



# SAFETY DATA SHEET

## 1. Identification

<b>Product identifier</b>	<b>Benzyl Chloride</b>	
<b>Other means of identification</b>		
<b>Catalog number</b>	1062019	
<b>CAS number</b>	100-44-7	
<b>Chemical name</b>	(Chloromethyl)benzene	
<b>Recommended use</b>	For analytical laboratory use only.	
<b>Recommended restrictions</b>	Not for use as a drug. Not for administration to humans or animals.	
<b>Manufacturer/Importer/Supplier/Distributor information</b>		
<b>Manufacturer</b>		
<b>Company name</b>	U. S. Pharmacopeia	
<b>Address</b>	12601 Twinbrook Parkway Rockville MD 20852-1790 United States	
<b>Telephone</b>	Technical Services	301-816-8129
<b>Website</b>	www.usp.org	
<b>E-mail</b>	RSTECH@usp.org	
<b>Emergency phone number</b>	CHEMTREC within US & Canada	1-800-424-9300
	CHEMTREC outside US & Canada	+1 703-527-3887

## 2. Hazard(s) identification

<b>Physical hazards</b>	Flammable liquids	Category 4
<b>Health hazards</b>	Acute toxicity, oral	Category 4
	Acute toxicity, inhalation	Category 3
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 1
	Sensitization, skin	Category 1
	Carcinogenicity	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, repeated exposure	Category 2
<b>Environmental hazards</b>	Not classified.	
<b>OSHA defined hazards</b>	Not classified.	
<b>Label elements</b>		



**Signal word**

Danger

**Hazard statement**

Combustible liquid. Harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Toxic if inhaled. May cause respiratory irritation. May cause cancer. May cause damage to organs through prolonged or repeated exposure.

## Precautionary statement

### Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from flames and hot surfaces-No smoking. Do not breathe mist or vapor. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace.

### Response

If swallowed: Call a poison center/doctor if you feel unwell. Rinse mouth. If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. 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. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. If exposed or concerned: Get medical advice/attention. In case of fire: Use appropriate media for extinction.

### Storage

Keep cool. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

### Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

### Hazard(s) not otherwise classified (HNOC)

None known.

### Supplemental information

None.

## 3. Composition/information on ingredients

### Substance

Chemical name	Common name and synonyms	CAS number	%
Benzyl Chloride		100-44-7	100

## 4. First-aid measures

### Inhalation

If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Do not use mouth-to-mouth method if the substance is inhaled. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Oxygen or artificial respiration if needed. Call a physician or poison control center immediately.

### Skin contact

Wash off with soap and plenty of water. For minor skin contact, avoid spreading material on unaffected skin. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Take off contaminated clothing and wash before reuse.

### Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

### Ingestion

If ingestion of a large amount does occur, call a poison control center immediately. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

### Most important symptoms/effects, acute and delayed

Irritant effects.

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

Provide general supportive measures and treat symptomatically.

### General information

Remove from exposure. Remove contaminated clothing. For treatment advice, seek guidance from an occupational health physician or other licensed health-care provider familiar with workplace chemical exposures. In the United States, the national poison control center phone number is 1-800-222-1222. If person is not breathing, give artificial respiration. If breathing is difficult, give oxygen if available. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention.

## 5. Fire-fighting measures

### Suitable extinguishing media

Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).

### Unsuitable extinguishing media

Do not use water jet as an extinguisher, as this will spread the fire.

### Specific hazards arising from the chemical

By heating and fire, harmful vapors/gases may be formed.

### Special protective equipment and precautions for firefighters

Use protective equipment appropriate for surrounding materials.

### Fire fighting equipment/instructions

As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and protective clothing. In case of fire and/or explosion do not breathe fumes.

### Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

**General fire hazards** Combustible liquid.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures** Keep unnecessary personnel away. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Wear appropriate personal protective equipment. Avoid inhalation of vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up** Absorb spillage with suitable absorbent material. Remove sources of ignition. Keep combustibles (wood, paper, oil, etc.) away from spilled material. Clean surface thoroughly to remove residual contamination. For waste disposal, see section 13 of the SDS.

