Safety Data Sheet CHLOROBENZENE

SDS no. 76KWXTE8 • Version 1.0 • Date of issue: 2026-01-07

SECTION 1: Identification

GHS Product identifier

Product name	CHLOROBENZENE

Other means of identification

Product	Product Code
Mono Chlorobenzene TG	CT127
Mono Chlorobenzene LR	CL127
Mono Chlorobenzene AR	CA127

Recommended use of the chemical and restrictions on use

Synthesis of organochlorine pesticides, including DDT, as well as phenol, chloronitrobenzene, aniline, picric acid and dyes. It is now used primarily as a degreasing solvent, paint solvent, solvent carrier for methylene diisocyanate, as a chemical intermediate in the synthesis of nitrochlorobenzenes, in the dry cleaning industry, in the manufacture of resins, dyes, perfumes and pesticides, heat transfer medium and laboratory reagent.

Supplier's details

Name	ChemSupply Australia Pty Ltd
Address	38-50 Bedford Street 5013 Gillman South Australia Australia
Telephone	08 8440 2000
email	www.chemsupply.com.au

Emergency phone number

CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

SECTION 2: Hazard identification

General hazard statement

Dangerous goods of Class 3 (Flammable Liquid) are incompatible in a placard load with any of the following:
Class 1, Class 2.1, if both the Class 3 and Class 2.1 dangerous goods are in bulk, Class 2.3, Class 4.2, Class 5, Class 6, if the Class 3 dangerous goods are nitromethane, Class 7.

Classified as dangerous goods according to the Australian Dangerous Goods Code (ADG).

Classified as Hazardous according to the Globally Harmonised System of classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

Classification of the substance or mixture

GHS classification in accordance with: UN GHS revision 7

- Acute toxicity, inhalation, Cat. 4
- Hazardous to the aquatic environment, long-term (chronic), Cat. 2
- Flammable liquids, Cat. 3
- Skin corrosion/irritation, Cat. 2

GHS label elements, including precautionary statements

Pictograms

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)

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof [electrical/ventilating/lighting/...] equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P264	Wash hands thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352	IF ON SKIN: Wash with plenty of water/soap
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312	Call a POISON CENTER/doctor/physcian if you feel unwell.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P370+P378	In case of fire: Use agents recommended in Section 5 of SDS for extinction
P391	Collect spillage.
P403+P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/container to an approved waste disposal facility

SECTION 3: Composition/information on ingredients

Mixtures

Molecular weight	112.56

Component	Identification	Weight %	Classifications
Chlorobenzene	CAS no.: 108-90-7 EC no.: 203-628-5	<= 100 %	CLASSIFICATIONS: Flammable liquids, Cat. 3; Acute toxicity, inhalation, Cat. 4; Skin corrosion/irritation, Cat. 2; Hazardous to the

Component	Identification	Weight %	Classifications
	Index no.: 602-033-00-1		aquatic environment, long-term (chronic), Cat. 2. HAZARDS: H226 - Flammable liquid and vapor; H315 - Causes skin irritation; H332 - Harmful if inhaled; H411 - Toxic to aquatic life with long lasting effects. [SCLs/M-factors/ ATEs]: *

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice	For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor (at once).
If inhaled	If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.
In case of skin contact	Rinse with plenty of water. Get medical attention if irritation develops and persists.
In case of eye contact	If contact with the eye(s) occurs, wash with copious amounts of water for approximately 15 minutes holding eyelid(s) open. Take care not to rinse contaminated water into the non-affected eye. If persistent irritation occurs, obtain medical attention.
If swallowed	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek medical advice if effects persist.

Most important symptoms/effects, acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of immediate medical attention and special treatment needed, if necessary
For advice, contact the National Poisons Information Centre (Phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor.

SECTION 5: Fire-fighting measures

Suitable extinguishing media
Small fire: Use foam, dry chemical, CO2 or water spray.
Large fire: Use foam, fog or water spray - Do not use water jets.
If safe to do so, move undamaged containers from fire area. Cool containers with flooding quantities of water until well after the fire is out. Avoid getting water inside containers.

Specific hazards arising from the chemical
Hazards from Combustion Products: May liberate toxic fumes in fire including carbon monoxide, carbon dioxide, hydrogen chloride and phosgene when heated to decomposition.

