

## Chemical Safety Data Sheet MSDS / SDS

## CHLOROTRIFLUOROMETHANE

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

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## 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

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## 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

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## SECTION 3: Composition/information on ingredients

**Substance**

Product name	: CHLOROTRIFLUOROMETHANE
Synonyms	: chlorotrifluoromethane,CFC
CAS	: 75-72-9
EC number	: 200-894-4
MF	: CCIF3
MW	: 104.46

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## 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.

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# 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.

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# 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.

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# SECTION 8: Exposure controls/personal protection

## Control parameters

### Occupational Exposure limit values

MAK: 4300 mg/m<sup>3</sup>, 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

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## 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

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## 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/.

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# 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.

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## **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

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## **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.

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## 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

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## 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.

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## 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](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.

### 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.