**Environmental precautions** Avoid discharge into drains, water courses or onto the ground.

## 7. Handling and storage

**Precautions for safe handling** As a general rule, when handling USP materials, avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Clean equipment and work surfaces with suitable detergent or solvent after use. After removing gloves, wash hands and other exposed skin thoroughly. Select and use containment devices and personal protective equipment based on a risk assessment of material potency and exposure potential.

**Conditions for safe storage, including any incompatibilities** Store in tight container. This material should be handled and stored per label instructions to ensure product integrity.

## 8. Exposure controls/personal protection

### Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

#### US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
Benzyl Chloride (CAS 100-44-7)	PEL	5 mg/m <sup>3</sup>
		1 ppm

#### US. ACGIH Threshold Limit Values

Material	Type	Value
Benzyl Chloride (CAS 100-44-7)	TWA	1 ppm

#### US. NIOSH: Pocket Guide to Chemical Hazards

Material	Type	Value
Benzyl Chloride (CAS 100-44-7)	Ceiling	5 mg/m <sup>3</sup>
		1 ppm

**Biological limit values** No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls** For laboratory operations, use good technique and limit open handling. Control exposures to below the occupational exposure level (if available). Select and use containment devices and personal protective equipment based on a risk assessment of exposure potential. Cover all containers for solutions and slurries while being transferred.

### Individual protection measures, such as personal protective equipment

**Eye/face protection** Wear safety glasses with side shields, chemical splash goggles, or full face shield, if necessary. Base the choice of protection on the job activity and potential for contact with eyes or face. An emergency eye wash station should be available.

#### Skin protection

**Hand protection** Wear nitrile or other impervious gloves if skin contact is possible. When the material is dissolved or suspended in an organic solvent, wear gloves that provide protection against the solvent.

**Other** Wear lab coat. Base the choice of skin protection on the job activity, potential for skin contact and solvents and reagents in use. Do not wear protective garments in common areas (e.g., cafeterias) or out-of-doors.

**Respiratory protection** Respirators are generally not required for laboratory operations. Choose respiratory protection appropriate to the task and the level of existing engineering controls.

**Thermal hazards** Wear appropriate thermal protective clothing, when necessary.

**General hygiene considerations**

Handling practices in this SDS are recommendations for laboratory use of USP materials.

## 9. Physical and chemical properties

**Appearance** Appearance descriptions are general information and not specific to any USP lot.

**Physical state** Liquid.

**Form** Liquid.

**Color** Clear. Colorless.

**Odor** Pungent odor.

**Odor threshold** Not available.

**pH** Not available.

**Melting point/freezing point** -49 °F (-45 °C)

**Initial boiling point and boiling range** 345.2 °F (174 °C)

**Flash point** 152.6 °F (67.0 °C) Closed Cup  
165.2 °F (74.0 °C)

**Evaporation rate** Not available.

**Flammability (solid, gas)** Not applicable.

### Upper/lower flammability or explosive limits

**Flammability limit - lower (%)** Not available.

**Flammability limit - upper (%)** Not available.

**Explosive limit - lower (%)** Not available.

**Explosive limit - upper (%)** Not available.

**Vapor pressure** 0.16 kPa (77 °F (25 °C))

**Vapor density** 4.4

**Relative density** Not available.

### Solubility(ies)

**Solubility (water)** 0.5 g/l

**Partition coefficient (n-octanol/water)** 2.3

**Auto-ignition temperature** 1085 °F (585 °C)

**Decomposition temperature** Not available.

**Viscosity** Not available.

### Other information

**Dynamic viscosity** 4.16 mPa.s (68 °F (20 °C))

**Molecular formula** C<sub>7</sub>H<sub>7</sub>Cl

**Molecular weight** 126.58

**Specific gravity** 1.1 at 20 °C

**Surface tension** 37.5 mN/m (68 °F (20 °C))

## 10. Stability and reactivity

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

**Chemical stability** Material is stable under normal conditions.

**Possibility of hazardous reactions** No dangerous reaction known under conditions of normal use.

**Conditions to avoid** Contact with incompatible materials. Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point.

**Incompatible materials** Acids. Strong oxidizing agents. Aluminum.

**Hazardous decomposition products** Irritating and/or toxic fumes or gases. Emits toxic fumes under fire conditions. Cl-

