen chloride gas

### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

### 5.4 Further information

Use water spray to cool unopened containers.

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## SECTION 6: Accidental release measures

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

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

For personal protection see section 8.

### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

### 6.4 Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

#### Advice on safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

#### Advice on protection against fire and explosion

Use explosion-proof equipment. **Advice on protection against fire and explosion**

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

#### Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

For precautions see section 2.2.

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

#### Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

#### Storage stability

Recommended storage temperature

2 - 8 °C

Vent periodically. Handle and open container with care. Moisture sensitive.

#### Storage class

Storage class (TRGS 510): 3: Flammable liquids

### 7.3 Specific end use(s)

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

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

### 8.2 Exposure controls

#### Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

#### Personal protective equipment

##### Eye/face protection

Tightly fitting safety goggles. Faceshield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

##### 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.

Full contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact

Material: butyl-rubber

Minimum layer thickness: 0.3 mm

Break through time: 480 min

Material tested: Butoject® (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

##### Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

##### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

## Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

|                                                 |                                                |
|-------------------------------------------------|------------------------------------------------|
| a) Appearance                                   | Form: liquid<br>Color: colorless               |
| b) Odor                                         | No data available                              |
| c) Odor Threshold                               | No data available                              |
| d) pH                                           | No data available                              |
| e) Melting point/freezing point                 | Melting point/range: < -69.99 °C (< -93.98 °F) |
| f) Initial boiling point and boiling range      | 105 - 106 °C 221 - 223 °F - lit.               |
| g) Flash point                                  | 26 °C (79 °F) - closed cup                     |
| h) Evaporation rate                             | No data available                              |
| i) Flammability (solid, gas)                    | No data available                              |
| j) Upper/lower flammability or explosive limits | No data available                              |
| k) Vapor pressure                               | 59.967 hPa at 20 °C (68 °F)                    |
| l) Vapor density                                | No data available                              |
| m) Density                                      | 1.09 g/cm <sup>3</sup> at 25 °C (77 °F) - lit. |
| Relative density                                | No data available                              |
| n) Water solubility                             | No data available                              |
| o) Partition coefficient: n-octanol/water       | No data available                              |
| p) Autoignition temperature                     | 475 °C (887 °F)                                |
| q) Decomposition temperature                    | No data available                              |
| r) Viscosity                                    | No data available                              |
| s) Explosive properties                         | No data available                              |
| t) Oxidizing properties                         | No data available                              |

### 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

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## 10.2 Chemical stability

Stable under recommended storage conditions.

## 10.3 Possibility of hazardous reactions

Vapors may form explosive mixture with air.

## 10.4 Conditions to avoid

Heat, flames and sparks.

## 10.5 Incompatible materials

Strong bases, Alcohols, Amines

## 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Mouse - 650 mg/kg

Inhalation: No data available

Dermal: No data available

No data available

#### Skin corrosion/irritation

Skin - Rabbit

Result: Causes burns.

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Risk of serious damage to eyes.

(OECD Test Guideline 405)

#### Respiratory or skin sensitization

No data available

#### Germ cell mutagenicity

Test Type: in vitro test

Test system: *S. typhimurium*

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

#### Carcinogenicity

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

No ingredient of this product present at levels greater than or equal to 0.1% is

identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**Reproductive toxicity**

No data available

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**11.2 Additional Information**

RTECS: LQ6830000

Material is extremely destructive to tissue of the mucous membranes and upper respiratory 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, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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**SECTION 12: Ecological information**

**12.1 Toxicity**

Toxicity to fish                      static test LC50 - Danio rerio (zebra fish) - 3.16 mg/l - 96 h  
(OECD Test Guideline 203)

**12.2 Persistence and degradability**

No data available

**12.3 Bioaccumulative potential**

No data available

**12.4 Mobility in soil**

No data available

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Other adverse effects**

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

#### Contaminated packaging

Dispose of as unused product.

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## SECTION 14: Transport information

### DOT (US)

UN number: 2740 Class: 6.1I (3, 8) Packing group: I

Proper shipping name: n-Propyl chloroformate

Reportable Quantity (RQ):

Poison Inhalation Hazard: Hazard Zone B

### IMDG

UN number: 2740 Class: 6.1 (3, 8) Packing group: I

EMS-No: F-E, S-C

Proper shipping name: n-PROPYL CHLOROFORMATE

### IATA

UN number: 2740 Class: 6.1 (3, 8)

Proper shipping name: n-Propyl chloroformate

IATA Passenger: Not permitted for transport

IATA Cargo: Not permitted for transport

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## SECTION 15: Regulatory information

### SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

Propyl chloroformate

CAS-No.  
109-61-5

Revision Date  
2007-07-01

### SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard

### Massachusetts Right To Know Components

Propyl chloroformate

CAS-No.  
109-61-5

Revision Date  
2007-07-01

No components are subject to the Massachusetts Right to Know Act.

#### **Pennsylvania Right To Know Components**

Propyl chloroformate

CAS-No.  
109-61-5

Revision Date  
2007-07-01

Propyl chloroformate

CAS-No.  
109-61-5

Revision Date  
2007-07-01

#### **New Jersey Right To Know Components**

Propyl chloroformate

CAS-No.  
109-61-5

Revision Date  
2007-07-01

#### **California Prop. 65 Components**

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

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### **SECTION 16: Other information**

#### **Further information**

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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