

Safety Data Sheet

1. Chemical product and company identification

Product name : Monochlorobenzene

Company information

Name of manufacturer : KANTO CHEMICAL CO., INC.
 Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP
 Name of section : Business Administration Department, Reagent Division
 Telephone number : +81-3-6214-1090
 Facsimile number : +81-3-3241-1047
 Mail address : BC32@kanto.co.jp
 Reference No : 07250
 Product numbers applied by the SDS : 07250, 25896, 26193
 Recommended use : For research use only
 Restrictions on use : Seek expert judgment when using the product for applications other than those recommended.

2. Hazards identification

GHS classification

Physical hazards	Flammable liquids	Category 3
Health hazards	Acute toxicity (inhalation:vapors)	Category 4
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2A
	Germ cell mutagenicity	Category 2
	Carcinogenicity	Category 2
	Specific target organ toxicity (single exposure)	Category 1 (systemic toxicity)
	Specific target organ toxicity (single exposure)	Category 3 (narcosis)
	Specific target organ toxicity (repeated exposure)	Category 1 (central nervous system, peripheral nervous system, blood)
	Specific target organ toxicity (repeated exposure)	Category 2 (liver, kidney, adrenal gland)
	Aspiration hazard	Category 2
Environmental hazards	Aquatic acute	Category 1
	Aquatic chronic	Category 1

Hazard pictograms



Signal word : Danger



Hazard statements	: Flammable liquid and vapor May be harmful if swallowed and enters airways Causes skin irritation Causes serious eye irritation Harmful if inhaled May cause drowsiness or dizziness Suspected of causing genetic defects Suspected of causing cancer Causes damage to organs (systemic toxicity) Causes damage to organs (central nervous system, peripheral nervous system, blood) through prolonged or repeated exposure May cause damage to organs (liver, kidney, adrenal gland) through prolonged or repeated exposure Very toxic to aquatic life Very toxic to aquatic life with long lasting effects
Precautionary statements	
Prevention	: Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take action to prevent static discharges. Do not breathe mist/vapors. Wash hands, forearms and face thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.
Response	: IF SWALLOWED: Immediately call a POISON CENTER or doctor. IF ON SKIN: Wash with plenty of water. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water . 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. IF exposed or concerned: Call a POISON CENTER or doctor. IF exposed or concerned: Get medical advice/attention. Call a POISON CENTER or doctor if you feel unwell. Get medical advice/attention if you feel unwell. Do not induce vomiting. If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. Collect spillage.
Storage	: Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Disposal	: Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.



3. Composition/information on ingredients

Distinction of substance or mixture : Substance

Synonyms : Chlorobenzene, mono

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Monochlorobenzene	≥ 99	C6H5Cl	Listed	203-628-5	108-90-7

4. First aid measures

First aid measures

First-aid measures after inhalation : Remove the victim to fresh air, and make him blow his nose and gargle. If necessary, get medical treatment.

First-aid measures after skin contact : Wash the affected areas under running water.

First-aid measures after eye contact : Wash the affected areas under running water for at least 15 minutes. If necessary, get medical treatment.

First-aid measures after ingestion : The chemical is volatile. Do not induce vomiting because it increases the risk of aspiration into the lungs. Get medical attention immediately. If necessary, rinse mouth with water.

Personal Protection in First Aid and Measures : Rescuers should wear proper protective equipment like rubber gloves, goggles.

5. Fire fighting measures

Suitable extinguishing media : Dry chemical powder, carbon dioxide, dry sand, foam

Unsuitable extinguishing media : Water spray

Firefighting instructions : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.
Fight fire from windward.
Dry chemical powder, carbon dioxide or dry sand should be used for small fires. Foam extinguisher is effective for a large scale fire.

Personal protection (Emergency response) : Wear breathing apparatus.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

General measures : Wear proper protective equipment and avoid contact with skin and inhalation of vapor. Conduct operations from upwind and evacuate people downwind. Remove all sources of ignition. Keep away personnel except for authorized ones from spillage area by stretching ropes.

Environmental precautions

Environmental precautions : Attention should be given to avoid damage to the environment by flowing of spillage to rivers.

Methods and Equipment for Containment and Cleaning up



For containment	: Absorb spill with inert material (e.g, diatomaceous earth, sand) and flush spillage area with copious amounts of water.
Prevention Measures for Secondary Accidents	: Remove nearby sources of ignition and prepare extinguishing media.

7. Handling and storage

Handling

Technical measures	: Wear proper protective equipment to avoid contact with skin or inhalation of vapor. Fire is strictly prohibited. Ventilate well at working places.
Precautions for safe handling	: Use with an enclosed system or a local exhaust ventilation. Use in well-ventilated areas. Do not allow contact with oxidizing substances.

Storage

Storage conditions	: Store in a dark, cool place and tightly closed.
Material used in packaging/containers	: Glass, fluorine resin, stainless steel. Do not use vinyl chloride resin, acrylic resin, polystyrene etc.

