Chemical Safety Data Sheet MSDS / SDS

Carbon tetrachloride SDS

Revision Date:2024-04-25 Revision Number:1

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

Product identifier

Product name: Carbon tetrachloride

CAS: 56-23-5

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.in

Address: 5 vasavi Layout Basaveswara Nilayam Pragathi Nagar Hyderabad, India -500090

Telephone: +91 9550333722

SECTION 2: Hazards identification

Classification of the substance or mixture

Acute toxicity - Category 3, Oral
Acute toxicity - Category 3, Dermal

Acute toxicity - Category 3, Inhalation
Carcinogenicity, Category 2
Specific target organ toxicity – repeated exposure, Category 1
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 3
Hazardous to the ozone layer, Category 1

GHS label elements, including precautionary statements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H301 Toxic if swallowed
H311 Toxic in contact with skin
H331 Toxic if inhaled
H351 Suspected of causing cancer
H372 Causes damage to organs through prolonged or repeated exposure
H412 Harmful to aquatic life with long lasting effects
H420 Harms public health and the environment by destroying ozone in the upper atmosphere

Precautionary statement(s)

Prevention

P264 Wash ... thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P271 Use only outdoors or in a well-ventilated area.
P203 Obtain, read and follow all safety instructions before use.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P273 Avoid release to the environment.

Response

P301+P316 IF SWALLOWED: Get emergency medical help immediately.
P321 Specific treatment (see ... on this label).
P330 Rinse mouth.
P302+P352 IF ON SKIN: Wash with plenty of water/...

P316 Get emergency medical help immediately.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P318 IF exposed or concerned, get medical advice.
P319 Get medical help if you feel unwell.

Storage

P405 Store locked up.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.

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.
P502 Refer to manufacturer or supplier for information on recovery or recycling

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name:	Carbon tetrachloride
Common names and synonyms:	Carbon tetrachloride
CAS number:	56-23-5
EC number:	200-262-8
Concentration:	100%

SECTION 4: First aid measures

Description of necessary first-aid measures

If inhaled

Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.

Following skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. 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. Give one or two glasses of water to drink. Refer for medical attention .

Most important symptoms/effects, acute and delayed

Dizziness, incoordination, anesthesia; may be accompanied by nausea and liver damage. Kidney damage also occurs, often producing decrease or stopping of urinary output. (USCG, 1999)

Indication of immediate medical attention and special treatment needed, if necessary

Irrigate eyes with water. Wash contaminated areas of body with soap and water. Gastric lavage, if swallowed, followed by saline catharsis. Oxygen and artificial respiration.

SECTION 5: Firefighting measures

Suitable extinguishing media

When fighting a fire in which carbon tetrachloride is involved, wear self-contained breathing apparatus.

Specific hazards arising from the chemical

Special Hazards of Combustion Products: Forms poisonous phosgene gas when exposed to open flames. Behavior in Fire: Decomposes to form chlorine and phosgene (USCG, 1999)

Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media. In case of fire: keep drums, etc., cool by spraying with water.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in covered containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Environmental precautions

Personal protection: complete protective clothing including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Collect leaking and spilled liquid in covered containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations.

Methods and materials for containment and cleaning up

1. ventilate area of spill or leak. 2. collect for reclamation or absorb in vermiculite, dry sand, earth, or a similar material.

SECTION 7: Handling and storage

Precautions for safe handling

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 and metals. See Chemical Dangers. Ventilation along the floor. Cool.Store in a cool, dry, well-ventilated location. Separate from alkali metals.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 5 ppm as TWA; 10 ppm as STEL; (skin); A2 (suspected human carcinogen).MAK: 3.2 mg/m3, 0.5 ppm; peak limitation category: II(2); skin absorption (H); carcinogen category: 4; pregnancy risk group: C.EU-OEL: 6.4 mg/m3, 1 ppm as TWA; 32 mg/m3, 5 ppm as STEL; (skin)

Biological limit values

no data available

Appropriate engineering 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, such as personal protective equipment (PPE)

Eye/face protection

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

Skin protection

Protective gloves. Protective clothing.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Carbon tetrachloride is a clear colorless liquid with a characteristic odor. Denser than water (13.2 lb / gal) and insoluble in water. Noncombustible. May cause illness by inhalation, skin absorption and/or ingestion. Used as a solvent, in the manufacture of other chemicals, as an agricultural fumigant, and for many other uses.
Colour:	Colorless, clear, heavy liquid
Odour:	SWEETISH, AROMATIC, MODERATELY STRONG ETHEREAL; SOMEWHAT RESEMBLING THAT OF CHLOROFORM
Melting point/freezing point:	-23°C
Boiling point or initial boiling point and boiling range:	76°C

Flammability:	Noncombustible Liquid
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	Use any means suitable for fire extinguisher
Auto-ignition temperature:	Not flammable (USCG, 1999)
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	2.03X10-3 Pa.s @ 250.00 K
Solubility:	less than 1 mg/mL at 70° F (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow= 2.83
Vapour pressure:	4.05 psi (20 °C)
Density and/or relative density:	1.594
Relative vapour density:	5.32 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

NIOSH has recommended that carbon tetrachloride be treated as a potential human carcinogen.
Decomposes on contact with hot surfaces or flames. This produces toxic and corrosive fumes of hydrogen chloride (see ICSC 0163), chlorine (see ICSC 0126) and phosgene (see ICSC 0007). Reacts with some metals such as aluminium, magnesium and zinc some metals such as aluminium, magnesium and zinc. This generates fire and explosion hazard.

