

Chemical Safety Data Sheet MSDS / SDS

Benzyl chloride

Revision Date:2025-02-01 Revision Number:1

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

Product identifier

Product name : Benzyl chloride
CBnumber : CB1852583
CAS : 100-44-7
EINECS Number : 202-853-6
Synonyms : benzyl chloride,(chloromethyl)benzene

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.
Uses advised against : none

Company Identification

Company : Chemicalbook
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone : 400-158-6606

SECTION 2: Hazards identification

GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

Precautionary statements

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash hands thoroughly after handling.
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.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

P284 Wear respiratory protection.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

P304+P340 IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continuerinsing.

P307+P311 IF exposed: call a POISON CENTER or doctor/physician.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P320 Specific treatment is urgent (see ... on this label).

P391 Collect spillage. Hazardous to the aquatic environment

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P501 Dispose of contents/container to.....

Hazard statements

H227 Combustible liquid

H301 Toxic if swallowed

H302 Harmful if swallowed

H314 Causes severe skin burns and eye damage

H315 Causes skin irritation

H317 May cause an allergic skin reaction

H318 Causes serious eye damage

H330 Fatal if inhaled

H331 Toxic if inhaled

H335 May cause respiratory irritation

H340 May cause genetic defects

H350 May cause cancer

H370 Causes damage to organs

H372 Causes damage to organs through prolonged or repeated exposure

H373 May cause damage to organs through prolonged or repeated exposure

H400 Very toxic to aquatic life

Disposal

WARNING.Cancer - <https://oehha.ca.gov/proposition-65/chemicals/benzyl-chloride>

SECTION 3: Composition/information on ingredients

Substance

Product name	: Benzyl chloride
Synonyms	: benzyl chloride,(chloromethyl)benzene
CAS	: 100-44-7
EC number	: 202-853-6
MF	: C7H7Cl
MW	: 126.58

SECTION 4: First aid measures

Description of first aid measures

General advice

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

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.

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

Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

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.

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. Risk of dust explosion.

Forms explosive mixtures with air on intense heating.

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

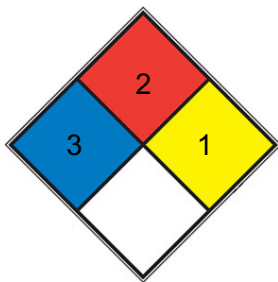
Advice for firefighters

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

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.

NFPA 704



HEALTH 3 Short exposure could cause serious temporary or moderate residual injury (e.g. [liquid hydrogen](#), [sulfuric acid](#), [calcium hypochlorite](#), hexafluorosilicic acid)

FIRE 2 Must be moderately heated or exposed to relatively high ambient temperature before ignition can occur and multiple finely divided suspended solids that do not require heating before ignition can occur. Flash point between 37.8 and 93.3 °C (100 and 200 °F). (e.g. diesel fuel, [sulfur](#))

REACT 1 Normally stable, but can become unstable at elevated temperatures and pressures (e.g. [propene](#))

SPEC.

HAZ.

SECTION 6: Accidental release measures

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.

Environmental precautions

Do not let product enter drains.

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.

Chemisorb?). Dispose of properly. Clean up affected area.

Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

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.

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.

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

control parameter

Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

Exposure controls

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

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact

with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Full contact

Material: Fluorinated rubber Minimum layer thickness: 0,7 mm Break through time: 480 min

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

Splash contact Material: Nitrile rubber

Minimum layer thickness: 0,4 mm Break through time: 30 min

Material tested: Camatril? (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

protective clothing

Respiratory protection

Recommended Filter type: Respirator.

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains.

Exposure limits

TLV-TWA 1 ppm ($\sim 5\text{mg}/\text{m}^3$) (ACGIH, MSHA, and OSHA); IDLH 10 ppm (NIOSH); carcinogenicity: Animal Limited Evidence, Human Inadequate Evidence (IARC).

