

SAFETY DATA SHEET

Version 6.9
Revision Date 24.05.2023
Print Date 08.06.2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name : Benzyl chloride
Product Number : 185558
Brand : Aldrich
Index-No. : 602-037-00-3
CAS-No. : 100-44-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : MilliporeSigma Canada Ltd.
2149 WINSTON PARK DRIVE
OAKVILLE ON L6H 6J8
CANADA
Telephone : +1 905 829-9500
Fax : +1 905 829-9292

1.4 Emergency telephone

Emergency Phone # : +1-703-527-3887 CHEMTREC
(International)
24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with Hazardous Products Regulations (HPR) (SOR/2015-17)

Flammable liquids (Category 4), H227
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 3), H331
Skin irritation (Category 2), H315
Serious eye damage (Category 1), H318
Skin sensitization (Category 1), H317
Germ cell mutagenicity (Category 1B), H340
Carcinogenicity (Category 1B), H350
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

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Specific target organ toxicity - repeated exposure, Oral (Category 2), Heart, forestomach, H373

Short-term (acute) aquatic hazard (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Danger

Hazard statement(s)

H227	Combustible liquid.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H340	May cause genetic defects.
H350	May cause cancer.
H373	May cause damage to organs (Heart, forestomach) through prolonged or repeated exposure if swallowed.
H401	Toxic to aquatic life.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P304 + P340 + P311	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.
P305 + P351 + P338 + P310	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.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/ attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

P403 + P233
P405
P501

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Lachrymator.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : α -Chlorotoluene

Formula : C_7H_7Cl
Molecular weight : 126.58 g/mol
CAS-No. : 100-44-7
EC-No. : 202-853-6
Index-No. : 602-037-00-3

Component	Classification	Concentration *
Benzyl chloride		
	Flam. Liq. 4; Acute Tox. 4; Acute Tox. 3; Skin Irrit. 2; Eye Dam. 1; Skin Sens. 1; Carc. 1B; STOT SE 3; STOT RE 2; Aquatic Acute 2; H227, H302, H331, H315, H318, H317, H350, H335, H373, H401	<= 100 %
* Weight %		

propylene oxide		
	Flam. Liq. 1; Acute Tox. 4; Acute Tox. 3; Eye Irrit. 2A; Muta. 1B; Carc. 1B; STOT SE 3; Aquatic Acute 3; H224, H302, H331, H311, H319, H340, H350, H335, H402	>= 0.1 - < 1 %
* Weight %		

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

In case of eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water Foam Carbon dioxide (CO₂) Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

Hydrogen chloride gas

Mixture with combustible ingredients.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Further information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Light sensitive. Moisture sensitive.

Storage class

Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Benzyl chloride	100-44-7	TWA	1 ppm 5.2 mg/m ³	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Remarks	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required			
		C	1 ppm	Canada. British Columbia OEL
	IARC '2A' applies to substances deemed probably carcinogenic to humans on the basis of limited evidence of carcinogenicity in humans.			
		TWAEV	1 ppm	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	Carcinogenic effect detected in animals. Results of studies relating to the carcinogenicity of these substances in animals are not necessarily applicable to humans.			
propylene oxide	75-56-9	TWA	2 ppm 4.7 mg/m ³	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		TWA	2 ppm	Canada. British Columbia OEL
	Substance with specific evidence of sensitization by dermal route IARC '2B' applies to substances deemed possibly carcinogenic to humans.			
		TWAEV	2 ppm	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	a substance that, through skin contact, shows specific signs of sensitization on the skin Carcinogenic effect detected in animals. Results of studies relating to the carcinogenicity of these substances in animals are not necessarily applicable to humans.			
		TWA	1 ppm	USA. ACGIH Threshold Limit Values (TLV)

		TWA	2 ppm	USA. ACGIH Threshold Limit Values (TLV)
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8.2 Exposure controls

