

## SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

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GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

**1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING****1.1 Product identifiers**

Product name : Chlorobenzene

Product Number : 23570  
Brand : Sigma-Aldrich  
Index-No. : 602-033-00-1  
CAS-No. : 108-90-7**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Manufacture of substances

**1.3 Details of the supplier of the safety data sheet**Company : Sigma-Aldrich Chemie GmbH  
Industriestrasse 25  
CH-9471 BUCHSTelephone : +41 81-755-2511  
Fax : +41 81-756-5449  
E-mail address : eurtechserv@sial.com**1.4 Emergency telephone number**Emergency Phone # : +41 81-755-2255  
145(CH)  
+41 44-251-5151 (Tox-Zentrum)**2. HAZARDS IDENTIFICATION****2.1 Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]**Flammable liquids (Category 3)  
Acute toxicity, Inhalation (Category 4)  
Chronic aquatic toxicity (Category 2)**Classification according to EU Directives 67/548/EEC or 1999/45/EC**

Flammable. Harmful by inhalation. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**2.2 Label elements****Labelling according Regulation (EC) No 1272/2008 [CLP]**

Pictogram



Signal word

Warning

Hazard statement(s)

H226

Flammable liquid and vapour.

H332

Harmful if inhaled.

H411

Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P273

Avoid release to the environment.

Supplemental Hazard  
Statements

none

According to European Directive 67/548/EEC as amended.

Hazard symbol(s)



R-phrase(s)

R10

Flammable.

R20

Harmful by inhalation.

R51/53

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrase(s)

S24/25

Avoid contact with skin and eyes.

S61

Avoid release to the environment. Refer to special instructions/ Safety data sheets.

### 2.3 Other hazards - none

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## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### 3.1 Substances

Formula : C<sub>6</sub>H<sub>5</sub>Cl

Molecular Weight : 112,56 g/mol

Component	Concentration
<b>Chlorobenzene</b>	
CAS-No. 108-90-7	-
EC-No. 203-628-5	
Index-No. 602-033-00-1	

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## 4. FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Flush eyes with water as a precaution.

#### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

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

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

no data available

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## 5. FIREFIGHTING MEASURES

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

## 5.2 Special hazards arising from the substance or mixture

Carbon oxides, Hydrogen chloride gas

## 5.3 Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

## 5.4 Further information

Use water spray to cool unopened containers.

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## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### 6.3 Methods and materials for containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

### 6.4 Reference to other sections

For disposal see section 13.

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## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

### 7.2 Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

### 7.3 Specific end uses

no data available

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

**Components with workplace control parameters**

### 8.2 Exposure controls

#### Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### Personal protective equipment

##### Eye/face protection

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

##### 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 EU Directive 89/686/EEC and the standard EN 374 derived from it.

Immersion protection

Material: Fluorinated rubber  
Minimum layer thickness: 0,7 mm  
Break through time: > 480 min  
Material tested: Vitoject® (Aldrich Z677698, Size M)

Splash protection  
Material: Fluorinated rubber  
Minimum layer thickness: 0,7 mm  
Break through time: > 30 min  
Material tested: Vitoject® (Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, 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 CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist 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

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

a) Appearance	Form: liquid, clear Colour: colourless
b) Odour	no data available
c) Odour Threshold	no data available
d) pH	no data available
e) Melting point/freezing point	Melting point/range: -45 °C - lit.
f) Initial boiling point and boiling range	132 °C - lit.
g) Flash point	27,0 °C - closed cup
h) Evaporation rate	no data available
i) Flammability (solid, gas)	no data available
j) Upper/lower flammability or explosive limits	Upper explosion limit: 7,1 %(V) Lower explosion limit: 1,3 %(V)
k) Vapour pressure	15,7 hPa at 25,0 °C
l) Vapour density	no data available
m) Relative density	1,106 g/mL at 25 °C
n) Water solubility	no data available
o) Partition coefficient: n-octanol/water	log Pow: 2,89log Pow: 5
p) Autoignition temperature	637,0 °C

- |                              |                   |
|------------------------------|-------------------|
| q) Decomposition temperature | no data available |
| r) Viscosity                 | no data available |
| s) Explosive properties      | no data available |
| t) Oxidizing properties      | no data available |

## 9.2 Other safety information

Surface tension	33,0 mN/m at 25,0 °C
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## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

no data available

### 10.2 Chemical stability

no data available

### 10.3 Possibility of hazardous reactions

no data available

### 10.4 Conditions to avoid

Heat, flames and sparks.

