

SAFETY DATA SHEET

Creation Date 10-September-2009

Revision Date 01-October-2018

Revision Number 9

1. Identification

Product Name Chlorobenzene

Cat No. : B254-4; B254-4LC; B254-20; B254RS-200; B255-1; B255-500

CAS-No 108-90-7
Synonyms Monochlorobenzene; Benzene chloride (Laboratory/Certified)

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use

Details of the supplier of the safety data sheet

Company

Importer/Distributor
Fisher Scientific
112 Colonnade Road,
Ottawa, ON K2E 7L6,
Canada
Tel: 1-800-234-7437

Manufacturer

Fisher Scientific
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Emergency Telephone Number

CHEMTREC®, Inside the USA: 800-424-9300
CHEMTREC®, Outside the USA: 001-703-527-3887

2. Hazard(s) identification

Classification

WHMIS 2015 Classification Classified as hazardous under the Hazardous Products Regulations (SOR/2015-17)

Flammable liquids	Category 3
Acute Inhalation Toxicity	Category 4
Skin Corrosion/Irritation	Category 2

Label Elements

Signal Word

Warning

Hazard Statements

Flammable liquid and vapor
Harmful if inhaled
Causes skin irritation

**Precautionary Statements****Prevention**

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
 Keep container tightly closed
 Ground/bond container and receiving equipment
 Use only non-sparking tools
 Take precautionary measures against static discharges
 Do not breathe dust/fumes/gas/mist/vapours/spray
 Wash face, hands and any exposed skin thoroughly after handling
 Use only outdoors or in a well-ventilated area
 Wear protective gloves/protective clothing/eye protection/face protection

Response

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower
 IF INHALED: Remove person to fresh air and keep comfortable for breathing
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 Call a POISON CENTER/ doctor if you feel unwell
 Wash contaminated clothing before reuse
 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

Storage

Store in a well-ventilated place. Keep cool

Disposal

Dispose of contents/container to an approved waste disposal plant

Other Hazards

Toxic to aquatic life with long lasting effects

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Chlorobenzene	108-90-7	>95

4. First-aid measures

General Advice	If symptoms persist, call a physician.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
Inhalation	Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
Ingestion	Clean mouth with water and drink afterwards plenty of water.
Most important symptoms/effects	None reasonably foreseeable. Causes central nervous system depression: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

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

Unsuitable Extinguishing Media Water may be ineffective

Flash Point 23 °C / 73.4 °F

Method - No information available

Autoignition Temperature 590 °C / 1094 °F

Explosion Limits

Upper 9.6 vol %

Lower 1.8 vol %

Sensitivity to Mechanical Impact No information available

Sensitivity to Static Discharge No information available

Specific Hazards Arising from the Chemical

Flammable. Risk of ignition. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back. Containers may explode when heated.

Hazardous Combustion Products

Carbon monoxide (CO) Carbon dioxide (CO₂) Hydrogen chloride gas Phosgene

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health
2

Flammability
3

Instability
0

Physical hazards
N/A

6. Accidental release measures

Personal Precautions Use personal protective equipment. Ensure adequate ventilation.

Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. Handling and storage

Handling Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Ensure adequate ventilation.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition.

8. Exposure controls / personal protection

Exposure Guidelines

Component	Alberta	British Columbia	Ontario TWAEV	Quebec	ACGIH TLV	OSHA PEL	NIOSH IDLH
Chlorobenzene	TWA: 10 ppm TWA: 46 mg/m ³	TWA: 10 ppm	TWA: 10 ppm	TWA: 50 ppm TWA: 230 mg/m ³	TWA: 10 ppm	(Vacated) TWA: 75 ppm (Vacated) TWA: 350 mg/m ³ TWA: 75 ppm TWA: 350 mg/m ³	IDLH: 1000 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

Engineering Measures

Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment**Eye Protection**

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.

Hand Protection

Protective gloves

Glove material	Breakthrough time	Glove thickness	Glove comments
Viton (R)	> 480 minutes	0.7 mm	As tested under EN374-3 Determination of Resistance to Permeation by Chemicals

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection

No protective equipment is needed under normal use conditions.

Recommended Filter type: Organic gases and vapours filter Type A Brown conforming to EN14387

Environmental exposure controls

Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Physical State	Liquid
Appearance	Clear
Odor	bitter almond
Odor Threshold	No information available
pH	No information available
Melting Point/Range	-45 °C / -49 °F
Boiling Point/Range	131 °C / 267.8 °F
Flash Point	23 °C / 73.4 °F
Evaporation Rate	1 (Butyl Acetate = 1.0)
Flammability (solid,gas)	Not applicable
Flammability or explosive limits	
Upper	9.6 vol %
Lower	1.8 vol %
Vapor Pressure	12 mbar @ 20°C
Vapor Density	3.9
Specific Gravity	1.108

Solubility	moderately soluble
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	590 °C / 1094 °F
Decomposition Temperature	> 132°C
Viscosity	0.8 mPa.s @ 20°C
Molecular Formula	C6 H5 Cl
Molecular Weight	112.56

