

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
  	<p>Toxic compound, do not ingest or inhale. Avoid all contact with this material.</p> <p>Corrosive to eyes and skin on contact.</p> <p>Combustible material; avoid heat and sources of ignition.</p> <p><b>CARCINOGEN. MINIMIZE EXPOSURE.</b></p> <p><b>MUTAGEN. MINIMIZE EXPOSURE.</b></p> <p>Polymerization may occur. Protect from heat and light.</p> <p>Avoid long storage periods.</p> <p>Moisture sensitive material.</p> <p>Lachrymator.</p>	

## Section I. Chemical Product and Company Identification

Chemical Name	<b>Benzyl Chloride</b>		
Catalog Number	B0412	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	alpha-Chlorotoluene		
Chemical Formula	C <sub>6</sub> H <sub>5</sub> CH <sub>2</sub> Cl		
CAS Number	100-44-7	In case of Emergency Call	<b>Chemtrec®</b> <b>(800) 424-9300 (U.S.)</b> <b>(703) 527-3887 (International)</b>

## Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Benzyl Chloride	100-44-7	Min 99.0 (GC)	This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen. This compound is classified as a mutagen. There is no acceptable exposure limit for a mutagen.	Rat LD <sub>50</sub> (oral) 1231 mg/kg Rat LD <sub>50</sub> (inhalation) 150 mg/m <sup>3</sup> /4H Rat LD <sub>50</sub> (subcutaneous) 1500 mg/kg

## Section III. Hazards Identification

Acute Health Effects	Corrosive to skin and eyes on contact. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death.
Chronic Health Effects	<p><b>CARCINOGENIC EFFECTS</b> : Carcinogenic by RTECS criteria.</p> <p><b>MUTAGENIC EFFECTS</b> : Not available.</p> <p><b>TERATOGENIC EFFECTS</b> : Tumorigenic Effects.</p> <p>Mouse TDLo Oral 31 gm/kg/2 years intermittent</p> <p><b>TOXIC Effects:</b></p> <p>Tumorigenic - Carcinogenic by RTECS criteria</p> <p>Vascular - Tumors</p> <p>Gastrointestinal - Tumors</p> <p><b>DEVELOPMENTAL TOXICITY</b> Reproductive Effects.</p> <p>Rat TDLo Oral 1000 mg/kg, female 6-15 days of pregnancy</p> <p><b>TOXIC Effects:</b></p> <p>Effects on Embryo or Fetus - Fetotoxicity</p> <p>Specific Developmental Abnormalities - Other developmental abnormalities</p> <p>Rat TDLo Oral 11 ug/kg, female 1-19 days of pregnancy</p> <p><b>TOXIC Effects:</b></p> <p>Effects on Embryo or Fetus - Fetal Death</p> <p>Mouse TDLo Subcutaneous 2500 mg/kg, male 5 days prior to mating</p> <p>Paternal Effects - Spermatogenesis</p> <p>Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.</p>

**Section IV. First Aid Measures**

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	DO NOT INDUCE VOMITING. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

**Section V. Fire and Explosion Data**

Flammability	Combustible.	Auto-Ignition	585°C (1085°F)
Flash Points	67°C (152.6°F).	Flammable Limits	LOWER: 1.3% UPPER: 14%
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ), halogenated compounds. WARNING: Highly toxic HCl gas is produced during combustion.		
Fire Hazards	Not available.		
Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.		
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.		

**Section VI. Accidental Release Measures**

Spill Cleanup Instructions	Toxic Material. Corrosive Material. Combustible Material. Carcinogenic Material. Mutagenic Material. Moisture Sensitive Material. Lachrymator. Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT get water inside container. DO NOT touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Consult federal, state, and/or local authorities for assistance on disposal.
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**Section VII. Handling and Storage**

Handling and Storage Information	TOXIC. CORROSIVE. COMBUSTIBLE. CARCINOGEN. MUTAGEN. MOISTURE SENSITIVE. LACHRYMATOR. Keep locked up.. Keep container dry. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. DO NOT ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents, metals, alkalis (bases).
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**Section VIII. Exposure Controls/Personal Protection**

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Face shield. Lab coat. Vapor respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	 This chemical is classified as a carcinogen. There is no acceptable exposure limit for a carcinogen. This compound is classified as a mutagen. There is no acceptable exposure limit for a mutagen.