Chemical stability

Generally inert ...

Possibility of hazardous reactions

Not flammableThe vapour is heavier than air.CARBON TETRACHLORIDE is a commonly used liquid in fire extinguishers to combat small fires. It has no flash point, it is not flammable. However, when heated to decomposition, it will emit fumes of extremely toxic phosgene and of hydrogen chloride. Forms explosive mixtures with chlorine trifluoride, calcium hypochlorite, decaborane, dinitrogen tetraoxide, fluorine. Forms impact-sensitive explosive mixtures with particles of many metals: lithium, sodium, potassium, beryllium, zinc, aluminum, barium. Vigorous exothermic reaction with allyl alcohol, boron trifluoride, diborane, disilane, aluminum chloride, dibenzoyl peroxide, potassium tert-butoxide, liquid oxygen, zirconium. [Bretherick, 5th ed., 1995, p. 666]. Potentially dangerous reaction with dimethylformamide or dimethylacetamide in presence of iron [Cardillo, P. et al., Ann. Chim. (Rome), 1984, 74, p. 129].

Conditions to avoid

no data available

Incompatible materials

A paste of zinc powder and carbon tetrachloride (with kieselguhr as thickener) will readily burn after ignition by a high-temperature primer.

Hazardous decomposition products

Decomposes to form chlorine and phosgene.

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat oral 2920 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

No information is available on the reproductive effects of carbon tetrachloride in humans. Limited epidemiological data have indicated a possible association between certain birth outcomes (e.g., birth weight, cleft palate) and drinking water exposure. However, as the water contained multiple chemicals, the role of carbon tetrachloride is unclear. Decreased fertility and degenerative changes in the testes have been observed in animals exposed to carbon tetrachloride by inhalation. Birth defects have not been observed in animals exposed to carbon tetrachloride by inhalation or ingestion.

STOT-single exposure

The substance is irritating to the eyes. The substance may cause effects on the liver, kidneys and central nervous system. This may result in unconsciousness. Medical observation is indicated.

STOT-repeated exposure

Repeated or prolonged contact with skin may cause dermatitis. This substance is possibly carcinogenic to humans.

Aspiration hazard

A harmful contamination of the air can be reached very quickly on evaporation of this substance at 20°C.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: LC50 Lepomis macrochirus (Bluegill) 125,000 ug/l/96 hr (static unmeasured)

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

AEROBIC: The static screening flask test method measured >87% degradation of carbon tetrachloride in 7 days in the original test, and 100% degradation in the second, third, and fourth trials(1). In a standard dilution test, 0% Theoretical BOD for carbon tetrachloride was measured(2).

Bioaccumulative potential

A BCF of 3.2-7.4 for carbon tetrachloride was measured(1). A measured BCF value for trout, rainbow trout and bluegill sunfish was found to be 17.37(2,3), 52.48(5), and 30.2(4) and 26.3(5), respectively. According to a classification scheme(6), these BCF values suggest the potential for bioconcentration in aquatic organisms is low.

Mobility in soil

The Koc for carbon tetrachloride was measured to be 71(1). According to a classification scheme(4), this Koc value suggests that carbon tetrachloride is expected to have high mobility in soil. Estimated retardation factor in breakthrough sampling in groundwater - 1.44-1.8(2,3).

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: UN1846 (For reference only, please check.)
IMDG: UN1846 (For reference only, please check.)
IATA: UN1846 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: CARBON TETRACHLORIDE (For reference only, please check.)
IMDG: CARBON TETRACHLORIDE (For reference only, please check.)
IATA: CARBON TETRACHLORIDE (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: II (For reference only, please check.)
IMDG: II (For reference only, please check.)
IATA: II (For reference only, please check.)

Environmental hazards

ADR/RID: No
IMDG: No
IATA: No

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)

Listed.

(PICCS)

Listed.

Vietnam National Chemical Inventory

Listed.

IECSC)

Listed.

Korea Existing Chemicals List (KECL)

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?pageID=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

Use of alcoholic beverages enhances the harmful effect.Depending on the degree of exposure, periodic medical examination is

suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding.

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. We as supplier shall not be held liable for any