



## **BENZYL CHLORIDE CAS No.100-44-7**

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### **1. Product Identification**

**Synonyms:** alpha-chlorotoluene; chlorophenylmethane; chloromethylbenzene

**CAS No.:** 100-44-7

**Molecular Weight:** 126.59

**Chemical Formula:** C<sub>6</sub>H<sub>5</sub>CH<sub>2</sub>Cl

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### **2. Composition/Information on Ingredients**

Ingredient	CAS No	Percent
Hazardous		
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Benzyl Chloride	100-44-7	90 - 100%
Yes		

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### **3. Hazards Identification**

**Emergency Overview**

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**DANGER! CORROSIVE. CAUSES BURNS TO ANY AREA OF CONTACT.  
HARMFUL IF SWALLOWED OR INHALED. CAUSES SEVERE IRRITATION**

**TO EYES, SKIN AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM. COMBUSTIBLE LIQUID AND VAPOR.**

**SAF-T-DATA<sup>(tm)</sup>** Ratings (Provided here for your convenience)

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Health Rating: 3 - Severe (Poison)

Flammability Rating: 2 - Moderate

Reactivity Rating: 2 - Moderate

Contact Rating: 3 - Severe (Corrosive)

Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD;  
PROPER GLOVES; CLASS B EXTINGUISHER

Storage Color Code: Red (Flammable)

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**Potential Health Effects**

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**Inhalation:**

Toxic. May be corrosive to the respiratory tract, symptoms may include sore throat, coughing, and labored breathing. May also cause central nervous system depression, pulmonary edema, kidney and liver damage, and death.

**Ingestion:**

Corrosive. Swallowing can cause severe burns of the mouth, throat, and stomach, leading to death. Can cause sore throat, vomiting, diarrhea. May also cause systemic poisoning with symptoms paralleling inhalation.

**Skin Contact:**

Corrosive. Symptoms of redness, pain, and severe burn can occur.

**Eye Contact:**

For Vapor of Liquid: Corrosive. Contact can cause blurred vision, redness, pain and severe tissue burns. Permanent eye damage is possible if exposure is severe.

**Chronic Exposure:**

Mild leukopenia(abnormally low number of circulating white blood cells), liver function disturbances and kidney problems.

**Aggravation of Pre-existing Conditions:**

Persons with pre-existing neurological disorders, liver or kidney problems may be more susceptible to the effects of the substance.

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## **4. First Aid Measures**

**Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

**Ingestion:**

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Skin Contact:**

Wipe off excess material from skin then immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

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## 5. Fire Fighting Measures

**Fire:**

Flash point: 67C (153F) CC

Autoignition temperature: 627C (1161F)

Flammable limits in air % by volume:

lcl: 1.3; ucl: 7.1

Combustible Liquid and Vapor!

**Explosion:**

Above flash point, vapor-air mixtures are explosive within flammable limits noted above.

**Fire Extinguishing Media:**

Water spray, dry chemical, alcohol foam, or carbon dioxide. Use water spray to blanket fire, cool fire exposed containers, and to flush non-ignited spills or vapors away from fire. Do not allow water runoff to enter sewers or waterways.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## 6. Accidental Release Measures

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e. g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer! If a leak or spill has not ignited, use water spray to disperse the vapors, to protect personnel attempting to stop leak, and to flush spills away from exposures. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

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## 7. Handling and Storage

Keep in a tightly closed container. Store in a cool, dry, ventilated area away from sources of heat or ignition. Protect against physical damage. Store separately from reactive or combustible materials, and out of direct sunlight. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

-OSHA Permissible Exposure Limit (PEL):

1 ppm (TWA).

-ACGIH Threshold Limit Value (TLV):

1 ppm (TWA), A3: Animal carcinogen.

- NIOSH Immediately Dangerous to Life or Health (IDLH): 10 ppm

### **Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

### **Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded and engineering controls are not feasible, a half-face respirator with an organic vapor/acid gas cartridge may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece respirator with an organic vapor/acid gas cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-face piece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

### **Eye Protection:**

Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

**Appearance:**

Clear, colorless liquid.

**Odor:**

Pungent odor.

**Solubility:**

Insoluble in water.

**Specific Gravity:**

1.10

**pH:**

No information found.

**% Volatiles by volume @ 21C (70F):**

100

**Boiling Point:**

179C (354F)

**Melting Point:**

-48 - -43C (-54 - -45F)

**Vapor Density (Air=1):**

4.36

**Vapor Pressure (mm Hg):**

1.6 @ 20C (68F)

**Evaporation Rate (BuAc=1):**

No information found.

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## 10. Stability and Reactivity

**Stability:**

Unstable. Inhibitors such as propylene oxide, sodium carbonate solution, lime, or trimethylamine must be used to prevent polymerization.

