

Chemical Safety Data Sheet MSDS / SDS

Chloropentafluoroethane

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

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

Product identifier

Product name : Chloropentafluoroethane
CBnumber : CB5224320
CAS : 76-15-3
EINECS Number : 200-938-2
Synonyms : R115, chloropentafluoroethane

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	: Chloropentafluoroethane
Synonyms	: R115, chloropentafluoroethane
CAS	: 76-15-3
EC number	: 200-938-2
MF	: C2ClF5
MW	: 154.47

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. 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 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

If material on fire or 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

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

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. NEVER direct water jet on liquid. Personal protection: chemical protection suit including self-contained breathing apparatus.

Environmental precautions

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

Methods and materials for containment and cleaning up

Ventilation. Never direct water jet on liquid. Personal protection: chemical protection suit including self-contained breathing apparatus.

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

Fireproof if in building. Cool. Fireproof if in building. Cool.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational Exposure limit values

TLV: 1000 ppm as TWA

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 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

Information on basic physicochemical properties

Physical state	Colorless gas
Colour	Colorless gas
Odour	Odorless
Melting point/freezing point	30-31°C
Boiling point or initial boiling point and boiling range	-39°C
Flammability	Nonflammable Gas
Lower and upper explosion limit/flammability limit	no data available
Flash point	70°C
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	0.193 cP at 25 deg C (liquid); 0.0125 cP at 25 deg C, 101.3 kPa (vapor)
Solubility	0.006 % at 77° F (NIOSH, 2016)
Partition coefficient n-octanol/water	log Kow = 2.47 (est)
Vapour pressure	7.9 atm at 70° F (NIOSH, 2016)
Density and/or relative density	1.568 g/cm ³
Relative vapour density	8.37 g/L at -39.1 deg C
Particle characteristics	no data available

SECTION 10: Stability and reactivity

Reactivity

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

Chemical stability

Has good thermal stability.

Possibility of hazardous reactions

NonflammableThe vapour is heavier than air and may accumulate in lowered spaces causing a deficiency of oxygen.CHLOROPENTAFLUOROETHANE is incompatible with the following: Alkalis, alkaline earth metals (e.g., aluminum powder, sodium, potassium, zinc) (NIOSH, 2016).

Conditions to avoid

no data available

Incompatible materials

Alkalis, alkaline earth metals (e.g., aluminum powder, sodium, potassium, zinc).

Hazardous decomposition products

When heated to decomposition it emits toxic vapors 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

Rapid evaporation of the liquid may cause frostbite.

STOT-repeated exposure

no data available

Aspiration hazard

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

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

Bioaccumulative potential

An estimated BCF of 20 was calculated in fish for chloropentafluoroethane(SRC), using an estimated log Kow of 2.47(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

Using a structure estimation method based on molecular connectivity indices(1), the Koc of chloropentafluoroethane can be estimated to be 200(SRC). According to a classification scheme(2), this estimated Koc value suggests that chloropentafluoroethane is expected to have moderate 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: UN1020 (For reference only, please check.)

IMDG: UN1020 (For reference only, please check.)

IATA: UN1020 (For reference only, please check.)

UN Proper Shipping Name

ADR/RID: CHLOROPENTAFLUORO- ETHANE (REFRIGERANT GAS R 115) (For reference only, please check.)

IMDG: CHLOROPENTAFLUORO- ETHANE (REFRIGERANT GAS R 115) (For reference only, please check.)

IATA: CHLOROPENTAFLUORO- ETHANE (REFRIGERANT GAS R 115) (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

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?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/>

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. 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.