

Material Safety Data Sheet

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Version 1.1
According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

Product Name	BENZYL CHLOROFORMATE, TECH. 95%		
Product Number	119938		
Company	Sigma-Aldrich Pty, Ltd Unit 2, 14 Anella Avenue Castle Hill NSW 1765 Australia		
Technical Phone #	+61 2 9841 0555		
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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number	
BENZYL CHLOROFORMATE	501-53-1	207-925-0	None	
Ingredient Name	Percent	CAS #	EC no	Annex I Index Number
THE FOLLOWING SUBSTANCES ARE PRESENT AS RESIDUAL COMPONENTS OF PRODUCTION.		None	None	None
BENZYL CHLOROFORMATE	>= 95	501-53-1	207-925-0	None
Symbols: C N				
R-Phrases: 34 50/53				
Causes burns. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.				
BENZYL CHLORIDE	<= 3	100-44-7	202-853-6	602-037-00-3
Carc. Cat.3	Carc. Cat.2			
Symbols: T				
R-Phrases: 45 22 23 37/38 41 48/22				
May cause cancer. Harmful if swallowed. Toxic by inhalation.				
Irritating to respiratory system and skin. Risk of serious damage to eyes. Harmful: danger of serious damage to health by prolonged exposure if swallowed.				
Formula	C ₈ H ₇ ClO ₂			
Molecular Weight	170.6 AMU			

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

May cause cancer. Also harmful by inhalation. Causes burns. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4 - First Aid Measures

AFTER INHALATION

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

AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call a physician.

AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician. Do not induce vomiting.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

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

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

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

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

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

METHODS FOR CLEANING UP

Cover with dry lime or soda ash, pick up, keep in a closed container, and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe vapor. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed.
Store at -20°C

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

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

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

Special Protective Measures: Faceshield (8-inch minimum).

9 - Physical and Chemical Properties

Appearance	Physical State: Clear liquid Color: Light yellow	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	178 - 180 °C	
MP/MP Range	N/A	
Flash Point	92 °C	Method: closed cup
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	
Vapor Pressure	N/A	
SG/Density	1.212 g/cm ³	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Hydrogen chloride gas.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: LQ5860000

ACUTE TOXICITY

LD50
Oral
Rat
3000 mg/kg

LC50
Inhalation
Rat
590 mg/m³
4H

SIGNS AND SYMPTOMS OF EXPOSURE

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

ROUTE OF EXPOSURE

Skin Contact: Causes burns.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes burns.
Inhalation: Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. May be harmful if inhaled.
Ingestion: May be harmful if swallowed.

TARGET ORGAN INFORMATION

Kidneys. Liver. Blood.

CHRONIC EXPOSURE - CARCINOGEN

Result: This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 1739
Class: 8
PG: I
Proper Shipping Name: Benzyl chloroformate

IMDG

UN#: 1739
Class: 8

PG: I
Proper Shipping Name: Benzyl chloroformate
Marine Pollutant: Yes
Severe Marine Pollutant: No

IATA

UN#: 1739
Class: 8
PG: I
Proper Shipping Name: Benzyl chloroformate
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

INDICATION OF DANGER: T C N

Toxic. Corrosive. Dangerous for the environment.

R-PHRASES: 45 20 34 50/53

May cause cancer. Also harmful by inhalation. Causes burns.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-PHRASES: 53 26 36/37/39 45 60 61

Restricted to professional users. Attention - Avoid exposure - obtain special instructions before use. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. 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). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 2

16 - Other Information

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 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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