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Toxic if inhaled. May cause irritation to the respiratory system.
<b>Skin contact</b>	Causes skin irritation.
<b>Eye contact</b>	Causes serious eye damage.
<b>Ingestion</b>	Harmful if swallowed.

**Symptoms related to the physical, chemical and toxicological characteristics** Narcosis. Behavioral changes. Decrease in motor functions. May cause an allergic skin reaction. Irritant effects. May cause redness and pain. Jaundice.

### Information on toxicological effects

**Acute toxicity** Toxic if inhaled. Harmful if swallowed.

Product	Species	Test Results
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Benzyl Chloride (CAS 100-44-7)

#### Acute

##### **Inhalation**

LC50	Mouse	0.39 mg/l, 2 Hours
	Rat	0.74 mg/l, 2 Hours

##### **Oral**

LD50	Rat	1150 mg/kg
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**Skin corrosion/irritation** Causes skin irritation.

**Serious eye damage/eye irritation** Causes serious eye damage.

#### **Local effects**

Eye irritation  
Result: Slight to moderate irritation.  
Species: Rabbit  
Skin irritation  
Result: Moderate irritation.  
Species: Rabbit

### Respiratory or skin sensitization

**Respiratory sensitization** Knowledge about health hazard is incomplete.

**Skin sensitization** May cause an allergic skin reaction.

Local lymph node assay  
Result: Positive.  
Species: Mouse  
Sensitization test  
Result: Positive.  
Species: Guinea pig

**Germ cell mutagenicity** Knowledge about mutagenicity is incomplete.

#### **Mutagenicity**

Chromosome aberration  
Result: Negative.  
Sister chromatid exchange  
Result: Positive.  
Unscheduled DNA synthesis  
Result: Positive.

**Carcinogenicity** May cause cancer.

#### **IARC Monographs. Overall Evaluation of Carcinogenicity**

Benzyl Chloride (CAS 100-44-7) 2A Probably carcinogenic to humans.

#### **OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)**

Not listed.

#### **US. National Toxicology Program (NTP) Report on Carcinogens**

Not listed.

**Reproductive toxicity** Knowledge about health hazard is incomplete.

## Reproductivity

Developmental

Result: Embryo-foetal toxicity: NOEL= 50 mg/kg bw

Species: Rat

Teratogenicity

Result: NOEL= 10 mg/kg bw

Species: Rat

**Specific target organ toxicity - single exposure** May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure** May cause damage to organs through prolonged or repeated exposure.

**Aspiration hazard** Knowledge about health hazard is incomplete.

## 12. Ecological information

### Ecotoxicity

Product	Species	Test Results
Benzyl Chloride (CAS 100-44-7)		
<b>Aquatic</b>		
Fish	LC50	Zebra danio (Danio rerio)
		4 mg/l, 96 hours

**Persistence and degradability** No data is available on the degradability of this substance.

### Bioaccumulative potential

**Octanol/water partition coefficient log Kow**  
2.3

**Mobility in soil** No data available.

**Other adverse effects** The product contains volatile organic compounds which have a photochemical ozone creation potential.

