

## SAFETY DATA SHEET

Creation Date 02-Feb-2010

Revision Date 25-Apr-2019

Revision Number 8

### 1. Identification

**Product Name** Benzyl chloride, stabilized

**Cat No. :** AC405090000; AC405090010; AC405090025; AC405090050;  
AC405090100; AC405092500

**CAS-No** 100-44-7  
**Synonyms** alfa-Chlorotoluene

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use.  
**Details of the supplier of the safety data sheet**

**Company**

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

**Emergency Telephone Number**

For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

### 2. Hazard(s) 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
Skin Sensitization	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  
May cause an allergic skin reaction  
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  
Contaminated work clothing should not be allowed out of the workplace  
Wear protective gloves  
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  
Take off contaminated clothing and wash before reuse  
If skin irritation or rash occurs: Get medical advice/attention

**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)**

WARNING. Cancer - <https://www.p65warnings.ca.gov/>.

### 3. Composition/Information on Ingredients

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

### 4. First-aid measures

<b>General Advice</b>	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
<b>Eye Contact</b>	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.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
<b>Inhalation</b>	Remove to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
<b>Ingestion</b>	Do NOT induce vomiting. Call a physician or poison control center immediately.
<b>Most important symptoms and effects</b>	Causes severe eye damage. May cause allergic skin reaction. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing
<b>Notes to Physician</b>	Treat symptomatically

### 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Water spray, carbon dioxide (CO <sub>2</sub> ), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.
<b>Unsuitable Extinguishing Media</b>	No information available
<b>Flash Point</b>	67 °C / 152.6 °F
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	585 °C / 1085 °F
<b>Explosion Limits</b>	
<b>Upper</b>	14 vol %
<b>Lower</b>	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**

<b>Health</b> 3	<b>Flammability</b> 2	<b>Instability</b> 1	<b>Physical hazards</b> N/A
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**6. Accidental release measures**

**Personal Precautions** Ensure adequate ventilation. Use personal protective equipment as required. 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. Do not flush into surface water or sanitary sewer system.

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

**7. Handling and storage**

**Handling** Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. 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, sparks and flame.

**8. Exposure controls / personal protection****Exposure Guidelines**

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
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>	TWA: 1 ppm
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	TWA: 2 ppm

**Legend**

ACGIH - American Conference of Governmental Industrial Hygienists  
 OSHA - Occupational Safety and Health Administration  
 NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

**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

<b>Eye/face Protection</b>	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. Tight sealing safety goggles. Face protection shield.
<b>Skin and body protection</b>	Wear appropriate protective gloves and clothing to prevent skin exposure.
<b>Respiratory Protection</b>	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.
<b>Hygiene Measures</b>	Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

<b>Physical State</b>	Liquid
<b>Appearance</b>	Colorless - 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 °C / 152.6 °F
<b>Evaporation Rate</b>	No information available
<b>Flammability (solid,gas)</b>	Not applicable
<b>Flammability or explosive limits</b>	
Upper	14 vol %
Lower	1.1 vol %
<b>Vapor Pressure</b>	1.2 mbar @ 20 °C
<b>Vapor Density</b>	4.36 (Air = 1.0)
<b>Specific Gravity</b>	1.100
<b>Solubility</b>	No information available
<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

## 10. Stability and reactivity

<b>Reactive Hazard</b>	None known, based on information available
<b>Stability</b>	No information available.
<b>Conditions to Avoid</b>	Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.
<b>Incompatible Materials</b>	Strong oxidizing agents, Bases, Metals
<b>Hazardous Decomposition Products</b>	Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ), Hydrogen chloride gas
<b>Hazardous Polymerization</b>	Hazardous polymerization does not occur.
<b>Hazardous Reactions</b>	None under normal processing.

## 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 &gt; 2000 mg/kg.

**Vapor LC50**

Category 2. ATE = 0.5 - 2 mg/l.