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Stable under recommended storage conditions.
Conditions to Avoid	Incompatible products. Excess heat. Keep away from open flames, hot surfaces and sources of ignition.
Incompatible Materials	Strong oxidizing agents, Bases, Strong reducing agents, Metals
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO ₂), Hydrogen chloride gas, Phosgene
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Chlorobenzene	LD50 2000 - 4000 mg/kg (Rat)	LD50 > 7940 mg/kg (Rabbit)	LC50 = 13.5 mg/L (Rat) 7 h

Toxicologically Synergistic Products No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	Irritating to skin
Sensitization	No information available

Carcinogenicity

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Chlorobenzene	108-90-7	Not listed	Not listed	A3	Not listed	A3

ACGIH: (American Conference of Governmental Industrial Hygienists)

*A1 - Known Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Animal Carcinogen
ACGIH: (American Conference of Governmental Industrial Hygienists)
Mexico - Occupational Exposure Limits - Carcinogens
A1 - Confirmed Human Carcinogen
A2 - Suspected Human Carcinogen
A3 - Confirmed Animal Carcinogen
A4 - Not Classifiable as a Human Carcinogen
A5 - Not Suspected as a Human Carcinogen*

Mexico - Occupational Exposure Limits - Carcinogens

Mutagenic Effects	No information available
Reproductive Effects	No information available.
Developmental Effects	No information available.

Teratogenicity	No information available.
STOT - single exposure	None known
STOT - repeated exposure	None known
Aspiration hazard	No information available
Symptoms / effects, both acute and delayed	Causes central nervous system depression: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting
Endocrine Disruptor Information	No information available
Other Adverse Effects	Tumorigenic effects have been reported in experimental animals.

12. Ecological information

Ecotoxicity

The product contains following substances which are hazardous for the environment. Contains a substance which is: Very toxic to aquatic organisms.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Chlorobenzene	EC50: = 12.5 mg/L, 96h static (Pseudokirchneriella subcapitata) EC50: 2.55 - 420 mg/L, 96h (Pseudokirchneriella subcapitata)	LC50: = 91 mg/L, 96h static (Brachydanio rerio) LC50: 4.1 - 5.3 mg/L, 96h flow-through (Oncorhynchus mykiss) LC50: 36.35 - 58.19 mg/L, 96h static (Poecilia reticulata) LC50: 4.1 - 4.9 mg/L, 96h static (Lepomis macrochirus) LC50: 7 - 8.5 mg/L, 96h flow-through (Pimephales promelas) LC50: 6.9 - 7.9 mg/L, 96h flow-through (Lepomis macrochirus) LC50: = 4.5 mg/L, 96h static (Pimephales promelas)	EC50 = 11.26 mg/L 30 min EC50 = 11.3 mg/L 30 min EC50 = 11.5 mg/L 15 min EC50 = 20 mg/L 10 min EC50 = 9.36 mg/L 5 min	EC50: = 0.59 mg/L, 48h (Daphnia magna)

Persistence and Degradability	Persistence is unlikely
Bioaccumulation/ Accumulation	No information available.
Mobility	. Will likely be mobile in the environment due to its water solubility.

Component	log Pow
Chlorobenzene	2.8

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Chlorobenzene - 108-90-7	U037	-

14. Transport information

DOT

UN-No	UN1134
Proper Shipping Name	CHLOROBENZENE

Hazard Class	3
Packing Group	III
TDG	
UN-No	UN1134
Proper Shipping Name	CHLOROBENZENE
Hazard Class	3
Packing Group	III
IATA	
UN-No	UN1134
Proper Shipping Name	CHLOROBENZENE
Hazard Class	3
Packing Group	III
IMDG/IMO	
UN-No	UN1134
Proper Shipping Name	CHLOROBENZENE
Hazard Class	3
Packing Group	III

15. Regulatory information

All of the components in the product are on the following Inventory lists: The product is classified and labeled according to EC directives or corresponding national laws The product is classified and labeled in accordance with Directive 1999/45/EC Europe China Canada TSCA Korea Japan X = listed Australia U.S.A. (TSCA) Canada (DSL/NDSL) Europe (EINECS/ELINCS/NLP) Australia (AICS) Korea (ECL) China (IECSC) Japan (ENCS) Philippines (PICCS) Philippines Complete Regulatory Information contained in following SDS's

International Inventories

Component	DSL	NDSL	TSCA	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Chlorobenzene	X	-	X	203-628-5	-		X	X	X	X	X

Canada

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

Component	Canada - National Pollutant Release Inventory (NPRI)	Canadian Environmental Protection Agency (CEPA) - List of Toxic Substances	Canada's Chemicals Management Plan (CEPA)
Chlorobenzene	Part 1, Group A Substance Part 4 Substance		

Legend NPRI - National Pollutant Release Inventory

16. Other information

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Revision Summary This document has been updated to comply with the requirements of WHMIS 2015 to align with the Globally Harmonised System (GHS) for the Classification and Labelling of Chemicals.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other

materials or in any process, unless specified in the text

End of SDS