Material Safety Data Sheet

Chlorobenzene

MSDS# 04730

Section 1 - Chemical Product and Company Identification

MSDS Name:	Chlorobenzene
Catalog Numbers:	AC146410000, AC146410025, AC222110000, AC222115000, AC404490000, AC404490040 AC404490040, AC404490200, 14641-0010, 40449-0010, B254-20, B254-4, B254-4LC, B254RS-200, B255-1, B255-500, NC9586671
Synonyms:	Benzene chloride; Monochlorobenzene; Phenyl chloride.

Company Identification:	Fisher Scientific One Reagent Lane Fair Lawn, NJ 07410
For information in the US, call:	201-796-7100
Emergency Number US:	201-796-7100
CHEMTREC Phone Number, US:	800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#:	108-90-7
Chemical Name:	Chlorobenzene
%:	99
EINECS#:	203-628-5

Hazard Symbols: XN N

Risk Phrases: 10 20 51/53

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Warning! Flammable liquid and vapor. Harmful if inhaled. May cause liver damage. Breathing vapors may cause drowsiness and dizziness. Causes eye, skin, and respiratory tract irritation. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Target Organs: Central nervous system, liver, respiratory system, eyes, skin.

Potential Health Effects

Eye:	Causes eye irritation.
Skin:	Causes skin irritation. Prolonged and/or repeated contact may cause defatting of the skin and dermatitis. May be harmful if absorbed through the skin.
Ingestion:	May cause liver and kidney damage. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may cause collapse, unconsciousness, coma and possible death due to respiratory failure. May be harmful if swallowed.
Inhalation:	Causes respiratory tract irritation. Harmful if inhaled. Inhalation of vapors may cause drowsiness and dizziness.
Chronic:	Chronic inhalation and ingestion may cause effects similar to those of acute inhalation and ingestion. Chronic exposure may cause liver damage. Repeated contact may result in skin burns.

Section 4 - First Aid Measures

Eyes:	Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin:	Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse.
Ingestion:	Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation:	Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician:	

Section 5 - Fire Fighting Measures

General Information:	As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas.
Extinguishing Media:	Water may be ineffective. Do NOT use straight streams of water. For small fires, use dry chemical, carbon dioxide, water spray or regular foam. For large fires, use water spray, fog or regular foam.
Autoignition Temperature:	590 deg C (1,094.00 deg F)
Flash Point:	23 deg C (73.40 deg F)
Explosion Limits: Lower:	1.8
Explosion Limits: Upper:	9.6
NFPA Rating:	health: 2; flammability: 3; instability: 0;

Section 6 - Accidental Release Measures

General Information:	Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:	Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Provide ventilation. A vapor suppressing foam may be used to reduce vapors. Water spray may reduce vapor but may not prevent ignition in closed spaces.

Section 7 - Handling and Storage

Handling:	Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Ground and bond containers when transferring material. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
Storage:	Keep away from sources of ignition. Store in a tightly closed container. Keep from contact with oxidizing materials. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Chlorobenzene	10 ppm	1000 ppm IDLH	75 ppm TWA; 350 mg/m3 TWA

OSHA Vacated PELs: Chlorobenzene: 75 ppm TWA; 350 mg/m3 TWA

Engineering Controls:

Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Ventilation fans and other electrical service must be non-sparking and have an explosion-proof design.

Exposure Limits

Personal Protective Equipment

Eyes:	Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin:	Wear appropriate protective gloves to prevent skin exposure.
Clothing:	Wear appropriate protective clothing to prevent skin exposure.
Respirators:	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State:	Liquid
Color:	clear, colorless
Odor:	mild odor - almond-like
pH:	Not available
Vapor Pressure:	12 mm Hg @ 25 deg C
Vapor Density:	3.9 (air=1)
Evaporation Rate:	1 (butyl acetate=1)
Viscosity:	0.8 mPa s 20 C
Boiling Point:	131 deg C (267.80°F)
Freezing/Melting Point:	-45 deg C (-49.00°F)
Decomposition Temperature:	Not available
Solubility in water:	Insoluble
Specific Gravity/Density:	1.107
Molecular Formula:	C6H5Cl
Molecular Weight:	112.56

Section 10 - Stability and Reactivity

Chemical Stability:	Stable under normal temperatures and pressures.
Conditions to Avoid:	Ignition sources, excess heat.
Incompatibilities with Other Materials	Strong oxidizing agents, bases.
Hazardous Decomposition Products	Hydrogen chloride, phosgene, carbon monoxide, carbon dioxide.
Hazardous Polymerization	Has not been reported.

Section 11 - Toxicological Information

RTECS#: CAS# 108-90-7: CZ0175000

LD50/LC50:
RTECS:
CAS# 108-90-7: Inhalation, rat: LC50 = 2965 ppm;
Oral, mouse: LD50 = 2300 mg/kg;
Oral, rabbit: LD50 = 2250 mg/kg;
Oral, rat: LD50 = 1110 mg/kg;
.
Other: Skin, rabbit: LD50 >2200 mg/kg; Inhalation, LC50 rat: 2965 ppm/6H (Bayer).

Carcinogenicity: Chlorobenzene - ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

Other: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Other: No information available.

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: CHLOROBENZENE
Hazard Class: 3
UN Number: UN1134

Packing Group: III
Canada TDG
Shipping Name: CHLOROBENZENE
Hazard Class: 3
UN Number: UN1134
Packing Group: III

USA RQ: CAS# 108-90-7: 100 lb final RQ; 45.4 kg final RQ

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XN N

Risk Phrases:

R 10 Flammable.

R 20 Harmful by inhalation.

R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 24/25 Avoid contact with skin and eyes.

S 61 Avoid release to the environment. Refer to special instructions/safety data sheets.

WGK (Water Danger/Protection)

CAS# 108-90-7: 2

Canada

CAS# 108-90-7 is listed on Canada's DSL List

Canadian WHMIS Classifications: B2, D2B

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

CAS# 108-90-7 is listed on Canada's Ingredient Disclosure List

US Federal

TSCA

CAS# 108-90-7 is listed on the TSCA Inventory.

Section 16 - Other Information

MSDS Creation Date: 12/12/1997

Revision #9 Date 7/20/2009
