

# • SAFETY DATA SHEET

Version 6.12  
Revision Date 11/06/2025  
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## SECTION 1. IDENTIFICATION

### 1.1 Product identifiers

Product name : Benzyl chloromethyl ether  
Product Number : 13282  
Brand : Aldrich  
CAS-No. : 3587-60-8

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

Identified uses : Laboratory chemicals, Synthesis of substances  
Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

### 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 number

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

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## SECTION 2. HAZARDS IDENTIFICATION

### GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

#### Hazards for the product as supplied

Acute toxicity (Oral) : Category 4

Acute toxicity (Inhalation) : Category 4

Skin irritation : Category 2

Serious eye damage : Category 1

Skin sensitisation : Category 1

Carcinogenicity : Category 1B

Specific target organ toxicity - repeated exposure (Oral) : Category 2 (Heart, forestomach)

Short-term (acute) aquatic hazard : Category 1

Long-term (chronic) aquatic hazard : Category 1

**Other hazards**

None known.

**GHS label elements**

Hazard pictograms : 

Signal word : Danger

Hazard statements : H302 + H332 Harmful if swallowed or if inhaled.  
 H315 Causes skin irritation.  
 H317 May cause an allergic skin reaction.  
 H318 Causes serious eye damage.  
 H350 May cause cancer.  
 H373 May cause damage to organs (Heart, forestomach) through prolonged or repeated exposure if swallowed.  
 H410 Very toxic to aquatic life with long lasting effects.

Supplemental Hazard Statements : Corrosive to the respiratory tract.

Precautionary statements : **Prevention:**  
 P201 Obtain special instructions before use.  
 P202 Do not handle until all safety precautions have been read and understood.  
 P260 Do not breathe mist or vapours.  
 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.  
 P272 Contaminated work clothing must not be allowed out of the workplace.  
 P273 Avoid release to the environment.  
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.  
 P302 + P352 IF ON SKIN: Wash with plenty of water.  
 P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.  
 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.  
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
 P391 Collect spillage.

**Storage:**

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
 P405 Store locked up.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Substance

CAS-No. : 3587-60-8

**Components**

| Chemical name                | CAS No./Unique ID | Concentration (% w/w) | Trade secret |
|------------------------------|-------------------|-----------------------|--------------|
| BENZYL CHLOROMETHYL ETHER    | 3587-60-8*        | >= 45 - <= 70         | TSC          |
| Benzyl chloride              | 100-44-7*         | >= 10 - <= 30         | TSC          |
| Formaldehyde dibenzyl acetal | 2749-70-4*        | >= 7 - <= 13          | TSC          |

\* Indicates that the identifier is a CAS No.

TSC- the actual concentration or concentration range is withheld as a trade secret

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#### SECTION 4. FIRST AID MEASURES

|   |  |
|---|--|
| General advice  | : Show this safety data sheet to the doctor in attendance.   |
| If inhaled  | : After inhalation: fresh air. Immediately call in physician.<br>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. Consult a physician.                           |
| In case of eye contact                                      | : After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.   |
| If swallowed  | : After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.  |
| 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                                    |
| Protection of first-aiders                                  | : For personal protection see section 8.   |
| Notes to physician  | : No data available  |

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#### SECTION 5. FIREFIGHTING MEASURES

|                                       |  |
|---------------------------------------|--|
| Suitable extinguishing media          | : Water<br>Foam<br>Carbon dioxide (CO <sub>2</sub> )<br>Dry powder             |
| Unsuitable extinguishing media        | : For this substance/mixture no limitations of extinguishing agents are given. |
| Specific hazards during fire fighting | : Mixture with combustible ingredients.  |

Development of hazardous combustion gases or

vapours possible in the event of fire.

|  |  |
|--|--|
| Hazardous combustion products                  | : Carbon oxides<br><br>Hydrogen chloride gas   |
| Specific extinguishing methods                 | : No data available  |
| Further information                            | : Suppress (knock down) gases/vapours/mists with a water spray jet.<br>Prevent fire extinguishing water from contaminating surface water or the ground water system. |
| Special protective equipment 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.      |

