	<h1>MATERIAL SAFETY DATA SHEET</h1>	Page : 1 / 5
		Version : 8
		Date : 28/4/2008
		Supersedes : 24/11/2003
<h2>R-410A</h2>		10493

### 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME :	R-410A
Recommended uses :	Refrigerant
SUPPLIER :	
Name :	DEHON SERVICE
Address :	26, Avenue du Petit Parc 94683 VINCENNES cedex
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 : +33(0)1 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
Classification of the product :	This product is not classified as a "hazardous preparation" according to European Community regulations


### 3 COMPOSITION / INFORMATION ON INGREDIENTS

PREPARATION :	
Chemical nature :	Blend of 1,1-Difluoromethane (R-32) & Pentafluoroethane (R-125)
Components contributing to the hazard :	

Substance name	Contents	CAS No	EC No	Annex No	Classification
Difluoromethane	50 %	75-10-5	200-839-4	-----	F+; R12
Pentafluoroethane	50 %	354-33-6	206-557-8	-----	

### 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 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)

 	<b>MATERIAL SAFETY DATA SHEET</b>	Page : 2 / 5
		Version : 8
		Date : 28/4/2008
		Supersedes : 24/11/2003
<b>R-410A</b>		10493

## 5 FIRE-FIGHTING MEASURES

Suitable extinguishing media :	Carbon dioxide (CO <sub>2</sub> ) Powders Foam Water spray
Unsuitable extinguishing media :	None to our knowledge. If there is a fire close by, use suitable extinguishing agents
Specific hazards :	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 attempt to take action without suitable protective equipment Do not breathe vapours Evacuate the danger area. Stop the leak. Remove all sources of ignition Mechanically ventilate the spillage area.
Clean up methods :	
- Cleaning/decontamination :	Allow the residual product to evaporate.

## 7 HANDLING AND STORAGE

<b>HANDLING</b>	
Technical measures :	Ventilation
Precautions :	Smoking is forbidden Avoid the build-up of electrostatic charge Work in a well-ventilated area
<b>STORAGE</b>	
Storage conditions :	
- Recommended :	Store : - the container tightly closed - in a cool, well-ventilated area - at temperature not exceeding 45 °C - away from any source of ignition
Incompatible products :	Alkali metals Alkaline earth metals Non ferrous metals (Al, Zn, Sn) and their alloys Strong oxidizing agents
Packaging materials :	
- Recommended :	Ordinary steel.
- Not suitable :	Alloys containing more than 2% magnesium



## 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures :	Ensure good ventilation of the work station
Occupational Exposure Limits :	
- France :	R-32 : VME : 2130 mg/m <sup>3</sup> (1000 ppm) (recommended) R-125 : VME : 4900 mg/m <sup>3</sup> (recommended)

### DEHON SERVICE

26 Avenue du Petit Parc 94683 VINCENNES Cedex France

In case of emergency : +44 (0)208 762 8323

 	<b>MATERIAL SAFETY DATA SHEET</b>	Page : 3 / 5
		Version : 8
		Date : 28/4/2008
		Supersedes : 24/11/2003
<b>R-410A</b>		10493

## 8 EXPOSURE CONTROLS / PERSONAL PROTECTION (continued)

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
* 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 :	
Boiling point :	-51.6
Critical temperature :	+70.2
Critical pressure :	49.7 bar
Flammability characteristics :	
Flash point :	None
Vapour pressure :	16.18 bar at 25 °C 31.1 bar at 50 °C
Vapour density (air = 1) :	2.3
Density :	Liquid : 1.177 g/cm <sup>3</sup> at 25 °C
Solubility :	
-in water :	0.045 % at 25 °C

## 10 STABILITY AND REACTIVITY

Stability :	Stable at ambient temperature and under normal conditions of use
Hazardous reactions :	
Conditions to avoid :	- high temperatures, naked flames
Materials to avoid :	- alkali metals - alkaline earth metals. - reactive metals (Al, K, Zn ...) - strong oxidizing agents
Hazardous decomposition products :	On thermal decomposition (pyrolysis), releases : Hydrogen fluoride Fluorophosgene Carbon oxides (CO, CO <sub>2</sub> )

## 11 TOXICOLOGICAL INFORMATION

Acute toxicity :	R-32 : LC 50 inhalation/ 4 h/rat : 520000 ppm R-125 : LC 50 inhalation/ 4 h/rat : > 800000 ppm
Acute symptoms :	Drowsiness Headaches Dizziness Loss of consciousness.

 	<h1>MATERIAL SAFETY DATA SHEET</h1>	Page : 4 / 5
		Version : 8
		Date : 28/4/2008
		Supersedes : 24/11/2003
<h2>R-410A</h2>		10493

### 11 TOXICOLOGICAL INFORMATION (continued)

Local effects : Cardiac disorders  
Contact with liquefied gas may cause frostbite.  
Contact with liquefied gas may cause severe ocular lesions

### 12 ECOLOGICAL INFORMATION

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)

BIOACCUMULATION:  
Octanol/water partition coefficient : Practically not bioaccumulable  
R-32 : 0.21  
R-125 : 1.48

ECOTOXICITY :  
Effects on the aquatic environment : The product does not have any known adverse effects on the environment.

OTHER ADVERSE EFFECTS:  
Ozone depletion potential: ODP (R-11=1)=0  
Greenhouse effect : R-32 : GWP (CO<sub>2</sub>=1/100 years) = 550  
R-125 : GWP (CO<sub>2</sub>=1/100 years) = 3400

### 13 DISPOSAL CONSIDERATIONS

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

### 14 TRANSPORT INFORMATION

INTERNATIONAL REGULATIONS :  
UN No. 3163 - LIQUEFIED GAS, N.O.S.  
( 1,1-Difluoromethane (R-32) - Pentafluoroethane (R-125) )

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  
FS : F-C, S-V  
Marine pollutant : NO

 	<h1>MATERIAL SAFETY DATA SHEET</h1>	Page : 5 / 5
		Version : 8
		Date : 28/4/2008
		Supersedes : 24/11/2003
<h2>R-410A</h2>		10493

### 14 TRANSPORT INFORMATION (continued)

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

### 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).

\* Text of R-Phrases in § 3 R12 : Extremely flammable.

\* 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