Appropriate engineering controls

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: Viton®

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Splash contact

Material: Chloroprene

Minimum layer thickness: 0.65 mm

Break through time: 30 min

Material tested: KCL 720 Camapren®

Body Protection

protective clothing

Respiratory protection

required when vapours/aerosols are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	Form: liquid Color: colorless
b) Odor	stinging
c) Odor Threshold	No data available
d) pH	Not applicable
e) Melting point/freezing point	Melting point/range: -43 °C (-45 °F) - lit.
f) Initial boiling point and boiling range	177 - 181 °C 351 - 358 °F - lit.
g) Flash point	67 °C (153 °F) - c.c.
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available
j) Upper/lower flammability or explosive limits	Upper explosion limit: 14 %(V) Lower explosion limit: 1.1 %(V)
k) Vapor pressure	1.6 hPa at 25 °C (77 °F)
l) Vapor density	4.36
m) Density	1.1 g/cm ³ at 25 °C (77 °F) - lit.
Relative density	1.120 °C
n) Water solubility	0.46 g/l at 30 °C (86 °F)
o) Partition coefficient: n-octanol/water	log Pow: 2.3 - (IUCLID), Bioaccumulation is not expected.
p) Autoignition temperature	585 °C (1085 °F) at 1,013 hPa
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	none

9.2 Other safety information

Relative vapor density	4.36
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SECTION 10: Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .
Contains the following stabilizer(s):
propylene oxide (<1 %)

10.3 Possibility of hazardous reactions

Violent reactions possible with:
Strong oxidizing agents
amides
substances with a catalytic effect
numerous inorganic and/or organic compounds
Risk of explosion with:
polymerisation initiators
Acids
A risk of explosion and/or of toxic gas formation exists with the following substances:
Alkali metals
Alkaline earth metals
Metals
Exothermic reaction with:
Water
Release of:
Hydrogen chloride gas

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

various plastics, Strong oxidizing agents

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute toxicity estimate Oral - 1,192.37 mg/kg
(Calculation method)
Acute toxicity estimate Oral - 560 mg/kg
(Calculation method)
LD50 Oral - Rat - male and female - 560 mg/kg
(OECD Test Guideline 401)
Symptoms: Possible damages:, Bloody vomiting
Acute toxicity estimate Inhalation - 0.74 mg/l(Calculation method)

Acute toxicity estimate Inhalation - 4 h - 4.98 mg/l - vapor(Calculation method)

Acute toxicity estimate Inhalation - 4 h - 5 mg/l - vapor

(Expert judgment)

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Symptoms: Cough, Shortness of breath, mucosal irritations, Possible damages:, damage of respiratory tract, Lung edema, Symptoms may be delayed.

Inhalation: Irritating to respiratory system.

Acute toxicity estimate Dermal - 124,400 mg/kg

(Calculation method)

Acute toxicity estimate Dermal - > 5,000 mg/kg

(Calculation method)

Skin corrosion/irritation

Remarks: Causes skin irritation.

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation

Remarks: Lacrimal irritation due to vapours.

Remarks: Causes serious eye damage.

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: positive

(OECD Test Guideline 429)

Germ cell mutagenicity

Test Type: Ames test

Test system: Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: positive

Carcinogenicity

Presumed to have carcinogenic potential for humans

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation. - Respiratory system

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Specific target organ toxicity - repeated exposure

Oral - May cause damage to organs through prolonged or repeated exposure.

- Heart, forestomach

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Aspiration hazard

No data available

11.2 Additional Information

RTECS: XS8925000

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea,

Vomiting

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

Unconsciousness
CNS disorders

Damage to:

Kidney
Liver

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Liver - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish static test LC50 - Danio rerio (zebra fish) - 4 mg/l - 96 h
(OECD Test Guideline 203)

Toxicity to daphnia static test EC50 - Daphnia magna (Water flea) - 6.1 mg/l - 48 h
and other aquatic (OECD Test Guideline 202)
invertebrates

12.2 Persistence and degradability

Biodegradability aerobic - Exposure time 14 d
Result: 71 % - Readily biodegradable.
(OECD Test Guideline 301C)

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

12.7 Other adverse effects

Discharge into the environment must be avoided.

Stability in water

Test substance: Water
Remarks: Rapid degradation.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

TDG

UN number: 1738 Class: 6.1 (8) Packing group: II
Proper shipping name: BENZYL CHLORIDE
Subsidiary risk : 8
Labels: 6.1
(8)ERG Code: 156
Marine pollutant: no

IMDG

UN number: 1738 Class: 6.1 (8) Packing group: II EMS-No: F-A, S-B
Proper shipping name: BENZYL CHLORIDE

IATA

UN number: 1738 Class: 6.1 (8) Packing group: II
Proper shipping name: Benzyl chloride

SECTION 15: Regulatory information

This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

SECTION 16: Other information

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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