

SAFETY DATA SHEET

Chlorobenzene

1. IDENTIFICATION OF SUBSTANCE / MIXTURE AND OF SUPPLIER

Product Identifier:	High Purity Chemicals
Synonyms:	Monochlorobenzene; Chlorobenzol; Phenyl chloride; Benzene chloride; Chlorobenzol
Other means of identification:	CAS No. 108-90-7 EINECS No. 203-628-5
Recommended use of the chemical and restrictions on use:	

Supplier Details:

Greenfield Global USA, Inc.
58 Vale Road, Brookfield,
CT 06804, USA.
Tel: 203.740.3471
Fax: 203.740.3481
CCN17213

Greenfield Global USA, Inc.
1101 Isaac Shelby Drive, Shelbyville,
KY 40065, USA.
Tel: 502.232.7600
Fax: 502.633.6100
CCN17213

Emergency Contact: CHEMTREC: 1.800.424.9300 (USA) / +1.703.527.3887 (International)

2. HAZARDS IDENTIFICATION

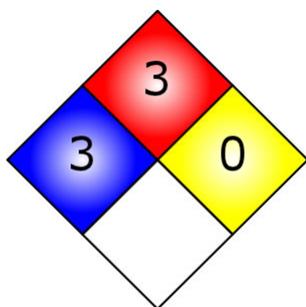
OSHA Hazards:

Carcinogen, Flammable liquid, Harmful by ingestion

Target Organs:

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

NFPA



GHS label elements, including precautionary statements

Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
+1.703.527.3887 (INT)



Signal Word:

WARNING!

Hazard statement(s)

H226	Flammable liquid and vapor
H315	Causes skin irritation.
H332	Harmful if inhaled.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P273	Avoid release to the environment.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P262	Do not get in eyes, on skin, or on clothing.
P403	Store in a well-ventilated place.

GHS Classification(s)

Acute Toxicity, Inhalation (Category 4)
Chronic aquatic toxicity (Category 1)
Flammable Liquids (Category 3)
Skin irritation (Category 2)

Other hazards which do not result in classification:

Potential Health Effects:

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

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical identity:	Chlorobenzene
Common name / Synonym:	Monochlorobenzene; Chlorobenzol; Phenyl chloride; Benzene chloride; Chlorobenzol
CAS number:	108-90-7

Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)

EINECS number: 203-628-5 **+1.703.527.3887 (INT)**
ICSC number: 0642
RTECS #: CZ0175000
UN #: UN1134
EC #: 602-033-00-1

% Weight	Material	CAS
100	Chlorobenzene	108-90-7

4. FIRST AID MEASURES

General advice

Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Skin

Wash skin with soap and copious amounts of water. Seek medical attention.

Inhalation

Remove person to fresh air. If signs/symptoms continue, get medical attention. Give oxygen or artificial respiration as needed.

Eyes

Flush eyes with water as a precaution.

Ingestion

DO NOT induce vomiting. If vomiting does occur, have victim lean forward to prevent aspiration. Rinse mouth with water. Seek medical attention. Never give anything by mouth to an unconscious individual.

5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media:

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

Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):

Carbon oxides and hydrogen chloride gas expected to be the primary hazardous combustion products.

Special protective equipment and precautions for firefighters:

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Keep unopened containers cool by spraying with water.

Unusual Fire and Explosion Hazards:

- Vapors may settle in low or confined spaces.
- Vapors may travel to source of ignition and flash back.



Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)

Flammable Properties

+1.703.527.3887 (INT)

Classification

OSHA/NFPA Class IC Flammable Liquid.

Flash point

28 °C (82 °F) - closed cup

Autoignition temperature

593 °C (1099 °F)

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Do not inhale vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

Environmental precautions:

Stop leak. Contain spill if possible and safe to do so. Prevent product from entering drains.

Methods and materials for containment and cleaning up:

Contain spill, then collect with an electrically protected vacuum cleaner or by wet-brushing and put the material into a convenient waste disposal container. Keep container closed.

7. HANDLING AND STORAGE

Precautions for safe handling:

Do not get on skin or in eyes. Do not inhale vapor or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the buildup of electrostatic charge. Open and handle container with care. Metal containers involved in the transfer of this material should be grounded and bonded.

Conditions for safe storage, including any incompatibilities:

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

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters, e.g., occupational exposure limit values or biological limit values:

Occupational Exposure Limits

Component	Source	Type	Value	Note
Chlorobenzene	US (OSHA)	TWA	75 ppm	29 CFR 1910.1000 Table Z-1 Limits for Air Contaminants
Chlorobenzene	US (ACGIH)	TWA	10 ppm	ACGIH Threshold Limit Value

Appropriate engineering controls:



Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)

General room or local exhaust ventilation is usually required to meet exposure limit(s). Electrical equipment should be grounded and conform to applicable electrical code.

