

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Chlorobenzene

Product Number : 319996
Brand : Sigma-Aldrich

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
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Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Flammable liquid, Harmful by ingestion., Carcinogen

Target Organs

Liver, Kidney, Central nervous system, Thymus., Spleen., Bone marrow, Lungs, Testes.

GHS Label elements, including precautionary statements

Pictogram



Signal word

Warning

Hazard statement(s)

H226 Flammable liquid and vapour.
H302 + H332 Harmful if swallowed or if inhaled.
H401 Toxic to aquatic life.
H413 May cause long lasting harmful effects to aquatic life.

Precautionary statement(s)

none

HMIS Classification

Health hazard: 1
Chronic Health Hazard: *
Flammability: 3
Physical hazards: 0

NFPA Rating

Health hazard: 2
Fire: 3
Reactivity Hazard: 0

Potential Health Effects

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : C₆H₅Cl
Molecular Weight : 112.56 g/mol

| CAS-No. | EC-No. | Index-No. | Concentration |
|----------------------|-----------|--------------|---------------|
| Chlorobenzene | | | |
| 108-90-7 | 203-628-5 | 602-033-00-1 | - |

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

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

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

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

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

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.

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.

Methods and materials for containment and cleaning up

Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid inhalation of vapour or mist.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage

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. Store in cool place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

| Components | CAS-No. | Value | Control parameters | Update | Basis |
|---------------|--|-------|---------------------|------------|--|
| Chlorobenzene | 108-90-7 | TWA | 10 ppm | 2007-01-01 | USA. ACGIH Threshold Limit Values (TLV) |
| Remarks | Liver damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed animal carcinogen with unknown relevance to humans: The agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) that may not be relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence does not suggest that the agent is likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure. | | | | |
| | | TWA | 75 ppm 350 mg/m3 | 1989-01-19 | USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000 |
| | | TWA | 75 ppm 350 mg/m3 | 1997-08-04 | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
| | The value in mg/m3 is approximate. | | | | |

Personal protective equipment

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).

Hand protection

Handle with gloves.

Eye protection

Face shield and safety glasses

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form liquid, clear

Colour colourless

Safety data

pH no data available

Melting point -45 °C (-49 °F) - lit.

Boiling point 132 °C (270 °F) - lit.

Flash point 27.0 °C (80.6 °F) - closed cup

Ignition temperature 637 °C (1,179 °F)

Lower explosion limit 1.3 %(V)

Upper explosion limit 7.1 %(V)

| | |
|---|---|
| Vapour pressure | 15.7 hPa (11.8 mmHg) at 25.0 °C (77.0 °F) |
| Density | 1.106 g/cm ³ at 25 °C (77 °F) |
| Water solubility | no data available |
| Partition coefficient: n-octanol/water | log Pow: 2.89 log Pow: 5 |

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid

Heat, flames and sparks.

Materials to avoid

Strong oxidizing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas

11. TOXICOLOGICAL INFORMATION

Acute toxicity

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

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

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.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)

no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

Aspiration hazard

no data available

Potential health effects

| | |
|-------------------|---|
| Inhalation | May be harmful if inhaled. May cause respiratory tract irritation. |
| Ingestion | Harmful if swallowed. |
| Skin | May be harmful if absorbed through skin. May cause skin irritation. |
| Eyes | 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

12. ECOLOGICAL INFORMATION**Toxicity**

| | |
|--|---|
| Toxicity to fish | LC100 - <i>Leuciscus idus</i> (Golden orfe) - 0.03 - 28 mg/l - 48.0 h |
| | LC50 - <i>Cyprinodon variegatus</i> (sheepshead minnow) - 10 mg/l - 96.0 h |
| | LC50 - <i>Lepomis macrochirus</i> (Bluegill) - 4.5 - 7.4 mg/l - 76.0 h |
| | NOEC - <i>Cyprinodon variegatus</i> (sheepshead minnow) - 6.2 mg/l - 96.0 h |
| Toxicity to daphnia and other aquatic invertebrates. | EC50 - <i>Daphnia magna</i> (Water flea) - 4.30 - 16.00 mg/l - 24 h |
| | EC50 - No information available. - 7.60 mg/l - 24 h |
| | NOEC - <i>Daphnia magna</i> (Water flea) - < 1.4 mg/l - 11 d |
| Toxicity to algae | LC50 - <i>Daphnia magna</i> (Water flea) - 10.7 mg/l - 48 h |
| | EC50 - No information available. - 235.00 mg/l - 48 h |
| | EC50 - <i>Pseudokirchneriella subcapitata</i> (green algae) - 12.50 mg/l - 96 h |

Persistence and degradability**Bioaccumulative potential**

| | |
|-----------------|---|
| Bioaccumulation | <i>Leuciscus idus</i> (Golden orfe) - 3 d |
| | Bioconcentration factor (BCF): 75 |

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

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

13. DISPOSAL CONSIDERATIONS**Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)

UN-Number: 1134 Class: 3 Packing group: III
Proper shipping name: Chlorobenzene
Reportable Quantity (RQ): 100 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG

UN-Number: 1134 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: CHLOROBENZENE
Marine pollutant: No

IATA

UN-Number: 1134 Class: 3 Packing group: III
Proper shipping name: Chlorobenzene

15. REGULATORY INFORMATION

OSHA Hazards

Flammable liquid, Harmful by ingestion., Carcinogen

DSL Status

All components of this product are on the Canadian DSL list.

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

| | CAS-No. | Revision Date |
|---------------|----------|---------------|
| Chlorobenzene | 108-90-7 | 2007-07-01 |

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

| | CAS-No. | Revision Date |
|---------------|----------|---------------|
| Chlorobenzene | 108-90-7 | 2007-07-01 |

Pennsylvania Right To Know Components

| | CAS-No. | Revision Date |
|---------------|----------|---------------|
| Chlorobenzene | 108-90-7 | 2007-07-01 |

New Jersey Right To Know Components

| | CAS-No. | Revision Date |
|---------------|----------|---------------|
| Chlorobenzene | 108-90-7 | 2007-07-01 |

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information

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