## 13. Disposal considerations

**Disposal instructions** Dispose in accordance with all applicable regulations. Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

**Local disposal regulations** Dispose in accordance with all applicable regulations.

**Hazardous waste code** The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

### US RCRA Hazardous Waste P List: Reference

Benzyl Chloride (CAS 100-44-7) P028

**Waste from residues / unused products** Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied.

## 14. Transport information

### DOT

<b>UN number</b>	UN1738
<b>UN proper shipping name</b>	Benzyl chloride
<b>Transport hazard class(es)</b>	
<b>Class</b>	6.1
<b>Subsidiary risk</b>	8
<b>Packing group</b>	II
<b>Packaging exceptions</b>	None
<b>Packaging non bulk</b>	202
<b>Packaging bulk</b>	243

### IATA

<b>UN number</b>	UN1738
<b>UN proper shipping name</b>	Benzyl chloride
<b>Transport hazard class(es)</b>	
<b>Class</b>	6.1
<b>Subsidiary risk</b>	8

**Packing group** II

**Other information**

**Passenger and cargo aircraft** Allowed with restrictions.

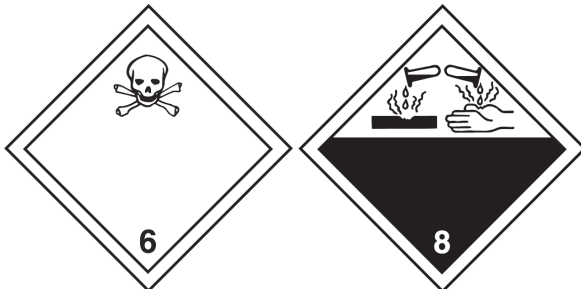
**Cargo aircraft only** Allowed with restrictions.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not established.

**DOT**



**IATA**



**General information**

It is the shipper's responsibility to determine the correct transport classification at the time of shipment.

**15. Regulatory information**

**US federal regulations**

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**Toxic Substances Control Act (TSCA)**

**TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

Not regulated.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Benzyl Chloride (CAS 100-44-7) Listed.

**SARA 304 Emergency release notification**

Benzyl chloride (CAS 100-44-7) 100 LBS

**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)**

Not listed.

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**SARA 302 Extremely hazardous substance**

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
Benzyl Chloride	100-44-7	100	500		
<b>SARA 311/312 Hazardous chemical</b>	Yes				

**Classified hazard categories**  
 Flammable (gases, aerosols, liquids, or solids)  
 Acute toxicity (any route of exposure)  
 Skin corrosion or irritation  
 Serious eye damage or eye irritation  
 Respiratory or skin sensitization  
 Carcinogenicity  
 Specific target organ toxicity (single or repeated exposure)

**SARA 313 (TRI reporting)**

Chemical name	CAS number	% by wt.
Benzyl Chloride	100-44-7	100

**Other federal regulations**

**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Benzyl Chloride (CAS 100-44-7)

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)**

Not regulated.

**Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)**  
 Hazardous substance

**Safe Drinking Water Act (SDWA)**  
 Listed. Contains component(s) regulated under the Safe Drinking Water Act.

**Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number**

Benzyl Chloride (CAS 100-44-7) 8570

**Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))**

Benzyl Chloride (CAS 100-44-7) 20 %WV

**DEA Exempt Chemical Mixtures Code Number**

Benzyl Chloride (CAS 100-44-7) 8568

**US state regulations**

**California Proposition 65**



**WARNING:** This product can expose you to Benzyl Chloride, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

**California Proposition 65 - CRT: Listed date/Carcinogenic substance**

Benzyl Chloride (CAS 100-44-7) Listed: January 1, 1990

**US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))**

Benzyl Chloride (CAS 100-44-7)

**International Inventories**

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)  
 A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).



## 16. Other information, including date of preparation or last revision

**Issue date** 07-05-2022

**Version #** 01

**Disclaimer** USP materials are sold for analytical laboratory use only, and NOT for human consumption. The information contained herein is applicable solely to the chemical substance when used for analytical laboratory use and does not necessarily relate to any other use of the substance described, (i.e. at different concentrations, in drug dosage forms, or in bulk quantities). USP materials are intended for use by persons having technical skill and at their own discretion and risk. This information has been developed by USP staff from sources considered reliable but has not been independently verified by the USP. Therefore, the USP Convention cannot guarantee the accuracy of the information in these sources nor should the statements contained herein be considered an official expression. NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE is made with respect to the information contained herein.