

Chemical Safety Data Sheet MSDS / SDS

Dichlorodifluoromethane 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: Dichlorodifluoromethane

CAS: 75-71-8

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**

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)

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

P273 Avoid release to the environment.

Response

none

Storage

none

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: Dichlorodifluoromethane

Common names and synonyms:	Dichlorodifluoromethane
CAS number:	75-71-8
EC number:	200-893-9
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

INHALATION: some narcosis when 10% in air is breathed. (USCG, 1999)

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

Victims of Freon inhalation require management for hypoxic, CNS anesthetic, and cardiac symptoms. Patients must be removed from the exposure environment, and high-flow supplemental oxygen should be utilized. The respiratory system should be evaluated for injury, aspiration, or pulmonary edema and treated appropriately. CNS findings should be treated supportively. A calm environment with no physical exertion is imperative to avoid increasing endogenous adrenergic levels. Exogenous adrenergic drugs must not be used to avoid inducing sensitized myocardial dysrhythmias. Atropine is ineffective in treating bradyarrhythmias. For ventricular dysrhythmias, diphenylhydantoin and countershock may be effective. Cryogenic dermal injuries should be treated by water bath rewarming at 40 to 42 deg C until vasodilatory flush has returned. Elevation of the limb and standard frostbite

management with late surgical debridement should be utilized. Ocular exposure requires irrigation and slit-lamp evaluation for injury. Freons

SECTION 5: Firefighting measures

Suitable 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: Although nonflammable, dissociation products generated in a fire may be irritating or toxic. Behavior in Fire: Helps extinguish fire. (USCG, 1999)

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.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Ventilation.

Environmental precautions

Ventilation.

Methods and materials for containment and cleaning up

If dichlorodifluoromethane is leaked ... ventilate area of spill or leak to disperse gas. ... Stop flow of gas.

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 incompatible materials. See Chemical Dangers. Cool. Ventilation along the floor. Separated from incompatible materials. ... Cool. Ventilation along the floor.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 1000 ppm as TWA; A4 (not classifiable as a human carcinogen). MAK: 5000 mg/m³, 1000 ppm; peak limitation category: II(2); pregnancy risk group: C

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 safety goggles.

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 and safety characteristics

Physical state:	Dichlorodifluoromethane is a colorless gas having a faint ethereal odor. Shipped as a liquid confined under its own vapor pressure. Contact with the unconfined liquid can cause frostbite. Both components are noncombustible. Can asphyxiate by the displacement of air. Exposure of the closed container to prolonged heat or fire can cause it to rupture violently and rocket.
Colour:	Colorless gas ... [Note: Shipped as a liquified compressed gas]
Odour:	Practically odorless ... faint, ether-like odor in high concentration
Melting point/freezing point:	-158°C
Boiling point or initial boiling point and boiling range:	-29.79°C
Flammability:	Nonflammable Gas
Lower and upper explosion limit/flammability limit:	no data available
Flash point:	11°C
Auto-ignition temperature:	Not flammable (USCG, 1999)
Decomposition temperature:	no data available
pH:	no data available
Kinematic viscosity:	0.262 centipoise at 70 deg F
Solubility:	Insoluble (NTP, 1992)
Partition coefficient n-octanol/water:	log Kow = 2.16
Vapour pressure:	5 atm at 61° F (NTP, 1992)

Density and/or relative density:	1.329
Relative vapour density:	4.1 (Air = 1)
Particle characteristics:	no data available

SECTION 10: Stability and reactivity

Reactivity

Decomposes on contact with hot surfaces or flames. This produces toxic and corrosive gases of hydrogen chloride (see ICSC 0163), phosgene (see ICSC 0007), hydrogen fluoride (see ICSC 0283) and carbonyl fluoride (see ICSC 0633). Reacts violently with metals such as zinc and powdered aluminium. Attacks magnesium and its alloys.

Chemical stability

Stable up to 550 deg C.

Possibility of hazardous reactions

NONFLAMMABLE GAS 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

Chemically-active metals such as sodium, potassium, calcium, powdered aluminum, zinc and magnesium.

Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

Oral: LD50 Rat single oral >1 g/kg

Inhalation: LD50 Mouse inhalation 760,000 ppm/30 min

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

A4: Not classifiable as a human carcinogen.

Reproductive toxicity

no data available

STOT-single exposure

Rapid evaporation of the liquid may cause frostbite. The substance may cause effects on the cardiovascular system and central nervous system. This may result in cardiac disorders and central nervous system depression. Exposure could cause lowering of consciousness. 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: No evidence of dichlorodifluoromethane biodegradation was found in a microcosm designed to simulate Narragansett Bay in a month-long experiment(1). Dichlorodifluoromethane was not biodegraded in soil samples from the Skellingsted Landfall, Holbaek, Denmark(2). The soil at the site was a loamy sand - 5.7% silt, 88.1% sand, 5.3% gravel; 3.2% w/w organic content, 25% w/w moisture content(2).

Bioaccumulative potential

An estimated BCF of 12 was calculated in fish for dichlorodifluoromethane(SRC), using a log Kow of 2.16(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

The Koc of dichlorodifluoromethane is estimated as 75(SRC), using a log Kow of 2.16(1) and a regression-derived equation(2). A Koc of 85 mL/g has also been reported, test conditions not specified(3). According to a classification scheme(4), these Koc values suggest that dichlorodifluoromethane is expected to have high mobility in soil. A log Koc value of 2.05 has been reported, using a batch experiment incubated with methane and a soil water content of 25% w/w(5).

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: UN1028 (For reference only, please check.)

IMDG: UN1028 (For reference only, please check.)

IATA: UN1028 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: DICHLORODIFLUORO- METHANE (REFRIGERANT GAS R 12) (For reference only, please check.)

IMDG: DICHLORODIFLUORO- METHANE (REFRIGERANT GAS R 12) (For reference only, please check.)

IATA: DICHLORODIFLUORO- METHANE (REFRIGERANT GAS R 12) (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. 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. Turn leaking cylinder with the leak up to prevent escape of gas in liquid state.

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