**Component Information**

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

**Toxicologically Synergistic Products** No information available**Products****Delayed and immediate effects as well as chronic effects from short and long-term exposure****Irritation**

Causes burns by all exposure routes

**Sensitization**

May cause sensitization by skin contact

**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

*IARC (International Agency for Research on Cancer)**IARC (International Agency for Research on Cancer)**Group 1 - Carcinogenic to Humans**Group 2A - Probably Carcinogenic to Humans**Group 2B - Possibly Carcinogenic to Humans**NTP: (National Toxicity Program)**NTP: (National Toxicity Program)**Known - Known Carcinogen**Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen**ACGIH: (American Conference of Governmental Industrial Hygienists)**A1 - Known Human Carcinogen**A2 - Suspected Human Carcinogen**A3 - Animal Carcinogen**Mexico - Occupational Exposure Limits - Carcinogens**ACGIH: (American Conference of Governmental Industrial Hygienists)**Mexico - Occupational Exposure Limits - Carcinogens**A1 - Confirmed Human Carcinogen**A2 - Suspected Human Carcinogen**A3 - Confirmed Animal Carcinogen**A4 - Not Classifiable as a Human Carcinogen**A5 - Not Suspected as a Human Carcinogen***Mutagenic Effects**

Animal experiments showed mutagenic and teratogenic effects

**Reproductive Effects**

No information available.

**Developmental Effects**

No information available.

**Teratogenicity**

No information available.

**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:  
Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing**Endocrine Disruptor Information**

No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

Do not empty into drains. Do not flush into surface water or sanitary sewer system. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Benzyl chloride	Not listed	LC50: = 4 mg/L, 96h static (Brachydanio rerio) LC50: 4.4 - 5.6 mg/L, 96h static (Pimephales promelas)	EC50 = 1.92 mg/L 5 min EC50 = 2.25 mg/L 15 min EC50 = 2.97 mg/L 30 min	EC50: = 1.3 mg/L, 24h (Daphnia magna)
Propylene oxide	EC50: = 240 mg/L, 96h (Pseudokirchneriella subcapitata)	LC50: = 215 mg/L, 96h static (Lepomis macrochirus)	EC50 = 3300 mg/L 160 min	EC50: = 350 mg/L, 48h (Daphnia magna)

**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

## 13. Disposal considerations

**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.

## 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 UN1738  
 Proper Shipping Name BENZYL CHLORIDE  
 Hazard Class 6.1  
 Subsidiary Hazard Class 8  
 Packing Group II

### IMDG/IMO

UN-No UN1738  
 Proper Shipping Name BENZYL CHLORIDE  
 Hazard Class 6.1  
 Subsidiary Hazard Class 8  
 Packing Group II

## 15. Regulatory information

### United States of America Inventory

Component	CAS-No	TSCA	TSCA Inventory notification - Active/Inactive	TSCA - EPA Regulatory Flags
Benzyl chloride	100-44-7	X	ACTIVE	-
Propylene oxide	75-56-9	X	ACTIVE	-

#### Legend:

**TSCA** - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

- - Not Listed

**TSCA 12(b)** - Notices of Export      Not applicable

### International Inventories

Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

Component	CAS-No	DSL	NDSL	EINECS	PICCS	ENCS	AICS	IECSC	KECL
Benzyl chloride	100-44-7	X	-	202-853-6	X	X	X	X	KE-05729
Propylene oxide	75-56-9	X	-	200-879-2	X	X	X	X	KE-24565

### U.S. Federal Regulations

#### 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 Hazard Categories**      See section 2 for more information

#### CWA (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
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**U.S. State Right-to-Know Regulations**

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:  
**Legend** - STQs = Screening Threshold Quantities, APA = A placarded amount

Component	DHS Chemical Facility Anti-Terrorism Standard
Propylene oxide	Release STQs - 10000lb

**Other International Regulations**

**Mexico - Grade** Moderate risk, Grade 2

## 16. Other information

**Prepared By** Regulatory Affairs  
 Thermo Fisher Scientific  
 Email: EMSDS.RA@thermofisher.com

**Creation Date** 02-Feb-2010

**Revision Date** 25-Apr-2019

**Print Date** 25-Apr-2019

**Revision Summary** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**