### 10.5 Incompatible materials

Strong oxidizing agents

### 10.6 Hazardous decomposition products

Other decomposition products - no data available

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## 11. TOXICOLOGICAL INFORMATION

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - rat - 1.110 mg/kg

Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Tremor. Behavioral:Ataxia.

LC50 Inhalation - rat - 2965 ppm

#### Skin corrosion/irritation

no data available

#### Serious eye damage/eye irritation

no data available

#### Respiratory or skin sensitization

no data available

#### Germ cell mutagenicity

no data available

#### Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

#### Reproductive toxicity

no data available

#### Specific target organ toxicity - single exposure

no data available

#### Specific target organ toxicity - repeated exposure

no data available

#### Aspiration hazard

no data available

## Potential health effects

<b>Inhalation</b>	Harmful if inhaled. May cause respiratory tract irritation.
<b>Ingestion</b>	Harmful if swallowed.
<b>Skin</b>	May be harmful if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	May cause eye irritation.

## Signs and Symptoms of Exposure

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

## Additional Information

RTECS: CZ0175000

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## 12. ECOLOGICAL INFORMATION

### 12.1 Toxicity

Toxicity to fish	LC100 - Leuciscus idus (Golden orfe) - 0,03 - 28 mg/l - 48,0 h
	LC50 - Cyprinodon variegatus (sheepshead minnow) - 10 mg/l - 96,0 h
	LC50 - Lepomis macrochirus (Bluegill) - 4,5 - 7,4 mg/l - 76,0 h
	NOEC - Cyprinodon variegatus (sheepshead minnow) - 6,2 mg/l - 96,0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 4,30 - 16,00 mg/l - 24 h
	EC50 - No information available. - 7,60 mg/l - 24 h
	NOEC - Daphnia magna (Water flea) - < 1,4 mg/l - 11 d
	LC50 - Daphnia magna (Water flea) - 10,7 mg/l - 48 h
Toxicity to algae	EC50 - No information available. - 235,00 mg/l - 48 h
	EC50 - Pseudokirchneriella subcapitata (green algae) - 12,50 mg/l - 96 h

### 12.2 Persistence and degradability

no data available

### 12.3 Bioaccumulative potential

Bioaccumulation	Leuciscus idus (Golden orfe) - 3 d -0,05 mg/l
	Bioconcentration factor (BCF): 75

### 12.4 Mobility in soil

no data available

### 12.5 Results of PBT and vPvB assessment

no data available

### 12.6 Other adverse effects

Toxic to aquatic life with long lasting effects.  
no data available

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## 13. DISPOSAL CONSIDERATIONS

### 13.1 Waste treatment methods

#### Product

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

#### Contaminated packaging

Dispose of as unused product.

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**14. TRANSPORT INFORMATION****14.1 UN number**

ADR/RID: 1134

IMDG: 1134

IATA: 1134

**14.2 UN proper shipping name**

ADR/RID: CHLOROBENZENE

IMDG: CHLOROBENZENE

IATA: Chlorobenzene

**14.3 Transport hazard class(es)**

ADR/RID: 3

IMDG: 3

IATA: 3

**14.4 Packaging group**

ADR/RID: III

IMDG: III

IATA: III

**14.5 Environmental hazards**

ADR/RID: yes

IMDG Marine pollutant: yes

IATA: no

**14.6 Special precautions for user**

no data available

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**15. REGULATORY INFORMATION**

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

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

no data available

**15.2 Chemical Safety Assessment**

no data available

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**16. OTHER INFORMATION****Further information**

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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](http://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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