

## 1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Trade name : R 404A  
 MSDS Nr : 262  
 Use : Coolant  
 Company identification : SOL SpA  
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 20052 MONZA Italia  
 Tel : +39.039.23.961- Fax : +39.039.23.96.420  
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## 2 HAZARDS IDENTIFICATION

Hazards identification : Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level. In high concentrations may cause asphyxiation.  
 Refrigerated liquefied gas. Contact with product may cause cold burns or frostbite.

## 3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Preparation : Preparation.  
 Components : This product is not hazardous but contains hazardous components.

Substance name	Contents	CAS No	EC No	Annex No	Classification
Trifluoroethane (R143a)		420-46-2	206-996-5	----	F+; R12
Pentafluoroethane		354-33-6	206-567-8	----	
1,1,1,2-Tetrafluoroethane (R 134a)		811-97-2	212-377-0	----	

## 4 FIRST AID MEASURES

First aid measures

- Inhalation : In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
- Skin contact : Flush with plenty of water. Seek medical attention if ill effect or irritation develops.
- Eye contact : Rinse immediately with water. Seek medical attention if ill effect or irritation develops.
- Ingestion : Ingestion is not considered a potential route of exposure.

## 5 FIRE-FIGHTING MEASURES

Flammable class : Non flammable.  
 Specific hazards : On exposure to high temperature, may decompose, releasing toxic/flammable vapours. Gas/vapours can burn with air under very specific conditions

**5 FIRE-FIGHTING MEASURES (continued)**

<b>Hazardous combustion products</b>	: Under fire conditions, hazardous fumes will be present. Hydrogen fluoride.
<b>Extinguishing media</b>	
- Suitable extinguishing media	: All known extinguishants can be used.
<b>Specific methods</b>	: Use water stream to cool containers. Apply water spray or fog to cool nearby equipment.
<b>Special protective equipment for fire fighters</b>	: In confined space use self-contained breathing apparatus.

**6 ACCIDENTAL RELEASE MEASURES**

<b>Personal precautions</b>	: Evacuate area. Ensure adequate air ventilation. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
<b>Environmental precautions</b>	: Try to stop release. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
<b>Clean up methods</b>	: Let the substance evaporate

**7 HANDLING AND STORAGE**

<b>Personal protection</b>	: Protect eyes, face and skin from liquid splashes.
<b>Storage</b>	: Keep container below 50°C in a well ventilated place. Keep container tightly closed.
<b>Handling</b>	: Prevent any contact with hot surfaces. Keep away from heat. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.

**8 EXPOSURE CONTROLS/PERSONAL PROTECTION**

<b>Personal protection</b>	: Ensure adequate ventilation.
- Respiratory protection	: Self contained breathing apparatus, in case of emergency. In confined space use self-contained breathing apparatus.
- Hand protection	: Use insulating gloves.
- Eye protection	: Use splash goggles when eye contact due to splashing is possible.

**9 PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical state at 20 °C</b>	: Liquefied gas.
<b>Colour</b>	: Colourless.
<b>Odour</b>	: Ethereal
<b>Boiling point [°C]</b>	: -46.7
<b>Density</b>	: 1.05
<b>Vapour pressure [20°C]</b>	: 10.98 bar
<b>Solubility in water</b>	: 0.9 g/l
<b>Other data</b>	: Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

**10 STABILITY AND REACTIVITY**

<b>Hazardous decomposition products</b>	: Phosgene fluoride Hydrogen fluoride.
<b>Materials to avoid</b>	: Strong oxidizers. Metal powder. Alkaline earth metals

**11 TOXICOLOGICAL INFORMATION**

<b>Toxicity information</b>	: No known toxicological effects from this product.
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**12 ECOLOGICAL INFORMATION**

<b>Environmental precautions</b>	: Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
<b>Effect on ozone layer</b>	: None.
<b>Global warming potential [CO2=1]</b>	: Calculated GWP of mixture : 2645. 3784

**13 DISPOSAL CONSIDERATIONS**

<b>General</b>	: Do not discharge into any place where its accumulation could be dangerous. Contact supplier if guidance is required.
<b>Disposal method</b>	: Consult supplier for specific recommendations.

**14 TRANSPORT INFORMATION**

<b>UN No.</b>	: 3337
<b>H.I. nr</b>	: 20
<b>ADR/RID</b>	
<b>Proper shipping name</b>	: Refrigerant gas R404A
<b>- ADR Class</b>	: 2
<b>- ADR/RID Classification code</b>	: 2 A
<b>Labelling ADR</b>	: Label 2.2 : Non flammable, non toxic gas.
<b>Other transport information</b>	: Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers : - Ensure that containers are firmly secured. - Ensure cylinder valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted. - Ensure there is adequate ventilation. - Compliance with applicable regulations.

**15 REGULATORY INFORMATION**

<b>EC Labelling</b>	
<b>Symbol(s)</b>	: None.

**15 REGULATORY INFORMATION (continued)**

R Phrase(s) : None.  
S Phrase(s) : None.

**16 OTHER INFORMATION**

**Training advice** : Asphyxiant in high concentrations.  
Keep container in a well-ventilated place.  
Do not breathe the gas.  
The hazard of asphyxiation is often overlooked and must be stressed during operator training.  
Receptacle under pressure.  
Ensure all national/local regulations are observed.

**Note** : This Safety Data Sheet has been established in accordance with the applicable European Directives and applies to all countries that have translated the Directives in their national laws.

**DISCLAIMER OF LIABILITY** : Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.  
Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

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The contents and format of this SDS are in accordance with EC Commission Directive 2001/58/EC.

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