**Section IX. Physical and Chemical Properties**

Physical state @ 20°C	Liquid. (Clear, colorless.)	Solubility	Very slightly soluble in water. Miscible with alcohol, ether, chloroform.
Specific Gravity	1.1 (water=1)		
Molecular Weight	126.58	Partition Coefficient	Not available.
Boiling Point	179°C (354.2°F)	Vapor Pressure	0.16 kPa (@ 25°C)
Melting Point	-43°C (-45.4°F)	Vapor Density	4.4 (Air = 1)
Refractive Index	1.537-1.540	Volatility	Not available.
Critical Temperature	Not available.	Odor	Pungent.
Viscosity	Not available.	Taste	Not available.

Continued on Next Page

Emergency phone number (800) 424-9300

**Section X. Stability and Reactivity Data**

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with oxidizing agents, metals, alkalis (bases).

**Section XI. Toxicological Information**

RTECS Number	XS8925000
Routes of Exposure	Eye Contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	Rat LD <sub>50</sub> (oral) 1231 mg/kg Rat LD <sub>50</sub> (inhalation) 150 mg/m <sup>3</sup> /4H Rat LD <sub>50</sub> (subcutaneous) 1500 mg/kg
Chronic Toxic Effects	<b>CARCINOGENIC EFFECTS</b> : Carcinogenic by RTECS criteria. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Tumorigenic Effects. Mouse TDLo Oral 31 gm/kg/2 years intermittent TOXIC Effects: Tumorigenic - Carcinogenic by RTECS criteria Vascular - Tumors Gastrointestinal - Tumors <b>DEVELOPMENTAL TOXICITY</b> Reproductive Effects. Rat TDLo Oral 1000 mg/kg, female 6-15 days of pregnancy TOXIC Effects: Effects on Embryo or Fetus - Fetotoxicity Specific Developmental Abnormalities - Other developmental abnormalities Rat TDLo Oral 11 ug/kg, female 1-19 days of pregnancy TOXIC Effects: Effects on Embryo or Fetus - Fetal Death Mouse TDLo Subcutaneous 2500 mg/kg, male 5 days prior to mating Paternal Effects - Spermatogenesis Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
Acute Toxic Effects	Corrosive to skin and eyes on contact. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death.

**Section XII. Ecological Information**

Ecotoxicity	Not available.
Environmental Fate	Benzyl chloride's production and use in dyes; intermediates; benzyl compounds; synthetic tannins; perfumery; pharmaceuticals; in the manufacture of photographic developer; gasoline gum inhibitors; penicillin precursors; quaternary ammonium compounds may result in its release to the environment through various waste streams. Emissions from waste incineration and from floor tile manufactured with butyl benzyl phthalate also result in the release of benzyl chloride into the environment. If released to air, a vapor pressure of 1.23 mm Hg at 25 deg C indicates benzyl chloride will exist solely as a vapor in the ambient atmosphere. Vapor-phase benzyl chloride will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 5.5 days. If released to soil, benzyl chloride is expected to have moderate mobility based upon an estimated Koc of 420. However, mobility in soil may be mitigated based on the hydrolysis of benzyl chloride in water. Benzyl chloride may volatilize from dry soil surfaces based upon its vapor pressure. Benzyl chloride is expected to undergo chemical hydrolysis in water and moist soil based on a hydrolysis half-life of 14 hrs; thus volatilization from water surfaces, bioconcentration in aquatic organisms, and sorption to suspended solids and sediment are not expected to be important fate processes. Occupational exposure to benzyl chloride may occur through inhalation and dermal contact with this compound at workplaces where benzyl chloride is produced or used. The general population may be exposed to benzyl chloride via inhalation of contaminated indoor air containing benzyl chloride.

**Section XIII. Disposal Considerations**

Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.
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**Section XIV. Transport Information**

DOT Classification	DOT CLASS 6.1: Toxic Material. DOT CLASS 8: Corrosive Material
PIN Number	UN1738
Proper Shipping Name	Benzyl Chloride
Packing Group (PG)	II

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Emergency phone number (800) 424-9300

DOT Pictograms



### Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is <b>ON</b> the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	On DSL
EINECS Number (EEC)	202-853-6
EEC Risk Statements	R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R34- Causes burns. R45- May cause cancer. R46- May cause heritable genetic damage. R47- May cause birth defects.
Japanese Regulatory Data	ENCS No. 3-102 ; 3-39

### Section XVI. Other Information

Version 1.0

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#### Notice to Reader

TCl laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.