

**R-407C**
**100040700**
**SECTION 1 Identification of the substance/mixture and of the company/undertaking**
**1.1. Product identifier**
**Trade name** : R-407C

**1.2. Relevant identified uses of the substance or mixture and uses advised against**
**1.2.1 Relevant identified uses** : 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  
 Anti-poison Centre (Belgium) : +32 70 245 245  
 Anti-poison Centre (Netherlands) : +31 30 274 8888  
 Anti-poison Centre (Spain) : +34 91 562 04 20  
 Anti-poison Centre (United Kingdom) : +44 870 600 6266  
 Poisons Information Centre (Hungary) : +36 80 201 199

**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

**2.2. Label elements**
**2.2.1 Labelling EC 1272/2008 (CLP)**
**Hazard pictograms**

**Signal words** : Warning

**Hazard statements** : H280: Contains gas under pressure; may explode if heated

**Precautionary statements :**
**• Storage** : P410 + P403: Protect from sunlight. Store in a well-ventilated place

**- Further data** : Contains :  
 52% 1,1,1,2-Tetrafluoroethane (R-134a) / 25% Pentafluoroethane (R-125) / 23% Difluoromethane (R-32)  
 Greenhouse fluorinated gas falling within Kyoto Protocol  
 ( GWP =1774)

**2.3. Other hazards**

 : Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing  
 Liquefied gas : Contact with liquid may cause frostbite and serious damage to eyes

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**SECTION 3 Composition/information on ingredients**

\* **3.1./3.2. Substance / Mixture** : Mixture  
**Components contributing to the hazard :**

Substance name	Contents	CAS No	EC No	Index No	Ref REACH	Classification
Difluoromethane	: 23 %	75-10-5	200-839-4	----	01-2119471312-47	F+; R12 Flam. Gas 1;H220 Liquefied gas;H280
Pentafluoroethane	: 25 %	354-33-6	206-557-8	----	01-2119485636-25	Not classified. (DSD/DPD) Liquefied gas;H280
1,1,1,2-Tetrafluoroethane	: 52 %	811-97-2	212-377-0	----	01-2119459374-33	Not classified. (DSD/DPD) Liquefied gas;H280

**SECTION 4 First aid measures**
**4.1. Description of first aid measures**

**Inhalation** : Move the affected person away from the contaminated area and into the fresh air  
 If the person feels unwell : Call a doctor

**Skin contact** : In the event of contact with the liquid: treat resulting frostbite as a burn  
 Rinse with plenty of water. DO NOT remove clothing (since it may stick to the skin).  
 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**

**Inhalation** : Difficulty in breathing  
 Dizziness  
 Drowsiness  
 Headaches  
 Loss of consciousness  
 Cardiac disorders

**Skin contact** : Contact with liquefied gas may cause frostbite.

**Eye contact** : No information available

**Ingestion** : No information available

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

**SECTION 5 Fire-fighting measures**
**5.1. Extinguishing media**

**Suitable extinguishing media** : Water spray  
 Carbon dioxide (CO<sub>2</sub>)  
 Foam  
 Powders

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

- Specific hazards** : On heating : Toxic and corrosive vapours are released  
Exposure to fire may cause containers to rupture/explode.
- 5.3. Advice for firefighters**
- Specific fire fighting methods** : Cool down the containers exposed to heat with a water spray
- Protection of fire-fighters** : Complete protective clothing  
Self-contained breathing apparatus

**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 attempt to take action without suitable protective equipment  
Evacuate the danger area.  
Remove all sources of ignition  
Stop the leak.  
Ensure that there is a suitable ventilation system
- 6.2. Environmental precautions** : Do not allow product to spread into the environment
- 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**
- Precautions** : Work in a well-ventilated area  
Receptacle under pressure. Handle and open container with care.  
Avoid the build-up of electrostatic charge  
Smoking is forbidden
- Industrial hygiene** : Do not drink, eat or smoke in the workplace
- 7.2. Conditions for safe storage, including any incompatibilities**
- Storage conditions**
- Recommended** : Store :  
- only in the original container  
- in a cool, well-ventilated area  
- the container tightly closed  
- away from any source of ignition
- Incompatible products** : Strong oxidizing agents  
Alkaline earth metals  
Alkali metals  
Finely divided metals.
- Packaging materials**
- Recommended** : Ordinary steel , Stainless steel , Aluminium.
- Not suitable** : Alloys containing more than 2% magnesium
- 7.3. Specific end use(s)** : No data