8. Exposure controls / Personal protection equipment

ACGIH TWA	10 ppm
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Appropriate engineering controls	: Use with an enclosed system or a local exhaust ventilation.
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Protective equipment

Respiratory protection	: If necessary, wear chemical cartridge respirator with an organic vapor cartage
Hand protection	: Impervious protective gloves
Eye protection	: Safety goggles
Skin and body protection	: Protective clothing, protective boots

9. Physical and chemical properties

Physical state	: Liquid
Color	: Colorless.
Odor	: Almond like odor
pH	: No data available
Melting point	: -45.58 ° C
Freezing point	: No data available
Boiling point	: 131.687 ° C
Flash point	: 29.4 ° C (C.C.)
Auto-ignition temperature	: 637.8 ° C
Decomposition temperature	: No data available
Flammability	: Flammable
Vapor pressure	: 11.6 hPa (20°C)
Relative density	: No data available
Density	: 1.099 - 1.111 g/cm ³ (20°C)
Relative gas density	: 3.88



Solubility	: Organic solvents: Miscible with ethanol, diethyl ether, etc. Water: 0.005 % (20°C)
Partition coefficient n-octanol/water (log Pow)	: 2.84
Explosive limits (vol %)	: 1.3 - 7.1 vol %
Viscosity, kinematic	: 0.72 mm ² /s (20°C)
Particle characteristics	: No data available

10. Stability and reactivity

Reactivity	: Reaction with sodium hydroxide under high temperature and high pressure produces phenol. Aniline is produced when it is reacted with ammonia water under high temperature and high pressure using a copper catalyst.
Chemical stability	: Stable under normal conditions. It has been confirmed that this substance is photodegraded to produce monochlorobiphenyl.
Possibility of hazardous reactions	: Stable under normal conditions of use.
Conditions to avoid	: Light, heat.
Incompatible materials	: Oxidizing substances.
Hazardous decomposition products	: Carbon monoxide, chlorine, hydrogen chloride.

11. Toxicological information

Acute toxicity (oral)	: No classification rat LD50=2914mg/kg
Acute toxicity (dermal)	: Classification not possible
Acute toxicity (inhalation)	: No classification (gas) Harmful if inhaled (vapor) rat LC50=3526ppm/4h Classification not possible (dust, mist)
Skin corrosion/irritation	: Causes skin irritation Based on the evidence of "moderate irritation" from rabbit skin irritation tests and human reports, it was classified into category 2.
Serious eye damage/irritation	: Causes serious eye irritation Based on the evidence of "moderate irritation" from rabbit and guinea pig eye irritation tests and human reports, it was classified into category 2A.
Respiratory sensitization	: Classification not possible
Skin sensitization	: Classification not possible
Germ cell mutagenicity	: Suspected of causing genetic defects Based on negative data on heritable mutagenicity tests (dominant lethal tests), positive data on somatic cell mutagenicity tests in vivo (micronucleus tests) and the absence of data on germ cell mutagenicity and genotoxicity tests in vivo, it was classified into category 2.
Carcinogenicity	: Suspected of causing cancer ACGIH classifies it as the group A3(confirmed animal carcinogen with unknown relevance to humans).
Reproductive toxicity	: No classification No reproductive / developmental effects have been observed up to doses that have toxic effects on the parent animal.



STOT-single exposure	: Causes damage to organs (systemic toxicity) May cause drowsiness or dizziness Based on the human evidence of "debility, nausea and lethargy observed as general symptoms of acute toxicity after occupational exposure", it was classified into category 1 (systemic toxicity), category 3 (narcosis).
STOT-repeated exposure	: Causes damage to organs (central nervous system, peripheral nervous system, blood) through prolonged or repeated exposure May cause damage to organs (liver, kidney, adrenal gland) through prolonged or repeated exposure Based on the human evidence of "numbness, cyanosis (due to respiratory center depression), hyperesthesia, muscular spasm" and the evidence of "necrosis of hepatocytes, degeneration of renal cortical tubules, vacuolation of adrenal zona reticularis cells, neutropenia" from animal studies. The effects on experimental animals were observed at dosing levels within the guidance value range for category 2 (except for the effects on the blood systems, which corresponded to category 1), it was classified into category 1 (central nervous system, peripheral nervous system, blood), category 2 (liver, kidney, adrenal gland).
Aspiration hazard	: May be harmful if swallowed and enters airways Based on the description in "May cause aspiration and chemical pneumonia if swallowed", it was classified into category 2.

12. Ecological information

Ecotoxicity

Aquatic acute	: Very toxic to aquatic life Daphnia magna EC50=0.59mg/L/48h
Aquatic chronic	: Very toxic to aquatic life with long lasting effects

Persistence and degradability

Not readily biodegradable
BOD : 0%

Bioaccumulative potential

Low bioconcentration
BCF : 4.3-39.6 (0.15mg/L), 3.9-22.8 (0.015mg/L)

Mobility in soil

High mobility
Koc : 270

Hazardous to the ozone layer

Ozone : Classification not possible

13. Disposal considerations

Ecological waste information	: Burn in a chemical incinerator equipped with an afterburner and a scrubber. Or entrust approved waste disposal companies with the disposal.
Contaminated container and packaging	: In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.



14. Transport information

International Regulations

Transport by sea(IMDG)

UN-No. (IMDG) : 1134
Proper Shipping Name (IMDG) : CHLOROBENZENE
Packing group (IMDG) : III
Transport hazard class(es) : 3

(IMDG)

Air transport(IATA)

UN-No. (IATA) : 1134
Proper Shipping Name (IATA) : Chlorobenzene
Packing group (IATA) : III
Transport hazard class(es) : 3

(IATA)

Marine pollutant : Applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollutant category : Y
MFAG-No : 130

15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. Other information

Data sources : Solvents Handbook, T, Asahara et al, Kodansha Scientific Ltd.
(1976) .
Handbook of Dangerous Substances Springer-Verlag Tokyo
(1991) .
Handbook of 17322 Chemical Products, The Chemical Daily Co.
(2022) .
NITE Chemical Risk Information Platform (NITE-CHRIP), National
Institute of Technology and Evaluation.

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet(SDS) is prepared based on JIS Z7253.

