



**INDENTA™**  
**Chemicals (India) Pvt. Ltd.**  
**(ISO 9001:2008 Certified Company)**



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## Material Safety Data Sheet Benzyl Chloride

### SECTION 1.1 – PRODUCT IDENTIFICATION

Product name : Benzyl Chloride  
Molecular formula : C<sub>7</sub>H<sub>7</sub>Cl  
Molecular weight : 126.59  
CAS no. : 100-44-7

### SECTION: 1.2 – COMPANY IDENTIFICATION

**Company Name: Indenta Chemicals (India) Pvt. Ltd.**

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### SECTION 2: HAZARD IDENTIFICATION

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids	Category 4
Corrosive to metals	Category 1
Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Vapors	Category 3
Skin Corrosion/irritation	Category 2
Serious Eye Damage/Eye Irritation	Category 1
Germ Cell Mutagenicity	Category 1B
Carcinogenicity	Category 1B
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 2
Target Organs – Liver	

#### Label Elements

**Signal Word**

Danger

**Hazard Statements**

Combustible liquid  
May be corrosive to metals  
Harmful if swallowed  
Causes skin irritation  
Causes serious eye damage  
Toxic if inhaled  
May cause respiratory irritation  
May cause drowsiness or dizziness  
May cause genetic defects  
May cause cancer  
May cause damage to organs through prolonged or repeated exposure

**Precautionary Statements**

**Prevention**

Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Use personal protective equipment as required  
Wash face, hands and any exposed skin thoroughly after handling  
Do not eat, drink or smoke when using this product  
Use only outdoors or in a well-ventilated area  
Do not breathe dust/fume/gas/mist/vapors/spray  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
Keep only in original container  
Keep cool

**Response**

IF exposed or concerned: Get medical attention/advice

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
Call a POISON CENTER or doctor/physician

**Skin**

IF ON SKIN: Wash with plenty of soap and water  
If skin irritation occurs: Get medical advice/attention  
Take off contaminated clothing and wash before reuse

**Eyes**

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 or doctor/physician

**Ingestion**

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
Rinse mouth

**Fire**

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction

**Spills**

Absorb spillage to prevent material damage

**Storage**

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

Store in corrosive resistant polypropylene container with a resistant inliner.

Store in a dry place

#### Disposal

Dispose of contents/container to an approved waste disposal plant

#### Hazards not otherwise classified (HNOC)

Lachrymator (substance which increases the flow of tears)

WARNING! This product contains a chemical known in the State of California to cause cancer

### SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
Benzyl chloride	100-44-7	>95
Propylene oxide	75-56-9	0.25

### SECTION 4: FIRST AID MEASURES

**General Advice:** Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**Eye Contact:** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice

**Skin Contact:** Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.

**Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Immediate medical attention is required.

**Ingestion:** Do not induce vomiting. Call a physician or Poison Control Center immediately.

**Most important symptoms/effects:** Breathing difficulties. Causes eye burns. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.

**Notes to Physician:** Treat symptomatically

### SECTION 5: FIRE FIGHTING MEASURES

**Suitable Extinguishing Media:** Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Cool closed containers exposed to fire with water spray

**Unsuitable Extinguishing Media:** No information available.

**Flash Point:** 67 44444 °C / 152.6 80031.2 °F

**Method** - No information available

**Autoignition Temperature:** 585 °C / 1085 °F

#### Explosion Limits

**Upper** 14 vol %

**Lower** 1.1 vol %

**Sensitivity to Mechanical Impact:** No information available

**Sensitivity to Static Discharge:** No information available

**Specific Hazards Arising from the Chemical:** Combustible material. Containers may explode when heated. Keep product and empty container away from heat and sources of ignition. Risk of ignition.

**Hazardous Combustion Products:** Carbon monoxide (CO) Carbon dioxide (CO<sub>2</sub>) Hydrogen chloride gas

**Protective Equipment and Precautions for Firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors

**NFPA:** Health 3 Flammability 2 Instability 1 Physical Hazards N/A

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Ensure adequate ventilation. Use personal protective equipment. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas. Remove all sources of ignition. Take precautionary measures against static discharges.

**Environmental Precautions:** Should not be released into the environment. See Section 12 for additional ecological information.

**Methods for Containment and Clean Up:** Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Remove all sources of ignition.

## SECTION 7: HANDLING AND STORAGE

**Handling:** Use only under a chemical fume hood. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Do not ingest. Do not breathe vapors or spray mist. Keep away from open flames, hot surfaces and sources of ignition.