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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** : 1,1,1,2-Tetrafluoroethane : United Kingdom : WEL - TWA (8h; mg/m<sup>3</sup>) : 4240  
 1,1,1,2-Tetrafluoroethane : United Kingdom : WEL - TWA (8h; ppm) : 1000  
 1,1,1,2-Tetrafluoroethane : Germany : MAK - TWA (8h; mg/m<sup>3</sup>) : 4200  
 1,1,1,2-Tetrafluoroethane : Germany : MAK - TWA (8h; ppm) : 1000  
 1,1,1,2-Tetrafluoroethane : Germany : TRK - STEL (15min; mg/m<sup>3</sup>) : 33600  
 1,1,1,2-Tetrafluoroethane : Germany : TRK - STEL (15min; ppm) : 8000  
 Pentafluoroethane : France : LEP - VME (8h; ppm) : 1000  
 Difluoromethane : France : LEP - VME (8h; mg/m<sup>3</sup>) : 2130  
 Difluoromethane : France : LEP - VME (8h; ppm) : 1000

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

- **Respiratory protection** : In the event of insufficient ventilation: Mask with AX canister  
 In a confined area : Self-contained breathing apparatus (ARI)
- **Hand protection** : Leather or nitrile-rubber protective gloves
- **Eye protection** : Safety spectacles 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** : slightly ethereal.
- 9.1.c. Odour threshold** : No information available
- 9.1.d. pH** : Not applicable
- 9.1.e. Melting point / Freezing point** : No information available
- 9.1.f. Initial boiling point - boiling range** : - 43.8 °C
- 9.1.g. Flash point** : Not applicable
- 9.1.h. Evaporation rate** : No information available
- 9.1.i. Flammability** : Non flammable.
- 9.1.j. Explosion limits (lower - upper)** : None.
- 9.1.k. Vapour pressure** : 11,88 bar at 25 °C  
 22,1 bar at 50 °C
- 9.1.l. Vapour density**
- Vapour density (air = 1) :** : 3,59
- 9.1.m. Density** : Liquid : 1,138 g/cm<sup>3</sup> at 25 °C
- 9.1.n. Solubility** : No data
- 9.1.o. Partition coefficient : n-octanol / water** : 1.06 (log Pow) - 1,1,1,2-Tetrafluoroethane (R-134a)  
 0.21 (log Pow) - Difluoromethane (R-32)  
 1.48 (log Pow) - Pentafluoroethane (R-125)
- 9.1.p. Auto-ignition temperature** : No information available
- 9.1.q. Thermal decomposition** : No information available

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

<b>9.1.r. Viscosity</b>	: No information available
<b>9.1.s. Explosive Properties</b>	: Not explosive material according to EC criteria
<b>9.1.t. Oxidising properties</b>	: Non oxidizing material according to EC criteria
<b>9.2. Other information</b>	
<b>Critical temperature :</b>	: + 86,05 °C
<b>Critical pressure :</b>	: 46,3 bar

**SECTION 10 Stability and reactivity**

<b>10.1. Reactivity</b>	: None under normal conditions
<b>10.2. Chemical stability</b>	: Stable at ambient temperature and under normal conditions of use
<b>10.3. Possibility of hazardous reactions</b>	: No dangerous reactions known under normal conditions of use
<b>10.4. Conditions to avoid</b>	: - high temperatures, naked flames
<b>10.5. Incompatible materials</b>	: - strong oxidizing agents - alkali metals - alkaline earth metals. - Finely divided metals.
<b>10.6. Hazardous decomposition products</b>	: On thermal decomposition (pyrolysis), releases : Carbon oxides (CO, CO2) Hydrogen fluoride Fluorophosgene

