

**R-22**
**100002200**
**SECTION 1 Identification of the substance/mixture and of the company/undertaking**
**1.1. Product identifier**

**Product name** : R-22  
**Common chemical name** : Chlorodifluoromethane  
**CAS nr** : 75-45-6  
**EC Number** : 200-871-9

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

**1.2.1 Relevant identified uses** : Regenerated refrigerant

**1.3. Details of the supplier of the safety data sheet**

DEHON SERVICE  
 26 Avenue du Petit Parc  
 94683 VINCENNES Cedex France  
 Tel : +33 (0) 1 43 98 75 00  
 Fax : +33 (0) 1 43 98 21 51

**e-mail** : ContactFDS@climalife.dehon.com

**1.4 Emergency telephone number** : EMERGENCY TELEPHONE NUMBER (24h/24) : + 33 (0) 1 72 11 00 03  
 Anti-poison Center : INRS/ORFILA (France) : +33 (0) 1 45 42 59 59

**SECTION 2 Hazards identification**
**2.1. Classification of the substance or mixture**
**2.1.1. Regulation (EC) No 1272/2008 (CLP)**

**Physical hazards** : Gases under pressure - Liquefied gas (Press. Gas) - H280  
 Dangerous for the ozone layer (Ozone 1 - H420)

**2.1.2 Directive EEC/67/548 or 1999/45/CE** : N; R59

**2.2. Label elements**
**Hazard pictograms**


**Signal words** : Warning

**Hazard statements** : H280 : Contains gas under pressure; may explode if heated  
 H420 : Harms public health and the environment by destroying ozone in the upper atmosphere

**Precautionary statements :**

- **Prevention** : P273 : Avoid release to the environment
- **Storage** : P410 + P403 : Protect from sunlight Store in a well-ventilated place
- **Disposal considerations** : P502 : Refer to manufacturer/supplier for information on recovery/recycling

**2.3. Other hazards**

**Adverse human health effects** : Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing  
 Contact of refrigerant and/or packaging with skin may cause frostbite

**Physical and chemical hazards :** : Not classified as flammable by EC criteria but may present a hazard in the event of a fire  
 On thermal decomposition (pyrolysis) : Very toxic and corrosive gases are released  
 Under certain temperature and pressure conditions may form a flammable mixture in the presence of air.

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## SECTION 2 Hazards identification (continued)

## SECTION 3 Composition/information on ingredients

### 3.1./3.2. Substance / Preparation : Substance.

Substance name	Contents	CAS No	EC No	Index No	Ref REACH	Classification
Chlorodifluoromethane	100 %	75-45-6	200-871-9	-----	01-2119517587-31	N; R59 Liquefied gas;H280 Ozone 1; H420

## SECTION 4 First aid measures

### 4.1. Description of first aid measures

- Inhalation** : Move the affected person to the fresh air  
Give artificial respiration if necessary  
If breathing difficulties persist : Consult a doctor
- Skin contact** : In the event of contact with the liquid: treat resulting frostbite as a burn  
Immediately remove contaminated clothing or footwear  
Immediately rinse with plenty of water  
If skin burns appear, call a doctor immediately
- Eye contact** : Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes minimum)  
Consult an eye specialist immediately
- Ingestion** : Not specifically applicable (gas)

### 4.2. Most important symptoms and effects, both acute and delayed

- Acute symptoms** : Narcotic effect  
Headaches  
Drowsiness  
Dizziness  
Loss of consciousness  
Cardiac disorders

- 4.3. Indication of any immediate medical attention and special treatment needed** : Do not administer catecholamines

## SECTION 5 Fire-fighting measures

### 5.1. Extinguishing media

- Suitable extinguishing media** : All extinguishing agents can be used
- Unsuitable extinguishing media** : None to our knowledge. If there is a fire close by, use suitable extinguishing agents

### 5.2. Special hazards arising from the substance or mixture

- Specific hazards** : Pressure increase  
Under certain temperature and pressure conditions may form a flammable mixture in the presence of air  
On thermal decomposition (pyrolysis) : Release of fluoridated and chlorinated products.  
Extremely toxic and corrosive

### 5.3. Advice for firefighters

- Specific fire fighting methods** : Cool down the containers exposed to heat with a water spray

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**SECTION 5 Fire-fighting measures (continued)**

**Protection of fire-fighters** : Self-contained breathing apparatus  
Complete protective clothing

**SECTION 6 Accidental release measures**

- 6.1. Personal precautions, protective equipment and emergency procedures** : Avoid contact with skin and eyes  
Do not breathe vapours  
Do not smoke  
Stop the leak.  
Remove all sources of ignition
- 6.2. Environmental precautions** : -
- 6.3. Methods and material for containment and cleaning up** : Mechanically ventilate the spillage area.
- 6.4 Reference to other sections** : For further information refer to section 8 "Exposure controls/personal protection"

