

MATERIAL SAFETY DATA SHEET

Date Printed: 04/27/2009

Date Updated: 02/23/2009

Version 1.4

Section 1 - Product and Company Information

Product Name PROPYL CHLOROFORMATE, 98%
Product Number 249467
Brand ALDRICH

Company Sigma-Aldrich
Address 3050 Spruce Street
SAINT LOUIS MO 63103 US

Technical Phone: 800-325-5832
Fax: 800-325-5052
Emergency Phone: 314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name	CAS #	SARA 313
PROPYL CHLOROFORMATE	109-61-5	Yes

Formula C4H7ClO2
Synonyms Carbonochloridic acid, propyl ester (9CI) *
Propyl chlorocarbonate * Propyl chloroformate
RTECS Number: LQ6830000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Flammable. Highly Toxic (USA) Toxic (EU).
Toxic by inhalation, in contact with skin and if swallowed. Causes
burns. Irritating to eyes and respiratory system.
Lachrymator.

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

INHALATION EXPOSURE

If inhaled, remove to fresh air. If not breathing give
artificial respiration. If breathing is difficult, give oxygen.

EYE EXPOSURE

Assure adequate flushing of the eyes by separating the eyelids
with fingers.

Section 5 - Fire Fighting Measures

EXPLOSION HAZARDS

Vapor may travel considerable distance to source of ignition and
flash back. Container explosion may occur under fire conditions.

FLASH POINT

84 °F 29 °C Method: closed cup

AUTOIGNITION TEMP

N/A

FLAMMABILITY

N/A

EXTINGUISHING MEDIA

Suitable: Carbon dioxide, dry chemical powder, or appropriate foam.

Unsuitable: Do not use water.

FIREFIGHTING

Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s): Flammable liquid. Vapor may travel considerable distance to source of ignition and flash back.

Specific Method(s) of Fire Fighting: Use water spray to cool fire-exposed containers.

EXPOSURE HAZARD(S)

Material: Corrosive. Lachrymator.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area. Shut off all sources of ignition.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Absorb on sand or vermiculite and place in closed containers for disposal.

Section 7 - Handling and Storage

HANDLING

User Exposure: Open carefully. Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Suitable: Keep tightly closed. Keep away from heat, sparks, and open flame. Refrigerate on arrival.

Store at 2-8°C

SPECIAL REQUIREMENTS

Vent periodically. May develop pressure. Open carefully.

Moisture sensitive.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath. Use nonsparking tools.

PERSONAL PROTECTIVE EQUIPMENT

Eye: Use safety shield.

Other: Wear appropriate government approved respirator, chemical-resistant gloves, safety goggles, other protective clothing.

GENERAL HYGIENE MEASURES

Discard contaminated shoes. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

Molecular Weight	122.55 AMU	
pH	N/A	
BP/BP Range	105.0 - 106.0 °C	760 mmHg
MP/MP Range	N/A	
Freezing Point	N/A	
Vapor Pressure	44.979 mmHg	20 °C
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
SG/Density	1.09 g/cm3	
Bulk Density	N/A	
Odor Threshold	N/A	
Volatile%	N/A	
VOC Content	N/A	
Water Content	N/A	
Solvent Content	N/A	
Evaporation Rate	N/A	
Viscosity	N/A	
Surface Tension	N/A	
Partition Coefficient	N/A	
Decomposition Temp.	N/A	
Flash Point	84 °F 29 °C	Method: closed cup
Explosion Limits	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Refractive Index	1.404	
Optical Rotation	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

N/A = not available

Section 10 - Stability and Reactivity

STABILITY

Conditions of Instability: May decompose on exposure to moist air or water.

Materials to Avoid: Strong bases, Alcohols, Amines.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide.

Section 11 - Toxicological Information

ROUTE OF EXPOSURE

Multiple Routes: May be fatal if inhaled, swallowed, or absorbed through skin. Causes burns.

SIGNS AND SYMPTOMS OF EXPOSURE

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema.

TOXICITY DATA

Oral
Mouse
650 mg/kg
LD50

Inhalation
Mouse
319 ppm
LC50

Skin
Mouse
> 10 mg/kg
LD50

Section 12 - Ecological Information

No data available.

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT

Proper Shipping Name: n-Propyl chloroformate
UN#: 2740
Class: 6.1
Packing Group: Packing Group I
Hazard Label: Poison inhalation hazard
Hazard Label: Flammable liquid
Hazard Label: Corrosive
PIH: Zone B

IATA

Proper Shipping Name: n-Propyl chloroformate
IATA UN Number: 2740
Hazard Class: 6.1
Packing Group: I
Not Allowed - Aircraft: Not permitted for air transport.

Section 15 - Regulatory Information

EU DIRECTIVES CLASSIFICATION

Symbol of Danger: T
Indication of Danger: Toxic.
R: 10-23-34
Risk Statements: Flammable. Toxic by inhalation. Causes burns.
S: 26-36-45
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Flammable. Highly Toxic (USA) Toxic (EU).
Risk Statements: Toxic by inhalation, in contact with skin and if swallowed. Causes burns. Irritating to eyes and respiratory system.

Safety Statements: Keep away from sources of ignition - no smoking. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Take off immediately all contaminated clothing. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US Statements: Lachrymator.

UNITED STATES REGULATORY INFORMATION

SARA LISTED: Yes

NOTES: This product is subject to SARA section 313 reporting requirements.

TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFORMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

DSL: No

NDSL: Yes

Section 16 - Other Information

DISCLAIMER

For R&D use only. Not for drug, household or other uses.

WARRANTY

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 Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2009 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.