**SECTION 11 Toxicological information**

<b>11.1. Information on toxicological effects</b>	
• <b>Acute toxicity</b>	: No information available
<b>On ingredients</b>	
<b>Pentafluoroethane</b>	: Rat inhalation LC50 [ppm/4h] : 800000
<b>Difluoromethane</b>	: Rat inhalation LC50 [mg/l/4h] : 2158
<b>1,1,1,2-Tetrafluoroethane</b>	: Rat inhalation LC50 [ppm/4h] : > 500000
• <b>Skin corrosion/irritation</b>	: Contact with liquefied gas may cause frostbite.
• <b>Serious eye damage/irritation</b>	: Contact with liquefied gas may cause severe ocular lesions No information available
• <b>Respiratory or skin sensitisation</b>	: No information available
• <b>Germ cell mutagenicity</b>	: No information available
• <b>Carcinogenicity</b>	: No information available
• <b>Reproductive toxicity</b>	: No information available
• <b>STOT-single exposure</b>	: No information available
• <b>STOT-repeated exposure</b>	: No information available
• <b>Aspiration hazard</b>	: No information available

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**SECTION 12 Ecological information**
**12.1. Toxicity**
**Effects on the aquatic environment** : The product does not have any known adverse effects on the environment.

**On ingredients**
**Pentafluoroethane**

: 48 Hour - EC50 - Daphnia magna [mg/l] : 100 (Results obtained on a similar product).

: 72 Hours - EC50 - Algae [mg/l] : 114 (Results obtained on a similar product).

: 96 Hours - LC50 - Fish [mg/l] : 100 (Results obtained on a similar product).

**1,1,1,2-Tetrafluoroethane**

: 6 Hours - EC50 - Bacteria (Methanogens) [mg/l] : &gt; 730

: 48 Hour - EC50 - Daphnia magna [mg/l] : 930

: 96 Hours - LC50 - Fish [mg/l] : 450

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

: No easy biodegradable

R-32 :

Water : 5 % biodegradation after 28 days

Air : Half-life = 1472 days

R-125 :

Water : 5 % biodegradation after 28 days

Air : Half-life = 28.3 years (estimated value)

R-134a :

Water : 3 % biodegradation after 28 days

Air : Half-life = 8.6-16.7 years

**12.3. Bioaccumulative potential**

: Practically not bioaccumulable

**Octanol/water partition coefficient**

: R-32 : 0.21

R-125 : 1.48

R-134a : 1.06

**12.4. Mobility in soil**

: No information available

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

: This mixture contains no substance meeting PBT and vPvB criteria

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

: ODP (R-11=1)=0

**Greenhouse effect**

: GWP (CO2=1/100 years) = 1774

**SECTION 13 Disposal considerations**
**13.1. Waste treatment methods**

: Dispose in a safe manner in accordance with local/national regulations.

**WASTE FROM PRODUCT :**
**Destruction/Disposal**

: Consult the manufacturer or supplier for information regarding recovery and recycling of the product

**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

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**SECTION 14 Transport information**

**14.1. UN number** : UN 3340  
**14.2. UN proper shipping name** : REFRIGERANT GAS R 407C  
**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



**14.4. Packing group** : -  
**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)** : Tunnel restriction code : (C/E)  
 Hazard identification number : 20  
 Classification code : 2A  
**Sea transport** : EmS Nr : F-C, S-V  
**Air transport (OACI/IATA)** : Cargo aircraft:  
 Packing instruction: 200  
 Quantity: 150 kg  
 Passenger aircraft:  
 Packing instruction: 200  
 Quantity: 75 kg

**14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

**NOTE** : The above regulatory prescriptions are those valid on the date of publication of this sheet  
 However, given the possible evolution of transport regulations for hazardous materials, in case the present sheet is dating back to more than 12 months ago, it would be advisable to check their validity with your commercial agency

**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.

**France** : Classified Installations : applicable  
**REGULATION EC No 842/2006** : Greenhouse fluorinated gas falling within Kyoto Protocol

**15.2. Chemical safety assessment** : No information available

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**MATERIAL SAFETY DATA SHEET**

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Version : 10

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**R-407C****100040700****SECTION 16 Other information**

<b>Further information</b>	: 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
<b>Text of R-Phrases in § 3</b>	: R12 : Extremely flammable.
<b>Text of H-Phrases in § 3</b>	: H220 - Extremely flammable gas H280 - Contains gas under pressure; may explode if heated
<b>* Update</b>	: Modifications are indicated by an asterisk (*)

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****DEHON SERVICE**

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