
SECTION 1: Identification

1.1 GHS Product identifier

Product name Chloro-1,1,1-trifluoroethane

1.2 Other means of identification

Product number -

Other names chloro-1,1,1-trifluoroethane; 1,1,1-trifluoro-2-chloroethane; Ethane,2-chloro-1,1,1-trifluoro

1.3 Recommended use of the chemical and restrictions on use

Identified uses Intermediates

Uses advised against no data available

SECTION 2: Hazard identification

2.1 Classification of the substance or mixture

Gases under pressure: Liquefied gas

2.2 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

2.3 Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1 Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Chloro-1,1,1-trifluoroethane	Chloro-1,1,1-trifluoroethane	75-88-7	200-912-0	100%

SECTION 4: First-aid measures

4.1 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.

4.2 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)

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

no data available

SECTION 5: Fire-fighting measures

5.1 Suitable 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)

5.2 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)

5.3 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

6.1 Personal precautions, protective equipment and emergency procedures

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

6.2 Environmental precautions

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

6.3 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

7.1 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.

7.2 Conditions for safe storage, including any incompatibilities

Fireproof if in building. Cool.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 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.

8.3 Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety goggles or eye protection in combination with breathing protection.

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	1-Chloro-2,2,2-trifluoroethane is a colorless, odorless gas. It is shipped as a liquid under its own vapor pressure. Contact with the liquid may cause frostbite to unprotected skin. It can asphyxiate by the displacement of air. Exposure of the container to fire or heat can cause it to rupture violently and rocket.
Colour	no data available
Odour	no data available
Melting point/freezing point	-105Â°C
Boiling point or initial boiling point and boiling range	7Â°C
Flammability	Not combustible. Heating will cause rise in pressure with risk of bursting. 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	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	In water, 9,200 mg/l @ 25 deg C
Partition coefficient n-octanol/water	no data available
Vapour pressure	kPa at 20Â°C: 180
Density and/or relative density	1.389
Relative vapour density	(air = 1): 4.1
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Decomposes on contact with hot surfaces or flames. This produces toxic and corrosive gases including hydrogen chloride and hydrogen fluoride.

10.2 Chemical stability

no data available

10.3 Possibility of hazardous reactions

The gas is heavier than air and may accumulate in lowered spaces causing a deficiency of oxygen. The gas is heavier than air and may accumulate in lowered spaces causing a deficiency of oxygen. 1-CHLORO-2,2,2-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. Undergoes oxidation with strong oxidizing agents and under extremes of temperature.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

no data available

10.6 Hazardous decomposition products

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

SECTION 11: Toxicological information

Acute toxicity

- Oral: no data available
- Inhalation: LC50 Mouse inhalation 15 pph/1 hr
- 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 are available in humans. Limited evidence of carcinogenicity in animals. OVERALL EVALUATION: Group 3: The agent is not classifiable as to its carcinogenicity to humans. From table

Reproductive toxicity

no data available

STOT-single exposure

Rapid evaporation of the liquid may cause frostbite. Exposure at high levels could cause unconsciousness.

STOT-repeated exposure

Animal tests show that this substance possibly causes toxic effects upon human reproduction.

Aspiration hazard

A harmful concentration of this gas in the air will be reached very quickly on loss of containment.

SECTION 12: Ecological information

12.1 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

12.2 Persistence and degradability

no data available

12.3 Bioaccumulative potential

An estimated BCF of 4 was calculated for 1,1,1-trifluoro-2-chloroethane(SRC), using a water solubility of 9,200 mg/l(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).

12.4 Mobility in soil

The Koc of 1,1,1-trifluoro-2-chloroethane is estimated as 30(SRC), using a measured water solubility of 9,200 mg/l(1) and a regression-derived equation(2). According to a classification scheme(3), this estimated Koc value suggests that 1,1,1-trifluoro-2-chloroethane is expected to have very high mobility in soil.

12.5 Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1 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

14.1 UN Number

ADR/RID: UN1983 (For reference only, please check.) IMDG: UN1983 (For reference only, please check.) IATA: UN1983 (For reference only, please check.)

14.2 UN Proper Shipping Name

ADR/RID: 1-CHLORO-2,2,2-TRIFLUOROETHANE (REFRIGERANT GAS R 133a) (For reference only, please check.)	IMDG: 1-CHLORO-2,2,2-TRIFLUOROETHANE (REFRIGERANT GAS R 133a) (For reference only, please check.)	IATA: 1-CHLORO-2,2,2-TRIFLUOROETHANE (REFRIGERANT GAS R 133a) (For reference only, please check.)
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14.3 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.)
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14.4 Packing group, if applicable

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

14.5 Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

14.6 Special precautions for user

no data available

14.7 Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Chloro-1,1,1-trifluoroethane	Chloro-1,1,1-trifluoroethane	75-88-7	200-912-0
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)			Not Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Not Listed.
Vietnam National Chemical Inventory			Not Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Not Listed.
Korea Existing Chemicals List (KECL)			Not Listed.

SECTION 16: Other information

Information on revision

Creation Date July 15, 2019

Revision Date July 15, 2019

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. 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.