**Storage:** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition.

## SECTION 8: EXPOSURE CONTROL / PERSONAL PROTECTION

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Benzyl chloride	TWA: 1 ppm	(Vacated) TWA: 1 ppm (Vacated) TWA: 5 mg/m <sup>3</sup> TWA: 1 ppm TWA: 5 mg/m <sup>3</sup>	IDLH: 10 ppm Ceiling: 1 ppm Ceiling: 5 mg/m <sup>3</sup>
Propylene oxide	TWA: 2 ppm	(Vacated) TWA: 20 ppm (Vacated) TWA: 50 mg/m <sup>3</sup> TWA: 100 ppm TWA: 240 mg/m <sup>3</sup>	IDLH: 400 ppm

Component	Quebec	Mexico OEL (TWA)	Ontario TWA EV
Benzyl chloride	TWA: 1 ppm TWA: 5.2 mg/m <sup>3</sup>	TWA: 1 ppm TWA: 5 mg/m <sup>3</sup>	TWA: 1 ppm
Propylene oxide	TWA: 20 ppm TWA: 48 mg/m <sup>3</sup>	TWA: 20 ppm TWA: 50 mg/m <sup>3</sup>	TWA: 2 ppm

**Engineering Measures:** Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure adequate ventilation, especially in confined areas.

### Personal Protective Equipment

**Eye/face Protection:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. Tightly fitting safety goggles. Face-shield.

**Skin and body protection:** Long sleeved clothing.

**Respiratory Protection:** Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149.

Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety practice.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State</b>	Liquid
<b>Appearance</b>	Colourless – Amber
<b>Odor</b>	Pungent
<b>Odor Threshold</b>	No information available
<b>pH</b>	No information available
<b>Melting Point / Range</b>	-39 °C / -38.2 °F
<b>Boiling Point / Range</b>	179 °C / 354.2 °F @ 760 mmHg
<b>Flash Point</b>	67 44444 °C / 152.6 80031.2 °F
<b>Evaporation Rate</b>	No information available
<b>Flammability (Solid, Gas)</b>	Not applicable
<b>Flammability or Explosive Limits</b>	
<b>Upper</b>	14 vol %
<b>Lower</b>	1.1 vol %
<b>Vapor Pressure</b>	1.2 mbar @ 20 °C
<b>Vapor Density</b>	4.36 (Air = 1.0)
<b>Relative Density</b>	1.100
<b>Solubility</b>	Insoluble in water
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	585 °C / 1085 °F
<b>Decomposition Temperature</b>	No information available
<b>Viscosity</b>	1.380 mPa.s @ 20°C
<b>Molecular Formula</b>	C7 H7 Cl
<b>Molecular Weight</b>	126.59

## SECTION 10: STABILITY AND REACTIVITY

**Reactive Hazard:** None known, based on information available

**Stability:** Stable under normal conditions

**Conditions to Avoid:** Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition

**Incompatible Materials:** Strong oxidizing agents, Bases, Metals

**Hazardous Decomposition Products:** Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Hydrogen chloride gas

**Hazardous Polymerization:** Hazardous polymerization does not occur.

**Hazardous Reactions:** None under normal processing.

## Section 11: TOXICOLOGICAL INFORMATION

### Acute Toxicity

#### Product Information

**Oral LD50:** Category 4. ATE = 300 - 2000 mg/kg.

**Dermal LD50:** Based on ATE data, the classification criteria are not met. ATE > 2000 mg/kg.

**Vapor LC50:** Category 2. ATE = 0.5 - 2 mg/l.

**Component Information**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Benzyl chloride	625 mg/kg ( Rat )	Not listed	0.74 mg/L ( Rat ) 2 h
Propylene oxide	520 mg/kg ( Rat )	1244 mg/kg ( Rabbit )	9.48 mg/L ( Rat ) 4 h

**Toxicologically Synergistic Products:** No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Irritation:** Causes burns by all exposure routes

**Sensitization:** No information available

**Carcinogenicity:** Possible cancer hazard. May cause cancer based on animal data. The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Benzyl chloride	100-44-7	Group 2A	Not listed	A3	X	A3
Propylene oxide	75-56-9	Group 2B	Reasonably Anticipated	A3	X	A3

**Mutagenic Effects:** Animal experiments showed mutagenic and teratogenic effects.

**Reproductive Effects:** Experiments have shown reproductive toxicity effects on laboratory animals

**Developmental Effects:** Developmental effects have occurred in experimental animals.

**Teratogenicity:** Teratogenic effects have occurred in experimental animals.

**STOT - single exposure:** Respiratory system Central nervous system (CNS)

**STOT - repeated exposure:** Liver

**Aspiration hazard:** No information available

**Symptoms / effects, both acute and delayed:** Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

**Endocrine Disruptor Information:** No information available.

**Other Adverse Effects:** Tumorigenic effects have been reported in experimental animals. See actual entry in RTECS for complete information.

