

Chemical Safety Data Sheet MSDS / SDS

HEXACHLOROBENZENERevision Date:2025-01-11 Revision Number:1

SECTION 1: Identification of the substance/mixture and of the company/undertaking**Product identifier**

Product name : HEXACHLOROBENZENE
CBnumber : CB4149734
CAS : 118-74-1
EINECS Number : 204-273-9
Synonyms : hexachlorobenzene,hexachlorocyclohexane

Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.
Uses advised against : none

Company Identification

Company : Chemicalbook
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing
Telephone : 400-158-6606

SECTION 2: Hazards identification**Classification of the substance or mixture**

Carcinogenicity, Category 1B
Specific target organ toxicity – repeated exposure, Category 1
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

Label elements**Pictogram(s)**

Signal word : Danger

Hazard statement(s)

H225 Highly Flammable liquid and vapour
H319 Causes serious eye irritation
H336 May cause drowsiness or dizziness
H350 May cause cancer
H372 Causes damage to organs through prolonged or repeated exposure

H410 Very toxic to aquatic life with long lasting effects

H411 Toxic to aquatic life with long lasting effects

Precautionary statement(s)

P201 Obtain special instructions before use.

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P273 Avoid release to the environment.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P501 Dispose of contents/container to.....

Prevention

P203 Obtain, read and follow all safety instructions before use.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

Response

P318 IF exposed or concerned, get medical advice.

P319 Get medical help if you feel unwell.

P391 Collect spillage.

Storage

P405 Store locked up.

Disposal

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name	: HEXACHLOROBENZENE
Synonyms	: hexachlorobenzene,hexachlorocyclohexane
CAS	: 118-74-1
EC number	: 204-273-9
MF	: C6Cl6
MW	: 284.78

SECTION 4: First aid measures

Description of first aid measures

If inhaled

Fresh air, rest. Refer for medical attention.

Following skin contact

Rinse and then wash skin with water and soap. Refer for medical attention .

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Refer for medical attention .

Most important symptoms and effects, both acute and delayed

Harmful by dust inhalation or if swallowed. Irritating to eyes, skin and mucous membranes. Prolonged periods of ingestion may cause cutaneous porphyria. (USCG, 1999)

Indication of any immediate medical attention and special treatment needed

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Lindane and related compounds

SECTION 5: Firefighting measures

Extinguishing media

Use water spray, foam, powder, carbon dioxide.

Specific Hazards Arising from the Chemical

Special Hazards of Combustion Products: They contain highly toxic chloride fumes. Behavior in Fire: Produces highly toxic chloride fumes. (USCG, 1999)

Advice for firefighters

Use water spray, foam, powder, carbon dioxide.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: chemical protection suit and particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT let this chemical enter the environment.

Environmental precautions

Personal protection: chemical protection suit and particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into sealable containers. Carefully collect remainder. Then store and dispose of according to local regulations. Do NOT let

this chemical enter the environment.

Methods and materials for containment and cleaning up

Absorb the spills with paper towels or like materials. Place in hood to evaporate followed by burning the towel. Dissolve in a combustible solvent. Scatter the spray of the solution into the furnace with after burners and alkali scrubber.

SECTION 7: Handling and storage

Precautions for safe handling

NO open flames. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

Conditions for safe storage, including any incompatibilities

Separated from food and feedstuffs. Well closed. Separated from food and feedstuffs. Well closed.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 0.002 mg/m³, as TWA; (skin); A3 (confirmed animal carcinogen with unknown relevance to humans). MAK: skin absorption (H); carcinogen category: 4; pregnancy risk group: D

Biological limit values

no data available

Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

Individual protection measures

Eye/face protection

Wear face shield or eye protection in combination with breathing protection.

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Physical state

neat

Colour	White needles
Odour	no data available
Melting point/freezing point	228-231°C
Boiling point or initial boiling point and boiling range	332°C
Flammability	Combustible.
Lower and upper explosion limit/flammability limit	no data available
Flash point	242°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	less than 1 mg/mL at 68° F (NTP, 1992)
Partition coefficient n-octanol/water	log Kow = 5.73
Vapour pressure	1.45 x 10 ⁻³ Pa (20 °C)
Density and/or relative density	1.5691
Relative vapour density	9.8 (NTP, 1992) (Relative to Air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on heating. This produces toxic fumes.

Chemical stability

Very stable, even to acids and bases.

Possibility of hazardous reactions

Not flammable or combustible. HEXACHLOROBENZENE reacts violently with dimethylformamide. (NTP, 1992).

Conditions to avoid

no data available

Incompatible materials

Dimethyl formamide and hexachlorobenzene react violently above 65 deg c.

Hazardous decomposition products

Dangerous; When heated to decomposition, emits toxic fumes of /hydrogen chloride/.

