

Chemical Safety Data Sheet MSDS / SDS

1,2-DICHLOROTRIFLUOROETHANERevision Date:2024-12-21 Revision Number:1

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

Product name : 1,2-DICHLOROTRIFLUOROETHANE
CBnumber : CB8714217
CAS : 354-23-4
EINECS Number : 206-549-4
Synonyms : 1,2-dichloro-1,1,2-trifluoroethane,HCFC-123a

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 : No signal word

Hazard statement(s)

none

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 | : 1,2-DICHLOROTRIFLUOROETHANE |
| Synonyms | : 1,2-dichloro-1,1,2-trifluoroethane, HCFC-123a |
| CAS | : 354-23-4 |
| EC number | : 206-549-4 |
| MF | : C ₂ HCl ₂ F ₃ |
| MW | : 152.93 |

SECTION 4: First aid measures

Description of first aid measures

If inhaled

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately. Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

Following skin contact

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

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

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 any immediate medical attention and special treatment needed

Victims of freon inhalation require management for hypoxic, CNS anesthetic, & cardiac symptoms. Patients must be removed from the exposure environment, & high flow supplemental oxygen should be utilized. The respiratory system should be evaluated for injury, aspiration, or pulmonary edema & 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 & countershock may be effective. Cryogenic dermal injuries should be treated by water bath rewarming at 40-42 deg C until vasodilatory flush has returned. Elevation of the limb & standard frostbite management with late surgical debridement should be utilized. Ocular exposure requires irrigation &

SECTION 5: Firefighting measures

Extinguishing media

Excerpt from ERG Guide 126 [Gases - Compressed or Liquefied (Including Refrigerant Gases)]: Use extinguishing agent suitable for type of surrounding fire. SMALL FIRE: Dry chemical or CO₂. LARGE FIRE: Water spray, fog or regular foam. Move containers from fire area if you can do it without risk. Damaged cylinders should be handled only by specialists. FIRE INVOLVING TANKS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after fire is out. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. Some of these materials, if spilled, may evaporate leaving a flammable residue. (ERG, 2016)

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)

Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

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

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

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

no data available

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 tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

Skin protection

Wear fire/flammable resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties

Information on basic physicochemical properties

| | |
|--|------------------------|
| Physical state | A liquid |
| Colour | Volatile liquid or gas |
| Odour | no data available |
| Melting point/freezing point | -78°C |
| Boiling point or initial boiling point and boiling range | 28°C |
| Flammability | no data available |
| 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 | no data available |
| Partition coefficient n-octanol/water | log Kow = 2.17 (est) |
| Vapour pressure | 102.0 kPa at 303.15 K /620 mm Hg at 25 deg C/ |
| Density and/or relative density | 1.512g/cm3 |
| Relative vapour density | no data available |
| Particle characteristics | no data available |

SECTION 10: Stability and reactivity

Reactivity

No rapid reaction with air. No rapid reaction with water.

Chemical stability

no data available

Possibility of hazardous reactions

1,2-DICHLORO-1,1,2-TRIFLUOROETHANE is chemically inert in many situations, but can react violently with strong reducing agents such as the very active metals and the active metals. They suffer oxidation with strong oxidizing agents and under extremes of temperature.

Conditions to avoid

no data available

Incompatible materials

no data available

Hazardous decomposition products

When heated to decomp it emits very toxic fumes of /hydrogen chloride and hydrogen 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

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

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

Water and sediment biodegradation data were not available for 1,2-dichloro-1,1,2-trifluoroethane(SRC, 2012). However, by analogy to 2,2-dichloro-1,1,1-trifluoroethane, which is considered not readily biodegradable with primary and ultimate degradation of 24% and 10%, respectively, in 28 days using the Closed Bottle Test(1,2), one may consider 1,2-dichloro-1,1,2-trifluoroethane as not readily biodegradable(SRC).

Bioaccumulative potential

An estimated BCF of 13 was calculated for 1,2-dichloro-1,1,2-trifluoroethane(SRC), using an estimated log Kow of 2.17(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.

Mobility in soil

Using a structure estimation method based on molecular connectivity indices(1), the Koc for 1,2-dichloro-1,1,2-trifluoroethane can be estimated to be 140(SRC). According to a classification scheme(2), this estimated Koc value suggests that 1,2-dichloro-1,1,2-trifluoroethane is expected to have 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: UN3163 (For reference only, please check.)

IMDG: UN3163 (For reference only, please check.)

IATA: UN3163 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: LIQUEFIED GAS, N.O.S. (For reference only, please check.)

IMDG: LIQUEFIED GAS, N.O.S. (For reference only, please check.)

IATA: LIQUEFIED GAS, N.O.S. (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

Not Listed.

New Zealand Inventory of Chemicals (NZIoC)

Listed.

PICCS

Not Listed.

Vietnam National Chemical Inventory

Not Listed.

IECSC

Not Listed.

Korea Existing Chemicals List (KECL)

Not 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?pagelD=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/>

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.