**SECTION 7 Handling and storage**

- 7.1. Precautions for safe handling**
- Technical measures** : Ventilation
- Precautions** : Do not breathe vapour  
Smoking is forbidden  
Avoid contact with :  
- hot surfaces
- Industrial hygiene** : Do not drink, eat or smoke in the workplace
- 7.2. Conditions for safe storage, including any incompatibilities**
- Storage conditions**
- **Recommended** : Keep the container hermetically sealed  
Store :  
- in a cool, well-ventilated area  
- away from any source of ignition  
- away from any source of heat
- Incompatible products** : Powdered metals  
Flammable materials
- Packaging materials**
- **Recommended** : Original packaging  
Ordinary steel
- **Not suitable** : Plastic materials.  
Alloys containing more than 2% magnesium

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**SECTION 8 Exposure controls/personal protection**
**8.1. Control parameters**
**Engineering measures** : Ensure good ventilation of the work station

**8.1.1. Occupational Exposure Limits** : Chlorodifluoromethane : European Union : VME (8h; mg/m<sup>3</sup>) : 3600  
 Chlorodifluoromethane : European Union : VME (8h; ppm) : 1000  
 Chlorodifluoromethane : USA (NIOSH) : REL - TWA (8h; mg/m<sup>3</sup>) : 3500  
 Chlorodifluoromethane : USA (NIOSH) : REL - TWA (8h; ppm) : 1000

**8.2. Exposure controls**
**Personal protection :**

- **Respiratory protection** : In a confined area : Mask with AX canister  
 In the event of insufficient ventilation: Self-contained breathing apparatus (ARI)  
 Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing
- **Hand protection** : Leather protective gloves  
 Nitrile-rubber protective gloves
- **Eye protection** : Sealed safety goggles with side shields
- **Skin protection** : Majority cotton clothing

**SECTION 9 Physical and chemical properties**
**9.1. Information on basic physical and chemical properties**
**9.1.a. Appearance**

- Physical state** : Liquefied gas
- Colour** : Colourless
- 9.1.b. Odour** : ethereal.
- 9.1.c. Odour threshold** : No data
- 9.1.d. pH** : Not applicable
- 9.1.e. Melting point / Freezing point** : -160 °C
- 9.1.f. Initial boiling point - boiling range** : -40.8 °C
- 9.1.g. Flash point** : None
- 9.1.h. Evaporation rate** : No data
- 9.1.i. Flammability** : Non flammable.
- 9.1.j. Explosion limits (lower - upper)** : Not applicable
- 9.1.k. Vapour pressure** : 9.1 bar at 20 °C  
 19.4 bar at 50 °C
- 9.1.l. Vapour density** : No data
- 9.1.m. Density** : 1213 kg/m<sup>3</sup> at 20 °C
- 9.1.n. Solubility**
  - in water : 3 g/l at 25 °C
- 9.1.o. Partition coefficient : n-octanol / water** : 1.13 (log Pow) at 25 °C
- 9.1.p. Auto-ignition temperature** : No data
- 9.1.q. Thermal decomposition** : 480 °C
- 9.1.r. Viscosity** : Not applicable
- 9.1.s. Explosive Properties** : Not explosive material according to EC criteria

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**SECTION 9 Physical and chemical properties (continued)**

- 9.1.t. Oxidising properties : Non oxidizing material according to EC criteria  
 9.2. Other information

**SECTION 10 Stability and reactivity**

- 10.1. Reactivity : -  
 10.2. Chemical stability : Stable at ambient temperature and under normal conditions of use  
 10.3. Possibility of hazardous reactions : Reacts violently with : - chlorine : Ignition risk (Under certain temperature and pressure conditions)  
 10.4. Conditions to avoid : High temperature  
 Open flame  
 Light (daylight).  
 10.5. Incompatible materials : - chlorine  
 - alkaline earth metals.  
 - alkali metals  
 - powdered metals  
 10.6. Hazardous decomposition products : On thermal decomposition (pyrolysis), releases :  
 Hydrogen fluoride  
 Hydrogen chloride  
 Phosgene  
 Carbon oxides (CO, CO<sub>2</sub>)