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

|   |  |
|---|--|
| Personal precautions, protective equipment and emergency procedures | : Advice for non-emergency personnel:<br>Do not breathe vapours, aerosols.<br>Avoid substance contact.<br>Ensure adequate ventilation.<br>Evacuate the danger area, observe emergency procedures, consult an expert.<br>Advice for emergency responders:<br>For personal protection see section 8. |
| Environmental precautions   | : Do not let product enter drains.   |
| Methods and materials for containment and cleaning up               | : Cover drains. Collect, bind, and pump off spills.<br>Observe possible material restrictions (see sections 7 and 10).<br>Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.   |

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## SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

|                         |  |
|-------------------------|--|
| Advice on safe handling | : Work under hood. Do not inhale substance/mixture.<br>Avoid generation of vapours/aerosols. |
|-------------------------|--|

Further information on storage conditions : Tightly closed.  
Keep in a well-ventilated place.  
Keep locked up or in an area accessible only to qualified or authorised persons.

Storage class : 6.1C, Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

Recommended storage temperature : 36 - 46 °F / 2 - 8 °C

Further information on storage stability : Moisture sensitive.  
Handle and store under inert gas.

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Ingredients with workplace control parameters

| Components      | CAS-No.  | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis     |
|-----------------|----------|-------------------------------|--|-----------|
| Benzyl chloride | 100-44-7 | TWA                           | 1 ppm  | ACGIH     |
|                 |          | C                             | 1 ppm<br>5 mg/m <sup>3</sup>                   | NIOSH REL |
|                 |          | TWA                           | 1 ppm<br>5 mg/m <sup>3</sup>                   | OSHA Z-1  |

**Engineering measures** : No data available

### Personal protective equipment

Respiratory protection : required when vapours/aerosols are generated.

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.

Recommended Filter type: : Filter type ABEK

The entrepreneur 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.

Hand protection

Remarks : required

Eye 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 and body protection : protective clothing

Hygiene measures : Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : clear

Color : dark yellow, brown

Odor : No data available

Odor Threshold : No data available  
pH : No data available

Melting point : No data available

Boiling point/boiling range : 216 °F / 102 °C (19 hPa)  
Method: lit.

Flash point : No data available

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Flammability (liquids) : No data available

Burning rate : No data available

Upper explosion limit /  
Upper flammability limit : No data available

Lower explosion limit /  
Lower flammability limit : No data available

Vapor pressure : No data available

|   |   |
|---|---|
| Relative vapour density                   | : No data available                                       |
| Relative density                          | : No data available                                       |
| Density                                   | : 1.126 g/cm <sup>3</sup> (68 °F / 20 °C)<br>Method: lit. |
| Water solubility                          | : No data available                                       |
| Partition coefficient: n-octanol/water    | : log Pow: 2.22   |
| Autoignition temperature                  | : No data available                                       |
| Decomposition temperature                 | : No data available                                       |
| Viscosity, dynamic                        | : No data available                                       |
| Viscosity, kinematic                      | : No data available                                       |
| Flow time                                 | : No data available                                       |
| Explosive properties                      | : Not classified as explosive.                            |
| Oxidizing properties                      | : none  |
| Molecular weight                          | : 156.61 g/mol  |
| Particle characteristics<br>Particle size | : No data available                                       |

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## SECTION 10. STABILITY AND REACTIVITY

|                                    |   |
|------------------------------------|---|
| Reactivity                         | : No data available   |
| Chemical stability                 | : The product is chemically stable under standard ambient conditions (room temperature) . |
| Possibility of hazardous reactions | : No data available   |
| Conditions to avoid                | : no information available  |
| Incompatible materials             | : Water<br>Strong oxidizing agents  |
| 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

Oral: No data available

Acute toxicity estimate Oral - 593.05 mg/kg  
(Calculation method)

Inhalation: No data available

Acute toxicity estimate Inhalation - 4 h - 20 mg/l - vapour(Calculation method)

Dermal: No data available

#### Skin corrosion/irritation

No data available

#### Serious eye damage/eye irritation

No data available

#### Respiratory or skin sensitization

No data available

#### Germ cell mutagenicity

No data available

#### Carcinogenicity

IARC: 2A - Group 2A: Probably carcinogenic to humans (Benzyl chloride)

NTP: No component 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.