## Section 12: ECOLOGICAL INFORMATION

### Ecotoxicity

Do not empty into drains. Do not flush into surface water or sanitary sewer system

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Benzyl chloride	Not listed	4 mg/L LC50 96 h 4.4 - 5.6 mg/L LC50 96 h	EC50 = 1.92 mg/L 5 min EC50 = 2.25 mg/L 15 min EC50 = 2.97 mg/L 30 min	1.3 mg/L EC50 = 24 h
Propylene oxide	240 mg/L EC50 = 96 h	215 mg/L LC50 96 h	EC50 = 3300 mg/L 160 min	350 mg/L EC50 = 48 h

**Persistence and Degradability:** May persist based on information available.

**Bioaccumulation/ Accumulation:** No information available.

**Mobility:** Is not likely mobile in the environment due its low water solubility

Component	log Pow
Benzyl chloride	2.3
Propylene oxide	0.08

### Section 13: DISPOSAL CONSIDERATION

**Waste Disposal Methods:** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

### Section 14: TRANSPORT INFORMATION

#### DOT

UN-No: UN1738

Proper Shipping Name: BENZYL CHLORIDE

Hazard Class: 6.1

Subsidiary Hazard Class: 8

Packing Group: II

#### TDG

UN-No: UN1738

Proper Shipping Name: BENZYL CHLORIDE

Hazard Class: 6.1

Subsidiary Hazard Class: 8

Packing Group: II

#### IATA

UN-No: 1738

Proper Shipping Name: BENZYL CHLORIDE

Hazard Class: 6.1

Subsidiary Hazard Class: 8

Packing Group: II

#### IMDG/IMO

UN-No: 1738

Proper Shipping Name: BENZYL CHLORIDE

Hazard Class: 6.1

Subsidiary Hazard Class: 8

Packing Group: II

### 15: OTHER REGULATORY INFORMATION

#### International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Benzyl chloride	X	X	-	202-853-6	-		X	X	X	X	X
Propylene oxide	X	X	-	200-879-2	-		X	X	X	X	X

#### Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

**U.S. Federal Regulations**

**TSCA 12(b)** Not applicable

**SARA 313:**

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Benzyl chloride	100-44-7	>95	1.0
Propylene oxide	75-56-9	0.25	0.1

**SARA 311/312 Hazardous Categorization**

**Acute Health Hazard** Yes

**Chronic Health Hazard** Yes

**Fire Hazard** Yes

**Sudden Release of Pressure Hazard** No

**Reactive Hazard** No

**Clean Water Act**

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Benzyl chloride	X	100 lb	-	-
Propylene oxide	X	100 lb	-	-

**Clean Air Act**

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Benzyl chloride	X		-
Propylene oxide	X		-

**OSHA Occupational Safety and Health Administration**

Not applicable

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)



Component	Hazardous Substances RQs	CERCLA EHS RQs
Benzyl chloride	100 lb	100 lb
Propylene oxide	100 lb	100 lb

**California Proposition 65:** This product contains the following Proposition 65 chemicals:

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Benzyl chloride	100-44-7	Carcinogen	4 µg/day	Carcinogen
Propylene oxide	75-56-9	Carcinogen	-	Carcinogen

**State Right-to-Know:**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Benzyl chloride	X	X	X	X	X
Propylene oxide	X	X	X	X	X

**U.S. Department of Transportation**

**Reportable Quantity (RQ):** Y

**DOT Marine Pollutant:** N

**DOT Severe Marine Pollutant:** N

**U.S. Department of Homeland Security**

This product contains the following DHS chemicals

Component	DHS Chemical Facility Anti-Terrorism Standard
Propylene oxide	7500 lb STQ

**Other International Regulations**

**Mexico – Grade:** Moderate risk, Grade 2

**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

**WHMIS Hazard Class:** B3 Combustible liquid  
 D1A Very toxic materials  
 E Corrosive material  
 D2A Very toxic materials

**SECTION 16: ADDITIONAL INFORMATION**

This information is provided for documentation purposes only.

The information contained in this Certificate of Analysis and Material Safety Data Sheet is obtained from current and reliable sources. The information contained herein is true and to the best of Indenta Chemicals (India) Pvt. Ltd. knowledge. Nothing herein should be interpreted as a recommendation to infringe existing patents or violate any Laws or Regulation. Final determination of the suitability of the material is the sole responsibility of the user. Customers should purchase products from Indenta Chemicals (India) Pvt. Ltd. with the clear understanding that all products must be used at the customers own discretion and only after referencing Material Safety Data Sheets (MSDS) and all other relevant technical information specific to the product. Indenta Chemicals (India) Pvt. Ltd. shall not be held responsible for any damages to property or for any adverse physical effects (including injury or bodily harm) caused by insufficient knowledge or the improper use of a product. The user of the product is solely responsible for compliance with all laws and regulations applying to the use of the products, including intellectual property rights of third parties. As with any manufacturing process, Indenta Chemicals (India) Pvt. Ltd. strongly recommends small lab scale testing for evaluation

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