Will be easily ignited by heat, sparks or flame. Vapours will form explosive mixtures Containers may explode when heated. Fire will produce irritating, poisonous and/or corrosive gases. Vapours from runoff may create explosion hazard.

Special protective actions for fire-fighters
Wear SCBA and fully-encapsulating, gas-tight suit when handling these substances. Structural firefighter's uniform is NOT effective for these materials.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures
Evacuate the area of all non-essential personnel. Avoid substance contact. Avoid generation of dusts: do not inhale dusts. Ensure supply of fresh air in enclosed rooms.
Wear protective clothing specified for normal operations (see Section 8)

Environmental precautions
Do not let product enter drains.

Methods and materials for containment and cleaning up
ELIMINATE all ignition sources (no smoking, flares, sparks or flames) within at least 25m - All equipment used when handling the product must be earthed. Do not touch or walk through spilled material. Stop leak if safe to do soPrevent entry into waterways, drains or confined areas. Vapour-suppressing foam may be used to control vapours - Water spray may be used to knock down or divert vapour clouds. Absorb with earth, sand or other non-combustible material. Use clean, non-sparking tools to collect absorbed material and place it into loosely-covered metal or plastic containers for later disposal. SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.

SECTION 7: Handling and storage

Precautions for safe handling
Do not breathe vapour. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure. Contaminated clothing should be removed and washed before reuse. Application of skin-protective barrier cream is recommended. Wash hands and face thoroughly after working with material.

Conditions for safe storage, including any incompatibilities
Keep container tightly closed and dry, away from direct sunlight. Store at room temperature (15 - 25 C). Outside or detached storage is preferred. Inside storage should be in a standard flammable liquids storage room or cabinet. Store away from oxidizing agents. Areas where a build up of flammable vapours may occur must be designated no smoking areas. Containers should be bonded and grounded for transfers to avoid static sparks.
Containers of this material may be hazardous when empty since they retain product residues (vapours, liquid).

SECTION 8: Exposure controls/personal protection

Control parameters

CAS: 108-90-7
Chlorobenzene
AU/SWA (Australia): 10 ppm; 46 mg/m3 TWA inhalation

Appropriate engineering controls
Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.

Skin protection
Clean impervious clothing should be worn. Clothing for protection against
chemicals should comply with AS 3765 Clothing for Protection Against Hazardous
Chemicals.

Body protection
Footwear: Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.

Body Protection: Clean clothing or protective clothing should be worn, preferably with and apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Respiratory protection
If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable vapor/ mist filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements. Reference should be made to Australian Standards AS/ NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/ NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Liquid
Appearance	Clear, colourless, volatile, mobile liquid.
Color	No data available.
Odor	Almond-like or benzene-like odour.
Odor threshold	No data available.
Melting point/freezing point	-45 °C
Boiling point or initial boiling point and boiling range	132 °C
Flammability	Highly Flammable
Lower and upper explosion limit/ flammability limit	Flammable Limits - Lower: 1.30% Flammable Limits - Upper: 11%
Flash point	28 °C (OC)
Explosive properties	No data available.
Auto-ignition temperature	590 °C
Decomposition temperature	No data available.
Oxidizing properties	No data available.
pH	No data available.
Kinematic viscosity	No data available.
Solubility	Solubility in Water: Immiscible or insoluble. Solubility in Organic Solvents: Very soluble in carbon disulfide and benzene. Soluble in alcohol, ether, chloroform, carbon tetrachloride.
Partition coefficient n-octanol/ water (log value)	No data available.
Vapor pressure	12 hPa (@ 20 °C).
Evaporation rate	1.07 (BuAc=1)
Density and/or relative density	Specific Gravity: 1.11
Relative vapor density	3.88

Particle characteristics	No data available.

Supplemental information regarding physical hazard classes
No data available.

Further safety characteristics (supplemental)
No data available.

SECTION 10: Stability and reactivity

Reactivity
Stable under normal conditions of storage and handling.

Risk of ignition. Vapours may form explosive mixtures with air

Chemical stability
Stable under ordinary conditions of use and storage.

Possibility of hazardous reactions
Vapours may form explosive mixture with air.

Hazardous Polymerization: Will not occur.

Conditions to avoid
Heat, flames and sparks.

Incompatible materials
Strong oxidizing materials (e.g. silver perchlorate) (increases risk of fire and explosion), alkali metals, alkaline earth metals. Dimethyl sulfoxide decomposes violently on contact with chlorobenzene. Liquid chlorobenzene will attack some forms of plastics, rubber, and coatings.