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Appearance	colorless liquid
Odour	stinging
Odour Threshold	No data available
pH	Not applicable
Melting point/freezing point	Melting point/range: $-43\text{ }^\circ\text{C}$ - lit.
Initial boiling point and boiling range	$177 - 181\text{ }^\circ\text{C}$ - lit.
Flash point	$67\text{ }^\circ\text{C}$ - c.c.
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	Upper explosion limit: $14\text{ }\%(\text{V})$ Lower explosion limit: $1,1\text{ }\%(\text{V})$
Vapour pressure	$1,6\text{ hPa}$ at $25\text{ }^\circ\text{C}$
Vapour density	4,36
Relative density	$1,1\text{ g}/\text{cm}^3$ at $25\text{ }^\circ\text{C}$ - lit. $1,1$ at $20\text{ }^\circ\text{C}$
Water solubility	$0,46\text{ g}/\text{l}$ at $30\text{ }^\circ\text{C}$
Partition coefficient: n-octanol/water	log Pow: 2,3 - (IUCLID), Bioaccumulation is not expected.
Autoignition temperature	$585\text{ }^\circ\text{C}$ at 1.013 hPa
Decomposition temperature	No data available
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: $1,380\text{ mPa}\cdot\text{s}$ at $20\text{ }^\circ\text{C}$
Explosive properties	No data available
Oxidizing properties	No data available
Henry's Law Constant	($\times 10^{-4}\text{ atm}\cdot\text{m}^3/\text{mol}$): 3.57 at $20.00\text{ }^\circ\text{C}$ (inert gas stripping, Hovorka and Dohnal, 1997)

Other safety information

Relative vapor density

4,36

SECTION 10: Stability and reactivity

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.

Chemical stability

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

propylene oxide (<=1 %)

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

Conditions to avoid

Strong heating.

Incompatible materials

various plastics, Strong oxidizing agents

Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity

Acute toxicity estimate Oral - 1.192,37 mg/kg (Calculation method)

Acute toxicity estimate Oral - 553,8 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 - 4,97 mg/l (Calculation method)

Acute toxicity estimate Inhalation - 4 h - 5 mg/l (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.

Acute toxicity estimate Dermal - 124.400 mg/kg (Calculation method)

Acute toxicity estimate Dermal - > 2.000 mg/kg (Calculation method)

Skin corrosion/irritation

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

Serious eye damage/eye irritation

Lacrimal irritation due to vapours.

Causes serious eye damage. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Respiratory or skin sensitization

(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

No data available

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

Toxicity

LD50 orally in Rabbit: 440 mg/kg

SECTION 12: Ecological information

Toxicity

Toxicity to fish

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

Toxicity to daphnia and other aquatic invertebrates

static test EC50 - Daphnia magna (Water flea) - 6,1 mg/l - 48 h (OECD Test Guideline 202)

Persistence and degradability

Biodegradability aerobic - Exposure time 14 d

Result: 71 % - Readily biodegradable. (OECD Test Guideline 301C)

Bioaccumulative potential

No data available

Mobility in soil

No data available

Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Toxics Screening Level

The Initial Risk Screening Level (IRSL) for benzyl chloride is 0.02 µg/m³ based on an annual averaging time.

Other adverse effects

Discharge into the environment must be avoided.

Stability in water

Test substance: Water Remarks: Rapid degradation.

SECTION 13: Disposal considerations

Waste treatment methods

Incompatibilities

May form explosive mixture with air. Contact with water forms hydrogen chloride fumes. Strong oxidizers may cause fire and explosions.

Unstabilized benzyl chloride undergoes polymerization with copper, aluminum, iron, zinc, magnesium, tin, and other common metals except lead and nickel, with the liberation of heat and hydrogen chloride gas. Attacks some plastics and rubber.

Product

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

Waste Disposal

Incineration @ 816 C for 0.5 second minimum for primary combustion and 1204 C for 12.0 second for secondary combustion. Elemental chlorine formation may be alleviated by injection of steam or methane into the combustion process.

SECTION 14: Transport information

UN number

ADR/RID: 1738 IMDG: 1738

UN proper shipping name

ADR/RID: BENZYL CHLORIDE IMDG: BENZYL CHLORIDE IATA: Benzyl chloride

Transport hazard class(es)

ADR/RID: 6.1 (8) IMDG: 6.1 (8) IATA: 6.1 (8)

Packaging group

ADR/RID: II IMDG: II IATA: II

Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA: no

Special precautions for user

No data available

SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015:Listed. website: <https://www.mem.gov.cn/>

Measures for Environmental Management of New Chemical Substances

EC Inventory:Listed.

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

Korea Existing Chemicals List (KECL):Listed. website: <http://ncis.nier.go.kr>

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: <https://emb.gov.ph/>

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

[1] CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

[2] ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

[3] ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:

http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

【9】 IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

Other Information

Depending on the degree of exposure, periodic medical examination is suggested. The symptoms of lung oedema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Immediate administration of an appropriate inhalation therapy by a doctor, or by an authorized person, should be considered. An added stabilizer or inhibitor can influence the toxicological properties of this substance; consult an expert.

Disclaimer:

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