**SECTION 11 Toxicological information**

- 11.1. Information on toxicological effects  
 Acute toxicity  
 On ingredients  
 Chlorodifluoromethane : Rat inhalation LC50 [ppm/4h] : 22000  
 Skin corrosion/irritation : Not irritating to skin  
 Serious eye damage/irritation : Not irritating to eyes  
 Respiratory or skin sensitization : No information available  
 Germ cell mutagenicity : No mutagenic effect  
 Carcinogenicity : No carcinogenic effect  
 Reproductive toxicity : No teratogenic effect  
 STOT-single exposure : No specific data  
 STOT-repeated exposure : No specific data  
 Aspiration hazard : Not applicable  
 Other information : Contact with liquefied gas may cause frostbite.  
 Contact with liquefied gas may cause severe ocular lesions

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**SECTION 12 Ecological information**
**12.1. Toxicity**
**Effects on the aquatic environment**
**On ingredients**

**Chlorodifluoromethane** : 48 Hours - LC50 - Daphnia magna [mg/l] : 433  
 : 96 Hour - EC50 - Algae [mg/l] : 377.6

**12.2. Persistence and degradability**
**Biodegradability**

: Water : Not readily biodegradable  
 0 % biodegradation after 28 days  
 Air : Half-life = 8.4 years

**12.3. Bioaccumulative potential**
**Octanol/water partition coefficient**

: 1.08 - 1.13  
 Low bioaccumulation potential

**12.4. Mobility in soil**
**Volatility**

: Rapid evaporation : Half-life = 2.7 h  
 Air : Henry's constant : 26 kPa.m3/mol

**Adsorption/desorption:**

: In soil and sediments : log KOC : 1.8

**12.5. Results of PBT and vPvB assessment**

: -

**12.6. Other adverse effects**
**Ozone depletion potential**

: Dangerous for the ozone layer.  
 ODP (R11=1) = 0.055

**Greenhouse effect**

: HGWP (R11=1) = 0.33  
 GWP (CO2=1) = 1500

**SECTION 13 Disposal considerations**
**13.1. Waste treatment methods**
**CONTAMINATED PACKAGING :**
**Destruction/Disposal**

: Reuse or recycle following decontamination.  
 Destroy at an authorised site

**NOTE**

: The user's attention is drawn to the possible existence of specific european, national or local regulations regarding disposal

**SECTION 14 Transport information**
**14.1. UN number**

: UN 1018

**14.2. UN proper shipping name**

: CHLORODIFLUOROMETHANE (REFRIGERANT GAS R 22)

**14.3. Transport hazard class(es)**
**Rail/road (RID/ADR)**

: Class : 2

**Sea transport**

: Class : 2.2

**Air transport (OACI/IATA)**

: Class : 2.2

**Hazard Label(s)**

: 2.2


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## SECTION 14 Transport information (continued)

- 14.4. Packing group : Not applicable
- 14.5. Environmental hazards : Not classified as dangerous to the aquatic environment  
Marine pollutant : NO
- 14.6. Special precautions for user
- Rail/road (RID/ADR) : Classification code : 2A  
Hazard identification number : 20  
Tunnel restriction code : (C/E)
- Sea transport : EmS Nr : F-C, S-V  
Segregation group : -
- Air transport (OACI/IATA) : Cargo aircraft:  
Packing instruction: 200  
Quantity: 150 kg  
Passenger aircraft:  
Packing instruction: 200  
Quantity: 75 kg

## SECTION 15 Regulatory information

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture : Ensure all national/local regulations are observed.
- 15.2. Chemical safety assessment : No information available

## SECTION 16 Other information

- Further information : This product is intended for sale outside EU  
Product for industrial use only  
For more information regarding the use of this product, please refer to our technical information or contact the sales department in your region  
This safety data sheet has been written in conformity with the regulation (UE) 453/2010.
- Text of R-Phrases in § 3 : R59 : Dangerous for the ozone layer.
- Text of H-Phrases in § 3 : H280 - Contains gas under pressure; may explode if heated  
H420 - Harms public health and the environment by destroying ozone in the upper atmosphere
- \* Update : All chapters have been modified since the previous version

This sheet complements the technical sheets but does not replace them. The information given is based on our knowledge of the product, at the time of publication. It is given in good faith.

Besides, the attention of the user is drawn to the possible risks incurred by using the product for any other use than that for which it was intended.

In no way does this exempt the user from knowing and applying all the regulations controlling his activity. He alone will take on the responsibility for taking the precautions involved by the use of the product.

The aim of all the mandatory regulations mentioned is just to help the user to fulfil his obligations regarding the use of hazardous products.

This information must not be considered exhaustive. It does not exempt the user from ensuring that other obligations than those mentioned could apply, related to the storage and use of the product, this being his sole responsibility.

**End of document**

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