SECTION 11: Toxicological information

Acute toxicity

- Oral: LD50 Rat oral 3500 mg/kg
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

NTP: Reasonably anticipated to be a human carcinogen

Reproductive toxicity

One human study reported abnormal physical development in young children who ingested contaminated bread during a 4-year poisoning incident. Hexachlorobenzene has been found to decrease the survival rates of newborn animals and to cross the placenta and accumulate in fetal tissue in several animal species. Neurological, teratogenic, liver, and immune system effects have been reported in the offspring of animals orally exposed to hexachlorobenzene while they were pregnant.

STOT-single exposure

no data available

STOT-repeated exposure

The substance may have effects on the liver and nervous system. This may result in impaired functions of organs and skin lesions. This substance is possibly carcinogenic to humans. Animal tests show that this substance possibly causes toxic effects upon human reproduction.

Aspiration hazard

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly on spraying.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50; Species: Pimephales promelas (fathead minnow) weight 0.7 g; Conditions: static bioassay, 20 deg C; Concentration: 22 mg/L for 96 hr @ 20 deg C (95% confidence limit) /technical 80-96%

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

Persistence and degradability

Little to no biodegradation was noted in biodegradation screening tests(1,3,4), in activated sludge(2,5), or in soil(6-8). Measurement of CO₂ evolution from suspended soil cultures over a 14-day incubation period were as follows: 0.4% under aerobic conditions, 0.2% under anaerobic conditions(9).

Bioaccumulative potential

BCF values of 2,700 to 4,800 were measured in carp exposed to 10 ug/L of hexachlorobenzene during an 8 week incubation period and BCF values of 1,600 to 3,900 were measured in carp exposed to 1 ug/L of hexachlorobenzene during an 8 week incubation period(1). Log BCF values in rainbow trout (*Salmo gairdneri*) were given as 3.7-4.3(2-4) and in fathead minnows (*Pimephales promelas*) and sunfish (*Lepomis cyanellus*) log BCF values of 4.21 and 4.34, respectively, were reported(3). After an 8-week exposure period of carp (*Cyprinus carpio*) to concentrations of 0.5 and 0.05 ug/L of hexachlorobenzene, the BCFs were 11,000-27,000 and 6,000-30,000, respectively(5). According to a classification scheme(6), these BCF values suggest that bioconcentration in aquatic organisms is very high, provided the compound is not metabolized by the organism(SRC).

Mobility in soil

A log K_{oc} value of 5.5 (K_{oc} of 3.2X10⁵) was reported for hexachlorobenzene in freshwater river sediment(1). A log K_{oc} value of 4.9 (K_{oc} of 7.9X10⁴) was reported for hexachlorobenzene in sediment obtained from the Ise Bay, Japan(2). Measured log K_{oc} values of 3.6 (K_{oc} of 4X10³)(3) and 4.0 (K_{oc} of 1X10⁴)(4) were reported in soils. Log K_{oc} values of 6.42 and 5.56 (K_{oc} values of 2.6X10⁶ and 3.6X10⁵) were determined for two sediment layers from a lake(5). Hexachlorobenzene has measured log K_{oc} value of 3.99 (K_{oc} of 9.8X10³) reported for soils(6). Hexachlorobenzene was found to desorb very slowly from sediment in water(7). According to a recommended classification scheme(8), these K_{oc} values suggest that hexachlorobenzene is expected to be immobile in soil(SRC).

Toxics Screening Level

The Initial Threshold Screening Level (ITSL) for hexachlorobenzene (HCB) is 0.35 µg/m³ with a 24 hour averaging time (AT).

Other adverse effects

no data available

SECTION 13: Disposal considerations

Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

UN Number

ADR/RID: UN2729 (For reference only, please check.)

IMDG: UN2729 (For reference only, please check.)

IATA: UN2729 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: HEXACHLOROBENZENE (For reference only, please check.)

IMDG: HEXACHLOROBENZENE (For reference only, please check.)

IATA: HEXACHLOROBENZENE (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 6.1 (For reference only, please check.)

IMDG: 6.1 (For reference only, please check.)

IATA: 6.1 (For reference only, please check.)

Packing group, if applicable

ADR/RID: III (For reference only, please check.)

IMDG: III (For reference only, please check.)

IATA: III (For reference only, please check.)

Environmental hazards

ADR/RID: Yes

IMDG: Yes

IATA: Yes

Special precautions for user

no data available

Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

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

European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

EC Inventory

Listed.

United States Toxic Substances Control Act (TSCA) Inventory

Listed.

China Catalog of Hazardous chemicals 2015

Listed.

New Zealand Inventory of Chemicals (NZIoC)

Not Listed.

PICCS

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC

Listed.

Korea Existing Chemicals List (KECL)

Not Listed.

SECTION 16: Other information

Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

References

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pagelD=0&request_locale=en

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

Other Information

Depending on the degree of exposure, periodic medical examination is suggested. Do NOT take working clothes home.

Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.