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1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : R-134a
 Recommended uses : Refrigerant
 SUPPLIER :
 Name : DEHON SERVICE
 Address : 26, AVENUE DU PETITE PARC
 Telephone number : 01 43 98 75 00
 Telefax number : 01 43 98 21 51
 * e-mail : ContactFDS@dehon.com
 Department to contact : Department Material Safety Data Sheets - TEL : 01 49 83 53 00
 EMERGENCY TELEPHONE NUMBER : EMERGENCY TELEPHONE NUMBER (24h/24) : +44 (0)208 762 8323
 Anti-poison Center :INRS/ORFILA (France) : +33 (0) 1 45 42 59 59

2 HAZARDS IDENTIFICATION

MOST IMPORTANT HAZARDS :
 Adverse human health effects : 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
 Physical and chemical hazards :
 - Fire or explosion : Not classified as flammable by EC criteria but may present a hazard in the event of a fire
 Under certain temperature and pressure conditions may form a flammable mixture in the presence of air
 Classification of the product : According to EC criteria, this product is not classified as a "hazardous substance"

3 COMPOSITION / INFORMATION ON INGREDIENTS

SUBSTANCE :
 Common chemical name : 1,1,1,2-Tetrafluoroethane
 CAS : 811-97-2
 EINECS : 212-377-0

4 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
 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)

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5 FIRE-FIGHTING MEASURES

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
Specific hazards :	Pressure increase Under certain temperature and pressure conditions may form a flammable mixture in the presence of air On heating : Toxic and corrosive vapours are released
Specific fire fighting methods :	Cool down the containers exposed to heat with a water spray
Protection of fire-fighters :	Self-contained breathing apparatus Complete protective clothing

6 ACCIDENTAL RELEASE MEASURES

Personal precautions :	Avoid contact with skin and eyes Do not breathe vapours Do not smoke Evacuate the danger area. Stop the leak. Remove all sources of ignition Mechanically ventilate the spillage area.
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7 HANDLING AND STORAGE

HANDLING	
Technical measures :	Ventilation
STORAGE	
Storage conditions :	
- Recommended :	Store : - in a cool, well-ventilated area - away from any source of ignition - away from any source of heat
Incompatible products :	Strong oxidizing agents Alkaline hydroxide Alkaline earth metals Finely divided metals (Mg, Al, Zn)
Packaging materials :	
- Recommended :	Ordinary steel. Stainless steel
- Not suitable :	Plastic materials. Alloys containing more than 2% magnesium



8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures :	Ensure good ventilation of the work station
Occupational Exposure Limits :	
- France :	Recommended value : VME = 4420 mg/m ³ (1000 ppm)
Personal protection :	
- Respiratory protection :	Mask with AX canister In a confined area : Self-contained breathing apparatus (ARI)
- Hand protection :	Leather or nitrile-rubber protective gloves
- Eye protection :	Sealed safety goggles with side shields

DEHON SERVICE

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8 EXPOSURE CONTROLS / PERSONAL PROTECTION (continued)

- Skin protection : Majority cotton clothing
 Industrial hygiene : Do not drink, eat or smoke in the workplace

9 PHYSICAL AND CHEMICAL PROPERTIES

Physical state : Liquefied gas
 Colour : Colourless
 Odour : slightly ethereal.
 pH value : Not applicable
 Specific temperatures :
 Melting point : -101 °C
 Boiling point : -26.4 °C
 Critical temperature : +101
 Critical pressure : 4070 kPa
 Decomposition point : > +370 °C
 Flammability characteristics :
 Flash point : None
 Auto-ignition temperature : +743 °C
 Vapour pressure : 5.7 bar absolute at 20 °C
 13.2 bar absolute at 50 °C
 Vapour density (air = 1) : 3.6
 Density : 1226 kg/m³ at 20 °C
 1103 kg/m³ at 50 °C
 Solubility :
 -in water : 0.9 g/l
 Octanol/water partition coefficient : 1.06 (log POW)

10 STABILITY AND REACTIVITY

Stability : Stable at ambient temperature and under normal conditions of use
 Hazardous reactions :
 Materials to avoid : - alkalis and caustic products
 - finely divided metals (Al, Mg, Zn)
 - strong oxidizing agents
 - alkaline earth metals.
 Hazardous decomposition products : On thermal decomposition (pyrolysis), releases :
 Hydrogen fluoride
 Carbon oxides (CO, CO₂)

11 TOXICOLOGICAL INFORMATION

Acute toxicity : LC 50 inhalation/ 4 h/rat : > 500000 ppm
 Acute symptoms : Central Nervous System depressant
 Narcotic effect
 Cardiac disorders
 Local effects : Skin contact :
 Not irritating to rabbits on cutaneous application
 Contact with liquid causes frostbite.
 Eye contact :
 Not irritating to rabbits on ocular application

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11 TOXICOLOGICAL INFORMATION (continued)

Contact with liquefied gas may cause severe ocular lesions

12 ECOLOGICAL INFORMATION

DEGRADABILITY:

Persistence : Half-life in air : 8.6 - 16.7 y
Product persists

BIOACCUMULATION:

Octanol/water partition coefficient : 1.06

ECOTOXICITY :

Effects on the aquatic environment : EC 50 (Daphnia : Daphnia magna)/ 48 h : 930 mg/l
LC 50 (Fish : Onchorynchus mykiss) / 96 h : 450 mg/l
EC 10 (Bacteria) / 6h : > 730 mg/l

OTHER ADVERSE EFFECTS:

Ozone depletion potential: ODP (R-11=1)=0
Greenhouse effect : GWP (CO2=1/100 years) = 1300

13 DISPOSAL CONSIDERATIONS

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

14 TRANSPORT INFORMATION

INTERNATIONAL REGULATIONS :

UN No. 3159 - 1,1,1,2-TETRAFLUOROETHANE

Land transport :

- Rail/road (RID/ADR) : Class : 2
Classification code : 2A
Packaging group : -
Labelling : 2.2
Hazard identification number : 20

Sea transport :



Class : 2.2
Packaging group : -
Labelling : 2.2
Marine pollutant : NO

Air transport :

Class : 2.2
Packing group : -
Labelling : 2.2

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

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15 REGULATORY INFORMATION

EC Labelling :	
R Phrase(s) :	No R phrase
S Phrase(s) :	No S phrase
FURTHER REGULATIONS :	
REGULATION EC No 842/2006 :	Greenhouse fluorinated gas falling within Kyoto Protocol
France :	Classified Installations : N° 1185
NOTE :	The regulatory information given in this part only indicate the principal regulations specifically applicable to the product described in the Safety Data Sheet. The cited basic Community texts are being updated and transcribed in national law. Refer to all applicable national, international and local regulations or provisions. The user's attention is drawn to the possible existence of additional provisions which complete these regulations.

16 OTHER INFORMATION

* Further information:	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 annex II of the regulation (EC) 1907/2006 (REACH).
* Update :	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

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