Hazardous decomposition products
May produce carbon monoxide, carbon dioxide, hydrogen chloride and phosgene when heated to decomposition.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Ingestion: May causes irritation to the gastrointestinal tract. Symptoms may include nausea, vomiting and diarrhea.

Inhalation: Chlorobenzene very easily forms vapour concentrations at room temperature posing a significant inhalation hazard, especially in poorly ventilated areas and confined spaces. The main effect is depression of the central nervous system (CNS) (lowered perception), with symptoms such as headache, nausea, dizziness, drowsiness, confusion, incoordination and unconsciousness. High concentrations may cause loss of consciousness and possibly death. Irritation of the nose, throat and respiratory tract also occurs, with symptoms such as coughing, dyspnoea and sore throat. In general, dose-effect information is not available.

Skin corrosion/irritation
Causes irritation to skin. Symptoms include redness, itching, and pain. May be slowly absorbed through the skin with possible systemic effects, but is not expected to cause significant harmful effects by this route of exposure. Danger of skin absorption. Degrasing effect on the skin, possibly followed by secondary inflammation.

Serious eye damage/irritation
Vapors may cause eye irritation. Splashes cause severe irritation, possible corneal burns and eye damage.

Respiratory or skin sensitization

Not classified based on available information.

Germ cell mutagenicity
Not classified based on available information.

Carcinogenicity
Not classified based on available information.

Reproductive toxicity
Not classified based on available information.

Specific target organ toxicity (STOT) - single exposure
Not classified based on available information.

Specific target organ toxicity (STOT) - repeated exposure
Not classified based on available information.

Aspiration hazard
Not classified based on available information.

Additional information
Chronic Effects: Prolonged or repeated skin exposure may cause dermatitis or skin burns. Prolonged or repeated exposure may cause liver, kidney, or lung damage.

SECTION 12: Ecological information

Toxicity
Acute Toxicity - Fish: LC50 - Salmo - 10.4 mg/l - 96 h
(OECD Test Guideline 203)

Acute Toxicity - Daphnia: EC50 - Daphnia magna (Water flea) - 20 mg/l - 48 h
(OECD Test Guideline 202)

Acute Toxicity - Algae:
EC50 (green algae - Pseudokirchneriella subcapitata): 11.4 mg/l/72h.
(OECD Test Guideline 201)

Persistence and degradability
Biodegradation: 15%/28d. Biological degradability: poor.

Mobility in soil
Distribution: log P(o/w): 2.84.
Will evaporate from all surfaces easily. Water soluble hence may spread in water systems and soil.

Other adverse effects
Other Information: BOD5: 0.03 g/g; COD: 0.41 g/g; THOD: 2.06 g/g.

SECTION 13: Disposal considerations

Disposal methods

Product disposal
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers.

Waste treatment
Burn in a chemical incinerator with an afterburner and scrubber.

Other disposal recommendations

Do not discharge this material into waterways, drains and sewers.

SECTION 14: Transport information

ADG (Road and Rail)
UN Number: 1134
Class: 3
Packing Group: III
Proper Shipping Name: CHLOROBENZENE

Hazchem emergency action code (EAC)
2Y

IMDG
UN Number: 1134
Class: 3
Packing Group: III
EMS Number:
Proper Shipping Name: CHLOROBENZENE

IATA
UN Number: 1134
Class: 3
Packing Group: III
Proper Shipping Name: CHLOROBENZENE

SECTION 15: Regulatory information

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

Australia SUSMP
Poison Schedule: NS

SECTION 16: Other information

Further information/disclaimer
ChemSupply Australia Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon ChemSupply Australia Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of ChemSupply Australia Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

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Standard for the Uniform Scheduling of Medicines and Poisons, Commonwealth of Australia
National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.'
Safe Work Australia, 'National Code of Practice fot the Preparation of Safety Data Sheets for Hazardous Chemicals', July 2020.
Safe Work Australia, 'National Guide for Classifying Hazardous Chemicals', July 2020.
Safe Work Australia, Workplace Exposure Standards for Airbourne Contaminants, December 2019
Safe Work Australia, Hazardous Chemical Information System (HCIS), hcis.safeworkaustralia.gov.au

IATA, Dangerous Goods Regulations (DGR)
IMO, International Maritime Dangerous Goods Code (IMDG)