#### Reproductive toxicity

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

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

Liver - Irregularities - Based on Human Evidence

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## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Components:

##### **BENZYL CHLOROMETHYL ETHER:**

Toxicity to daphnia and other aquatic invertebrates : Remarks: No data available

##### **Benzyl chloride:**

Toxicity to fish : LC50 (Danio rerio (zebra fish)): 4 mg/l  
Exposure time: 96 h  
Test Type: static test  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 6.1 mg/l  
End point: Immobilization  
Exposure time: 48 h  
Test Type: static test  
Method: OECD Test Guideline 202  
GLP: yes

##### **Formaldehyde dibenzyl acetal:**

Toxicity to fish : Remarks: No data available

M-Factor (Acute aquatic toxicity) : 10

M-Factor (Chronic aquatic toxicity) : 10

### **Persistence and degradability**

#### Components:

##### **Benzyl chloride:**

Biodegradability : aerobic  
Inoculum: activated sludge  
Concentration: 100 mg/l  
Result: Readily biodegradable.  
Biodegradation: 71 %  
Exposure time: 14 d  
Method: OECD Test Guideline 301C

Stability in water : Test substance: Water  
Remarks: Rapid degradation.

##### **Formaldehyde dibenzyl acetal:**

Biodegradability : Remarks: No data available

### **Bioaccumulative potential**

#### **Components:**

##### **BENZYL CHLOROMETHYL ETHER:**

Partition coefficient: n- : log Pow: 2.22  
octanol/water

##### **Benzyl chloride:**

Partition coefficient: n- : log Pow: 2.3  
octanol/water Method: (experimental)  
Remarks: (IUCLID)  
Bioaccumulation is not expected.

##### **Formaldehyde dibenzyl acetal:**

Bioaccumulation : Remarks: No data available

Partition coefficient: n- : log Pow: 2.918  
octanol/water

### **Mobility in soil**

#### **Components:**

##### **Formaldehyde dibenzyl acetal:**

Stability in soil : Remarks: No data available

### **Other adverse effects**

#### **Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part  
82 Protection of Stratospheric Ozone - CAA Section  
602 Class I Substances  
Remarks: This product neither contains, nor was  
manufactured with a Class I or Class II ODS as  
defined by the U.S. Clean Air Act Section 602 (40 CFR  
82, Subpt. A, App.A + B).

#### **Components:**

##### **Benzyl chloride:**

Additional ecological : Discharge into the environment must be avoided.  
information

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## SECTION 13. DISPOSAL CONSIDERATIONS

### Disposal methods

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

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## SECTION 14. TRANSPORT INFORMATION

### International Regulations

#### IATA-DGR

UN/ID No. : UN 3082  
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s. (Formaldehyde dibenzyl acetal)  
Class : 9  
Packing group : III  
Labels : Class 9 - Miscellaneous dangerous substances and articles  
Packing instruction (cargo aircraft) : 964  
Packing instruction (passenger aircraft) : 964

#### IMDG-Code

UN number : UN 3082  
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Formaldehyde dibenzyl acetal)  
Class : 9  
Packing group : III  
Labels : 9  
EmS Code : F-A, S-F  
Marine pollutant : yes

### Transport in bulk according to IMO instruments

Not applicable for product as supplied.

### National Regulations

#### 49 CFR Road

UN/ID/NA number : UN 3082  
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s. (Formaldehyde dibenzyl acetal)  
Class : 9  
Packing group : III  
Labels : Class 9 - Miscellaneous dangerous substances and articles  
ERG Code : 171  
Marine pollutant : no

Poison Inhalation Hazard : No

**Special precautions for user**

Remarks : EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

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**SECTION 15. REGULATORY INFORMATION**

**CERCLA Reportable Quantity**

| Components      | CAS-No.  | Component RQ (lbs) | Calculated product RQ (lbs) |
|-----------------|----------|--------------------|-----------------------------|
| Benzyl chloride | 100-44-7 | 100                | 400                         |

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

| Components      | CAS-No.  | Component RQ (lbs) | Calculated product RQ (lbs) |
|-----------------|----------|--------------------|-----------------------------|
| Benzyl chloride | 100-44-7 | 100                | 400                         |

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

| Components      | CAS-No.  | Component TPQ (lbs) |
|-----------------|----------|---------------------|
| Benzyl chloride | 100-44-7 | 500                 |

**SARA 311/312 Hazards** : Acute Health Hazard  
Chronic Health Hazard

**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

Benzyl chloride 100-44-7 >= 20 - < 30 %

**Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B). The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

Benzyl chloride 100-44-7 >= 20 - < 30 %

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

Benzyl chloride 100-44-7 >= 20 - < 30 %



OSHA Z-1 / TWA : 8-hour time weighted average

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. 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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