

According to Regulation (EC) No 1907/2006

According to Regulation (EC) No 2020/878

Benzyl chloroformate

Version number: 1
Issued: 2023-12-04



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

1.1. Product identifier

Trade name

Benzyl chloroformate

CAS number

501-53-1

EC number

207-925-0

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

Relevant identified uses

Research and development.

Not suitable for use in

Not suitable for human consumption or veterinary purposes.

1.3. Details of the supplier of the safety data sheet

Supplier

Molekula Group

Address

Molekula Ltd, Lingfield Way, Darlington,
DL1 4XX Darlington
United Kingdom

Telephone

+44 (0) 3302 000 333

Email

info@molekula.com

Web site

www.molekula.com

Contact person

Kevin Banks

Email

+44 (0) 7769276927

1.4. Emergency telephone number

Poison center/Additional emergency number

0344 892 0111 - National Poisons Information Service (Newcastle Centre)

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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Classification

Serious eye damage, hazard category 1
Carcinogenicity, hazard category 1B
Hazardous to the aquatic environment — Acute hazard category 1
Hazardous to the aquatic environment — Chronic hazard category 1
Skin corrosion, hazard category 1B
Specific Target Organ Toxicity — Single exposure, hazard category 3 - respiratory tract irritation
Acute toxicity, inhalation, hazard category 1

Hazard statements

H227, H314, H318, H330, H335, H350, H400, H410

Supplemental hazard statements

EUH029

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard pictograms



Signal word

Danger

Hazard statements

H227 Combustible liquid.
H314 Causes severe skin burns and eye damage.
H330 Fatal if inhaled.
H335 May cause respiratory irritation.
H350 May cause cancer.
H410 Very toxic to aquatic life with long lasting effects.

Supplemental hazard statements

EUH029 Contact with water liberates toxic gas.

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Precautionary statements

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe .
P261 Avoid breathing .
P264 Wash skin thoroughly after handling.
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.
P310 Immediately call a POISON CENTER/doctor.
P312 Call a POISON CENTER/doctor if you feel unwell.
P363 Wash contaminated clothing before reuse.
P391 Collect spillage.
P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304 + P340 IF INHALED: Remove person to fresh air and keep 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. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P405 Store locked up.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/container to approved waste disposal facility.

2.3. Other hazards

No data available

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SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical name	CAS No. EC No. REACH No. Index No.	Concentration	Classification	H-phrases M factor acute M factor chronic	Note
benzyl chloroformate	501-53-1 207-925-0 01-2119756296-29 607-064-00-4	≥97 - ≤99%	Skin Corr. 1B, Eye Dam. 1, Acute Tox. 2 - inhalation, STOT SE 3 - resp. tract irrit., Carc. 1B, Aquatic Acute 1, Aquatic Chronic 1	H227, H314, H318, H330, H335, H350, H400, H410, EUH029 - -	STOT SE 3; H335: C ≥ 5 %;
α-chlorotoluene; benzyl chloride	100-44-7 202-853-6 01-2119487137-31 602-037-00-3	≥1 - ≤3%	Acute Tox. 4 - oral, Skin Irrit. 2, Eye Dam. 1, Acute Tox. 3 - inhalation, STOT SE 3 - resp. tract irrit., Carc. 1B, STOT RE 2, Acute Tox. 3 - oral, Acute Tox. 4 - inhalation	H302, H315, H318, H331, H335, H350, H373 - -	-

Molecular weight

170.59

Substance additional information

For the complete text of H- / EUH-statements mentioned in this section, see section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

IF exposed or concerned: Get medical advice/attention. First aiders/ medical personnel need to protect themselves. Show this Safety Data Sheet (SDS) to medical personnel.

Inhalation

Toxic if inhaled. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. If breathing stops, provide artificial respiration. For breathing difficulties oxygen may be necessary.

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Skin contact

In case of skin contact: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]. Immediately call a POISON CENTER/doctor. The casualty should be transferred to hospital for further treatment.

Eye contact

Remove contact lenses if present. Rinse eyes with water. Continue to rinse for at least 15 minutes and seek medical attention.

Ingestion

IF SWALLOWED: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only if the persons are fully conscious and awake).

Information for doctors

No data available.

4.2. Most important symptoms and effects, both acute and delayed

The severity of the symptoms described will vary dependant of the concentration and the length of exposure. See section 11 for more detailed information on health effects and symptoms.

Inhalation

Single exposure may cause the following adverse effects: Difficulty in breathing. Unconsciousness, possibly death.

Skin contact

Single exposure may cause the following adverse effects: Unconsciousness, possibly death.

Eye contact

Single exposure may cause the following adverse effects: Severe irritation. Unconsciousness, possibly death.

Ingestion

Single exposure may cause the following adverse effects: Severe abdominal pain. May cause severe internal injury. Unconsciousness, possibly death.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically. No special treatment requirement.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.

Unsuitable extinguishing media

No specific fire fighting procedure given.

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5.2. Special hazards arising from the substance or mixture

Specific hazards: Toxic.

Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours. Carbon monoxide (CO). Carbon dioxide (CO₂). Hydrogen chloride (HCl). Phosgene (COCl₂). Vapours are heavier than air and may travel along the floor and in the bottom of containers. Forms explosive mixtures with air on intense heating.

5.3. Advice for firefighters

Special protective equipment for fire-fighters

Evacuate area. Avoid breathing gas, fume, vapours or spray. Cool containers exposed to heat with water spray and remove container, if no risk is involved.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid breathing dust/fume/gas/mist/vapours/spray. Provide adequate ventilation. Avoid contact with skin and eyes. Avoid dust formation. For personal protection, see section 8.

6.2. Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Collect spillage with shovel, broom or the like and reuse, if possible. Dispose of large amounts of spillage/waste according to agreement with local authorities.