**Hazardous Decomposition Products:**

May produce carbon monoxide, carbon dioxide, hydrogen chloride and phosgene when heated to decomposition.

**Hazardous Polymerization:**

Hazardous polymerization can occur in presence of catalytic impurities such as aluminum, iron, rust, or sodium acetate + pyridine + iron at 115C.

**Incompatibilities:**

Water, dimethyl sulfoxide, oxidizing material, steam. Corrodes all common metals except lead and nickel (explosive when heated).

**Conditions to Avoid:**

Heat, flames, ignition sources and incompatibles.

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## 11. Toxicological Information

**Toxicological Data:**

Oral rat LD50: 1231 mg/kg. Inhalation rat LD50: 150 ppm/2H. Investigated as a tumorigen, mutagen, reproductive effector.

**Carcinogenicity:**

EPA / IRIS classification: Group B2 - Probable human carcinogen, sufficient animal evidence.

Based on experiments done on rats, NIOSH has concluded that the carcinogenic risk from low exposure is probably negligible. There is limited evidence that workers exposed to benzyl chloride have a carcinogenic risk. In the NCI Carcinogenesis Studies (feed) clear evidence for carcinogenicity was found in the mouse and inadequate evidence was found in the rat. IARC Category: human - inadequate evidence; animal - limited evidence.

-----\Cancer Lists\-----

Ingredient Category	---NTP Carcinogen---		IARC
	Known	Anticipated	
Benzyl Chloride (100-44-7) None	No	No	

## 12. Ecological Information

**Environmental Fate:**

When released into the soil, this material may leach into groundwater. When released into the soil, this material may evaporate to a moderate extent. When released into water, this material may evaporate to a moderate extent. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals.

**Environmental Toxicity:**

No information found.

## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. Transport Information

**Domestic (Land, D.O.T.)**

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**Proper Shipping Name:** BENZYL CHLORIDE  
**Hazard Class:** 6.1, 8  
**UN/NA:** UN1738  
Packing Group: II  
**Information reported for product/size:** 500ML

**International (Water, I.M.O.)**

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**Proper Shipping Name:** BENZYL CHLORIDE  
**Hazard Class:** 6.1, 8  
**UN/NA:** UN1738  
Packing Group: II  
**Information reported for product/size:** 500ML

**International (Air, I.C.A.O.)**

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**Proper Shipping Name:** BENZYL CHLORIDE  
**Hazard Class:** 6.1, 8  
**UN/NA:** UN1738  
Packing Group: II  
**Information reported for product/size:** 500ML

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## 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----  
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Ingredient TSCA EC Japan  
Australia  
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Benzyl Chloride (100-44-7) Yes Yes Yes  
Yes

-----\Chemical Inventory Status - Part 2\-----  
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Ingredient Korea --Canada--  
Phil. DSL NDSL  
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Benzyl Chloride (100-44-7) Yes Yes No  
Yes

-----\Federal, State & International Regulations - Part 1\-----  
-----  
-----SARA 302- -----SARA  
313-----

Ingredient Chemical Catg.	RQ	TPQ	List
----- Benzyl Chloride (100-44-7) No	100	500	Yes
-----\Federal, State & International Regulations - Part 2\-----			
TSCA- Ingredient	CERCLA	261.33	8(d)
----- Benzyl Chloride (100-44-7)	100	P028	Yes

Chemical Weapons Convention: No      TSCA 12(b): Yes      CDTA: Yes  
SARA 311/312: Acute: Yes      Chronic: Yes      Fire: Yes      Pressure: No  
Reactivity: Yes      (Pure / Liquid)

**WARNING:**

THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

**Australian Hazchem Code:** 2W

**Poison Schedule:** None allocated.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: 3 Flammability: 2 Reactivity: 1

**Label Hazard Warning:**

DANGER! CORROSIVE. CAUSES BURNS TO ANY AREA OF CONTACT. HARMFUL IF SWALLOWED OR INHALED. CAUSES SEVERE IRRITATION TO EYES, SKIN AND RESPIRATORY TRACT. AFFECTS CENTRAL NERVOUS SYSTEM. COMBUSTIBLE LIQUID AND VAPOR.

**Label Precautions:**

Do not get in eyes, on skin, or on clothing.

Do not breathe mist.

Keep container closed.

Use only with adequate ventilation.

Wash thoroughly after handling.

Keep away from heat and flame.

**Label First Aid:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, wipe off excess material from skin then immediately flush eyes or skin with plenty of water for at least 15 minutes while



removing contaminated clothing and shoes. Wash clothing before reuse. If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. In all cases get medical attention immediately.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

No Changes.

**Disclaimer:**

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