ChemicalBook

Chemical Safety Data Sheet MSDS / SDS

CHLOROTRIFLUOROMETHANE

Revision Date:2024-12-21 Revision Number:1

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

Product identifier

Product name	: CHLOROTRIFLUOROMETHANE
CBnumber	: CB6202231
CAS	: 75-72-9
EINECS Number	: 200-894-4
Synonyms	: chlorotrifluoromethane,CFC

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	: 010-86108875

SECTION 2: Hazards identification

Classification of the substance or mixture

Not classified.

Label elements

Pictogram(s)

Signal word Danger

Hazard statement(s)

H280 Contains gas under pressure; may explode if heated

Precautionary statement(s)

Prevention

none

Response

none

Storage

none

Disposal

none

Other hazards

no data available

SECTION 3: Composition/information on ingredients

Substance

Product name	: CHLOROTRIFLUOROMETHANE
Synonyms	: chlorotrifluoromethane,CFC
CAS	: 75-72-9
EC number	: 200-894-4
MF	: CClF3
MW	: 104.46

SECTION 4: First aid measures

Description of 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.

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 and effects, both acute and delayed

Exposure may cause nausea, dizziness, and headache, and rapid suffocation. Contact with skin may cause frostbite. (USCG, 1999)

Indication of any immediate medical attention and special treatment needed

For immediate first aid: Ensure that adequate decontamination has been carried out. If victim 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 victim quiet and maintain normal body temperature. Obtain medical attention. Chlorinated fluorocarbons

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SECTION 5: Firefighting measures

Extinguishing media

If material involved in fire: Extinguish fire using agent suitable for type of surrounding fire. (Material itself does not burn or burns with difficulty.) Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible.

Specific Hazards Arising from the Chemical

Special Hazards of Combustion Products: Toxic fumes of Cl and F (USCG, 1999)

Advice for firefighters

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

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal protection: self-contained breathing apparatus. Ventilation. NEVER direct water jet on liquid. Do NOT let this chemical enter the environment.

Environmental precautions

Personal protection: self-contained breathing apparatus. Ventilation. NEVER direct water jet on liquid.

Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

SECTION 7: Handling and storage

Precautions for safe handling

NO contact with hot surfaces. See Chemical Dangers. 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

Fireproof if in building.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

MAK: 4300 mg/m3, 1000 ppm; peak limitation category: II(8); 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 safety goggles, face shield or eye protection in combination with breathing protection.

Skin protection

Cold-insulating gloves.

Respiratory protection

Use ventilation, local exhaust or breathing protection.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

Physical state	Chlorotrifluoromethane is a colorless odorless gas. It is shipped as a liquefied gas under its own vapor pressure. It is noncombustible. It can asphyxiate by the displacement of air. Contact with the liquid can cause frostbite. Exposure of the container to prolonged heat or fire may cause it to rupture violently and rocket.
Colour	Colorless gas
Odour	Ethereal
Melting point/freezing point	-181°C
Boiling point or initial boiling point and boiling range	-81,4°C
Flammability	Not combustible. Heating will cause rise in pressure with risk of bursting.
Lower and upper explosion limit/flammability limit	no data available
Flash point	no data available
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	Water solubility = 60.1 mg/l @ 25 deg C
Partition coefficient n-octanol/water	log Kow = 1.65
Vapour pressure	24816 mm Hg (USCG, 1999)
Density and/or relative density	1.29
Relative vapour density	1.298 at -22° F (USCG, 1999) (Relative to Air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on burning. Decomposes on contact with hot surfaces. This produces toxic and corrosive fumes including hydrogen chloride, hydrogen fluoride and phosgene. Incompatible with certain metal powders (aluminium, zinc, beryllium).

Chemical stability

no data available

Possibility of hazardous reactions

Nonflammable.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

no data available

Hazardous decomposition products

When heated to decomposition it emits highly toxic fumes of ... /hydrogen fluoride and hydrogen chloride/.

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 could cause narcotic effects. Exposure at high concentrations could cause asphyxiation. The substance may cause effects on the cardiovascular system. This may result in impaired functions.

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. See Notes.

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

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

Bioaccumulative potential

An estimated BCF value of 10 was calculated for chlorotrifluoromethane(SRC), using a measured log Kow of 1.65(1) and a recommended regression-derived equation(2). According to a classification scheme(3), this BCF value suggests that bioconcentration in aquatic organisms is low(SRC).

Mobility in soil

The Koc of chlorotrifluoromethane is estimated as approximately 188(SRC), using a measured log Kow of 1.65(1) and a regression-derived equation(2). According to a recommended classification scheme(3), this estimated Koc value suggests that chlorotrifluoromethane is expected to have moderate mobility in soil(SRC).

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: UN1022 (For reference only, please check.)

IMDG: UN1022 (For reference only, please check.)

IATA: UN1022 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: CHLOROTRIFLUORO- METHANE (REFRIGERANT GAS R 13) (For reference only, please check.)

IMDG: CHLOROTRIFLUORO- METHANE (REFRIGERANT GAS R 13) (For reference only, please check.)

IATA: CHLOROTRIFLUORO- METHANE (REFRIGERANT GAS R 13) (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

Not 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 area.Physician should give special attention to the drugs used in treatment because of the effects of the substance on cardiac rhythm.Do NOT use in the vicinity of a fire or a hot surface, or during welding.Turn leaking cylinder with the leak up to prevent escape of gas in liquid state.