6.4. Reference to other sections

For personal protection, see section 8. For waste disposal, see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Preventive handling precautions

For precautions see section 2.2. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. This product is toxic. Keep containers tightly closed. Immediate first aid is necessary. Wear protective clothing, gloves, eye and face protection. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid ingestion and inhalation. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Do not reuse empty containers.

General hygiene

Observe good chemical hygiene practices. Remove contaminated clothing immediately and wash skin with soap and water. Remove contaminated clothing and launder thoroughly before re-use. Wash skin thoroughly after handling.

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7.2. Conditions for safe storage, including any incompatibilities

Recommended storage temperature: 2 to 8°C (35.6 to 46.4°F) Store in a dry place. Store in a closed container.

Storage class : Toxic storage. The substance is hygroscopic and will absorb water by contact with the moisture in the air. Handle and store contents under inert gas. Protect from moisture.

7.3. Specific end use(s)

No specific usage precautions noted.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No data available

8.2. Exposure controls

Eye / face protection

Wear eye protection.

Hand protection

Wear protective gloves. Recommended gloves: fluorinated

Glove Thickness: 0.7mm

Breakthrough time: 8 hours

Always inspect gloves before use. If signs of wear and tear are noticed then the gloves should be replaced.

No specific hygiene procedures noted, but good personal hygiene practices are always advisable, especially when working with chemicals. Wash contaminated skin thoroughly after handling.

Other skin protection

Wash skin thoroughly after handling.

Respiratory protection

Provide adequate ventilation. If ventilation is insufficient, suitable respiratory protection must be provided.

Environmental exposure controls

Avoid discharge into drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state

Liquid

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Colour

No data available

Odour

Pungent.

Melting point / freezing point

-18°C / -0.4°F

Boiling point or initial boiling point and boiling range

152°C / 305.6°F

Flammability

No data available

Lower and upper explosion limit

No data available

Flash point

92 °C

Method

CC (Closed cup).

Auto-ignition temperature

No data available

Decomposition temperature

No data available

pH

No data available

Kinematic viscosity

No data available

Solubility

No data available

Partition coefficient n-octanol/water

No data available

Vapour pressure

95.809 hPa at 20 °C / 68°F

Density and/or relative density

1.217 g/cm³ 20°C/ 68°F

Relative vapour density

No data available

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Particle characteristics

No data available

9.2. Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Can violently decompose at elevated temperatures Forms explosive mixtures with air on intense heating. Contact with water liberates toxic gas.

10.2. Chemical stability

Decomposes when moist. Stable under the prescribed storage conditions.

10.3. Possibility of hazardous reactions

Decomposes when moist.

10.4. Conditions to avoid

Heating. Moisture.

10.5. Incompatible materials

Oxidising materials. Alkalis Water

10.6. Hazardous decomposition products

See section 5.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

No data available

SECTION 12: Ecological information

12.1. Toxicity

No data available

12.2. Persistence and degradability

No data available

12.3. Bioaccumulative potential

No data available

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12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

No data available

12.6. Endocrine disrupting properties

This product does not contain any known or suspected endocrine disruptors.

12.7. Other adverse effects

No data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal considerations

Dispose of contents/container in accordance with local regulations.

SECTION 14: Transport information

14.1. UN number

1739

14.2. UN proper shipping name

ADR / RID / ADN proper shipping name

BENZYL CHLOROFORMATE

IMDG proper shipping name

BENZYL CHLOROFORMATE

IATA proper shipping name

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14.3. Transport hazard class(es)

Label

ADR/RID/ADN



8

IMDG



8

IATA



8

ADR / RID Class

8

ADR / RID Classification code

C9

ADR / RID hazard identification number

88

IMDG Class

8

IATA Class

8

ADN Class

8

ADN Class Code

C9

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14.4. Packing group

ADR / RID / ADN: I
IMDG: I
IATA: I

14.5. Environmental hazards

IMDG EmS

F-A, S-B

IMDG Marine Pollutant

Yes

14.6. Special precautions for user

Tunnel restriction code: E
Transport category: 1

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

EU regulations

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.
This material safety data sheet complies with the requirements of Regulation (EU) 2020/878.

National regulations

No data available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

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SECTION 16: Other information

Phrase meaning

Eye Dam. 1 - Serious eye damage, hazard category 1
Carc. 1B - Carcinogenicity, hazard category 1B
Aquatic Acute 1 - Hazardous to the aquatic environment — Acute hazard category 1
Aquatic Chronic 1 - Hazardous to the aquatic environment — Chronic hazard category 1
Skin Corr. 1B - Skin corrosion, hazard category 1B
STOT SE 3 - resp. tract irrit. - Specific Target Organ Toxicity — Single exposure, hazard category 3 - respiratory tract irritation
Acute Tox. 1 - inhalation - Acute toxicity, inhalation, hazard category 1
Acute Tox. 2 - inhalation - Acute toxicity, inhalation, hazard category 2
Acute Tox. 4 - oral - Acute toxicity, oral, hazard category 4
Skin Irrit. 2 - Skin irritation, hazard category 2
Acute Tox. 3 - inhalation - Acute toxicity, inhalation, hazard category 3
STOT RE 2 - Specific Target Organ Toxicity — Repeated exposure, hazard category 2
Acute Tox. 3 - oral - Acute toxicity, oral, hazard category 3
Acute Tox. 4 - inhalation - Acute toxicity, inhalation, hazard category 4
H227 Combustible liquid.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H330 Fatal if inhaled.
H331 Toxic if inhaled.
H335 May cause respiratory irritation.
H350 May cause cancer.
H373 May cause damage to organs through prolonged or repeated exposure
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.
EUH029 Contact with water liberates toxic gas.