

Chemical Safety Data Sheet MSDS / SDS

Carbon tetrafluoride SDS

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

Section 1	Section 2	Section 3	Section 4	Section 5	Section 6	Section 7	Section 8
Section 9	Section 10	Section 11	Section 12	Section 13	Section 14	Section 15	Section 16

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

Product name: Carbon tetrafluoride
CAS: 75-73-0

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

Gases under pressure: Compressed gas

GHS label elements, including precautionary statements

Pictogram(s)



Signal word

Warning

Hazard statement(s)

H280 Contains gas under pressure; may explode if heated

Precautionary statement(s)

Prevention

none

Response

none

Storage

P410+P403 Protect from sunlight. Store in a well-ventilated place.

Disposal

none

Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

Substance

Chemical name: Carbon tetrafluoride

Common names and synonyms: Carbon tetrafluoride

CAS number: 75-73-0

EC number: 200-896-5

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

ON FROSTBITE: rinse with plenty of water, do NOT remove clothes. 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 with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 126 [Gases - Compressed or Liquefied (Including Refrigerant Gases)]: Vapors may cause dizziness or asphyxiation without warning. Vapors from liquefied gas are initially heavier than air and spread along ground. Contact with gas or liquefied gas may cause burns, severe injury and/or frostbite. Fire may produce irritating, corrosive and/or toxic gases. (ERG, 2016)

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

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 if 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. Halogenated aliphatic hydrocarbons and related compounds

SECTION 5: Firefighting measures

Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards arising from the chemical

Excerpt from ERG Guide 126 [Gases - Compressed or Liquefied (Including Refrigerant Gases)]: Some may burn but none ignite readily. Containers may explode when heated. Ruptured cylinders may rocket. (ERG, 2016)

Special protective actions for fire-fighters

In case of fire in the surroundings, use appropriate extinguishing media. In case of fire: keep cylinder cool by spraying with water. Combat fire from a sheltered position.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: self-contained breathing apparatus. Ventilation.

Environmental precautions

Personal protection: self-contained breathing apparatus. Ventilation.

Methods and materials for containment and cleaning up

ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures: Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas; Environmental precautions: Do not let product enter drains; Methods and materials for containment and cleaning up: Clean up promptly by sweeping or vacuum.

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

Cool. Keep in a well-ventilated room. Well closed. Separated from powdered metals. Keep container tightly closed in a dry and well-ventilated place. Contents under pressure.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

no data available

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.

Skin protection

Cold-insulating gloves.

Respiratory protection

Use ventilation.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state:	Tetrafluoromethane is a colorless nonflammable gas. It is shipped as a liquid under pressure. It may be narcotic at high concentrations. Under prolonged exposure to fire or heat the containers may rupture violently and rocket. It is used as a refrigerant.
Colour:	Colorless gas
Odour:	Odorless
Melting point/freezing point:	-184°C
Boiling point or initial boiling point and boiling range:	-128°C
Flammability:	Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	no data available
Auto-ignition temperature:	>/= 1100 deg C
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	no data available
Solubility:	In water, 18.8 mg/L at 25 deg C
Partition coefficient n-octanol/water:	log Kow = 1.18
Vapour pressure:	1.75X10+5 mm Hg at 25 deg C /extrapolated/
Density and/or relative density:	3.04 (vs air)

Relative vapour density:	3.04 (vs air)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on contact with hot surfaces or flames. Decomposes above 52°C . This produces hydrofluoric acid. Incompatible with certain metal powders (aluminium, zinc, beryllium).

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

Tetrafluoromethane may burn, but does not readily ignite. The gas is heavier than air and may accumulate in lowered spaces causing a deficiency of oxygen. The reaction of aluminum with various halogenated hydrocarbons produces a self-sustaining reaction with sufficient heat to melt aluminum pieces, examples of other halogenated hydrocarbons are fluorotrichloromethane, dichlorodifluoromethane, chlorodifluoromethane, tetrafluoromethane. The vigor of the reaction appears to be dependent on the combined degree of fluorination and the vapor pressure [Chem. Eng. News 39(27):44. 1961].

Conditions to avoid

no data available

Incompatible materials

Incompatible materials: Aluminum, and its alloys

Hazardous decomposition products

When heated to decomposition it emits toxic fumes of /fluoride/.

SECTION 11: Toxicological information

Acute toxicity

Oral: no data available

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

no data available

Reproductive toxicity

no data available

STOT-single exposure

Exposure to cold gas could cause frostbite. The substance may cause effects on the cardiovascular system. This may result in cardiac disorders. Exposure at high levels could cause unconsciousness. See Notes.

STOT-repeated exposure

no data available

Aspiration hazard

On loss of containment this substance can cause suffocation by lowering the oxygen content of the air in confined areas.

SECTION 12: Ecological information

Toxicity

Toxicity to fish: no data available

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: Highly chlorinated/fluorinated compounds are not expected to biodegrade rapidly(1).

Bioaccumulative potential

An estimated BCF of 3 was calculated in fish for tetrafluoromethane(SRC), using a log Kow of 1.18(1) and a regression-derived equation(2). According to a classification scheme(3), this BCF suggests the potential for bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc of tetrafluoromethane can be estimated to be 44(SRC). According to a classification scheme(2), this estimated Koc value suggests that tetrafluoromethane is expected to have very high mobility in soil.

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: UN1982 (For reference only, please check.)

IMDG: UN1982 (For reference only, please check.)

IATA: UN1982 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: TETRAFLUOROMETHANE (REFRIGERANT GAS R 14) (For reference only, please check.)

IMDG: TETRAFLUOROMETHANE (REFRIGERANT GAS R 14) (For reference only, please check.)

IATA: TETRAFLUOROMETHANE (REFRIGERANT GAS R 14) (For reference only, please check.)

Transport hazard class(es)

ADR/RID: 2.2 (For reference only, please check.)

IMDG: 2.2 (For reference only, please check.)

IATA: 2.2 (For reference only, please check.)

Packing group, if applicable

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

IMDG: (For reference only, please check.)

IATA: (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

High concentrations in the air cause a deficiency of oxygen with the risk of unconsciousness or death. Check oxygen content before entering the area.

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