Individual protection measures, such as 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. 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.

Eye protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Use equipment approved by appropriate government standards, such as NIOSH (US) or EN166 (EU) Maintain eye wash fountain and quick-drench facilities in work area.

Skin and body protection:

Wear impervious, flame retardant, antistatic protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

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 (physical state, color, etc.)	Liquid. Colorless liquid / invisible vapor.
Freezing point	-45 °C (-49 °F)
Initial boiling point and boiling range	132 °C (270 °F)
Flash point	28 °C (82 °F) - closed cup
Upper / Lower flammability or explosive limits	1.3 %(V) / 9.6 %(V)
Vapor pressure	15.7 hPa (11.8 mmHg) at 25.0 °C (77.0 °F)
Relative Density	1.106 g/cm ³ at 25 °C (77 °F)
Solubility(ies)	not soluble
Auto-ignition temperature	593 °C (1099 °F)
Formula (CHLOROBENZENE)	C ₆ H ₅ Cl
Molecular Weight (CHLOROBENZENE)	112.56 g/mol

Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)

10. STABILITY AND REACTIVITY

+1.703.527.3887 (INT)

Possibility of hazardous reactions	Vapors may form explosive mixture with air.
Conditions to avoid (e.g., static discharge, shock or vibration)	Heat, flames, and sparks.
Incompatible materials	Strong oxidizing agents
Hazardous decomposition products	Hazardous decomposition products formed under fire conditions. - Carbon oxides, hydrogen chloride gas

11. TOXICOLOGICAL INFORMATION

- Chlorobenzene 108-90-7

Product Summary:

No data available for the mutagenic, teratogenic, or reproductive effects of the product.

Acute Toxicity:

LC50 (Inhalation)	Rat	2,965 ppm	
LD50 (Oral)	Rat	1,110 mg/kg	

Irritation:

No data available

/

Carcinogenicity

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

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

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.

Other Hazards

Organ	Description
Eyes	May be irritating to the eyes.
Ingestion	Harmful if ingested.
Inhalation	May be harmful if inhaled. May be irritating to the respiratory tract.
Skin	Harmful if absorbed through skin. May be irritating to the skin.



Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)

12. ECOLOGICAL INFORMATION

+1.703.527.3887 (INT)

- Chlorobenzene 108-90-7

Ecotoxicity (aquatic and terrestrial, where available):

Acute Fish Toxicity (CHLOROBENZENE)

LC50 / 96 hours Sheepshead Minnow - 10 mg/L

Acute Fish Toxicity (CHLOROBENZENE)

NOEC / 96 hours Sheepshead Minnow - 6.2 m/L

Persistence and degradability:

No data available

Bioaccumulative potential:

Bioaccumulation: Golden orfe - 3 days; Bioconcentration factor (BCF) - 75

13. DISPOSAL CONSIDERATIONS

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging:

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

14. TRANSPORT INFORMATION

Description of waste residues and information on their safe handling and methods of disposal:

UN number	UN1134
UN proper shipping name	Chlorobenzene
Transport hazard class(es)	3
Packing group (if applicable)	III

Reportable Quantity

100 lbs

IMDG

UN-Number: UN1134 Class: 3 Packing Group: III

EMS-No: F-E, S-D

Proper shipping name: CHLOROBENZENE

Marine pollutant: No

IATA



Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
 UN-Number: UN1134 Class: 3 Packing Group: III **+1.703.527.3887 (INT)**
 Proper shipping name: Chlorobenzene

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question:

OSHA Hazards

Carcinogen, Flammable liquid, Harmful by ingestion

All ingredients are on the following inventories or are exempted from listing

Country	Notification
Australia	AICS
Canada	DSL
China	IECS
European Union	EINECS
Japan	ENCS/ISHL
Korea	ECL
New Zealand	NZIoC
Philippines	PICCS
United States of America	TSCA

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

The following components are subject to reporting levels established by SARA Title III, Section 313:

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

SARA 311/312 Hazards

Acute Health Hazard
 Chronic Health Hazard
 Fire Hazard

CERCLA

Chlorobenzene CAS-No. 108-90-7, RQ: 100 lbs.

Massachusetts Right To Know Components

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

Pennsylvania Right To Know Components

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



PHARMCO
by Greenfield Global

**Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
+1.703.527.3887 (INT)**

New Jersey Right To Know Components

Chlorobenzene CAS-No. 108-90-7 Revision Date 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:
INCLUDING INFORMATION ON PREPARATION AND REVISION OF THE SDS**

Disclaimer

Greenfield Global USA, Inc. believes that the information on this SDS was obtained from reliable sources. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, Greenfield Global USA, Inc. does not assume responsibility and expressly disclaims liability for loss, damage, or expense arising out of or in any way connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this SDS information may not be applicable. Information is correct to the best of our knowledge at the date of the SDS publication.