

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	Chlorobenzene
Synonyms	Chlorobenzene
Grade	ACS, HPLC
Company	Anaqua Chemicals Supply 1510 Eldridge Parkway, Suite 110-268 Houston, TX 77077, USA
Telephone	(281) 668-0032
Fax	(281) 668-0033

2. COMPOSITION/ INFORMATION ON INGREDIENTS

Formula	C ₆ H ₅ Cl
CAS-No.	108-90-7
Index-No.	602-033-00-1
Ec-No.	200-628-5
Concentration	≥ 95 %

3. HAZARDS IDENTIFICATION**GHS Classification**

Flammable liquids	Category 3
Acute toxicity	Category 4
Chronic aquatic toxicity	Category 2

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

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

4. FIRST AID MEASURES

Inhalation	If breathed in, move to fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician immediately.
Skin Contact	Immediately wash off with soap and plenty of water. Consult a physician.
Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes. Consult a physician.
If swallowed	Do NOT induce vomit. Never give anything by mouth. 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 fighting fire if necessary. Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe 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. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling	Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Prevent electrostatic charge.
Storage	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.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

Occupational exposure controls

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

Personal protective Equipment

Respiratory protection Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU)

Hand 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.

Eye 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 and body protection Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	Liquid, clear
Color	Colorless
pH	No available information
Melting point	-45 °C (-49 °F)
Boiling point	132 °C (269.6 °F)
Flash point	27 °C (80.6 °F) – closed cup
Ignition temperature	637 °C
Lower explosion limit	1.3 % (V)
Upper explosion limit	7.1 % (V)
Vapor pressure	15.7 hPa at 25 °C (77 °F)
Density	1.06 g/cm ³ at 25 °C (77 °F)
Water solubility	No available information
Partition coefficient: n-octanol/ water	log Pow: 2.89 log Pow: 5
Molecular weight	112.56
Decomposition temperature	No available information

10. STABILITY AND REACTIVITY

Storage stability	Stable under recommended storage conditions.
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 2,965 ppm (Rat)
Germ cell mutagenicity	No available information
Specific target organ toxicity – single exposure (GHS)	No available information
Specific target organ toxicity – repeated exposure (GHS)	No available information
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.
Reproductive toxicity	No available information
Aspiration hazard	No available information
Potential health effects	Inhalation Harmful if inhaled. May cause respiratory tract irritation. Ingestion Harmful if swallowed. Skin Harmful if absorbed through skin. May cause skin irritation. Eyes Causes serious 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

Ecotoxicity

Persistence and degradability

Toxicity to fish	LC100 – 0.03-28 mg/l (Leuciscus idus (Golden orfe)) 48 h LC50 - 10 mg/l (Cyprinodon variegatus (sheepshead minnow)) 96 h LC50 – 4.5-7.4 mg/l (Lepomis macrochirus (Bluegill)) 76 h NOEC – 6.2 mg/l (Cyprinodon variegatus (sheepshead minnow)) 96h
Toxicity to daphnia and other aquatic invertebrates	EC50 – 4.30 – 16.00 mg/l (Daphnia magna (Water flea)) 24 h EC50 – 7.60 mg/l (No information available) 24 h NOEC - < 1.4 mg/l (Daphnia magna (Water flea)) 11 d LC50 – 10.7 mg/l (Daphnia magna (Water flea)) 48 h
Toxicity to algae	EC50 – 235.00 mg/l - 48 h EC50 –12,50 mg/l (Pseudokirchneriella subcapitata (green algae)) 96 h
Bioaccumulative potential	(Leuciscus idus (Golden orfe)) 3 d Bioconcentration factor (BCF): 75
Results of PBT and vPvB assessment	No available information
Other adverse effects	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.
Contaminated packaging	Dispose of as unused product.

14. TRANSPORT INFORMATION

IATA

UN-Number: 1134 Class: 6.1 Packing group: III

Proper shipping name: Chlorobenzene

IMDG

UN-Number: 1134 Class: 6.1 Packing group: III

Proper shipping name: Chlorobenzene

EMS-No. F-E, S-D

DOT (US)

UN-Number: 1134 Class: 6.1 Packing group: III

Proper shipping name: Chlorobenzene

Marine pollution: No

15. REGULATORY INFORMATION

Hazard statements

H226: Flammable liquid and vapour.

H332: Harmful if inhaled.

H411: Toxic to aquatic life with long lasting effects.

Precautionary statements

P273 Avoid release to the environment.

GHS-Labeling

Pictogram



Signal word *Warning*

Labeling according to EC Directive

Symbol(s): Xn – Harmful N – Dangerous for the environment

R-phrases: 10-20-51/53

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

S-phrases: 24/25-61

Avoid contact with skin and eyes. Avoid release to environment. Refer to special instructions/ Safety data sheets.

16. OTHER INFORMATION

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