

**1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING**

Trade name : Freon R 134a  
 Use : Industrial.  
 Company identification : SOL SpA  
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 20052 MONZA Italia  
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**2. HAZARDS IDENTIFICATION**

Hazards identification : In high concentrations may cause asphyxiation.  
 Liquefied gas.

**3. COMPOSITION / INFORMATION ON INGREDIENTS**

Components : This product is not hazardous.

Substance name	Contents	CAS No	EC No	Annex No	Classification
1,1,1,2-Tetrafluoroethane (R 134a)	>= 99.5 %	811-97-2	212-377-0	-----	

**4. FIRST AID MEASURES**

First aid measures

- Inhalation : In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination.  
 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.
- Ingestion : Ingestion is not considered a potential route of exposure.

**5. FIRE-FIGHTING MEASURES**

Flammable class : Non flammable.  
 Specific hazards : Exposure to fire may cause containers to rupture/explode.  
 Hazardous combustion products : Thermal decomposition generates : Acido fluoridrico  
 Extinguishing media  
 - Suitable extinguishing media : All known extinguishants can be used.  
 Specific methods : If possible, stop flow of product.  
 Move away from the container and cool with water from a protected position.

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

**Special protective equipment for fire fighters** : In confined space use self-contained breathing apparatus.

**6. ACCIDENTAL RELEASE MEASURES**

**Personal precautions** : Evacuate area.  
Ensure adequate air ventilation.  
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

**Environmental precautions** : Try to stop release.  
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

**Clean up methods** : Ventilate area.

**7. HANDLING AND STORAGE**

**Personal protection** : Protect eyes, face and skin from liquid splashes.

**Storage** : Keep container below 50°C in a well ventilated place.

**Handling** : Open valve slowly to avoid pressure shock.  
Suck back of water into the container must be prevented.  
Do not allow backfeed into the container.  
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.  
Refer to supplier's container handling instructions.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**Personal protection** : Ensure adequate ventilation.

**Occupational Exposure Limits** : 1,1,1,2-Tetrafluoroethane (R 134a) : OEL (UK)-LTEL [ppm] : 1000  
1,1,1,2-Tetrafluoroethane (R 134a) : MAK (AU) Tagesmittelwert (ml/m<sup>3</sup>) : 1000  
1,1,1,2-Tetrafluoroethane (R 134a) : MAK (AU) Tagesmittelwert (mg/m<sup>3</sup>) : 4200  
1,1,1,2-Tetrafluoroethane (R 134a) : MAK (AU) Kurzzeitwerte (mg/m<sup>3</sup>) : 16800  
1,1,1,2-Tetrafluoroethane (R 134a) : MAK (AU) Kurzzeitwerte (ml/m<sup>3</sup>) : 4000

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**Physical state at 20 °C** : Liquefied gas.

**Colour** : Colourless.

**Odour** : Ethereal

**Relative density, gas (air=1)** : Heavier than air.

**Other data** : Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

**10. STABILITY AND REACTIVITY**

**Stability and reactivity** : Stable under normal conditions.

**11. TOXICOLOGICAL INFORMATION**

Toxicity information : No known toxicological effects from this product.

**12. ECOLOGICAL INFORMATION**

Environmental precautions : Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

Effect on ozone layer : None.

**13. DISPOSAL CONSIDERATIONS**

General : Do not discharge into any place where its accumulation could be dangerous.  
Contact supplier if guidance is required.

Disposal method : To definitely dispose of the cylinder, refer to manufacturer / supplier for information on recovery / recycling.

**14. TRANSPORT INFORMATION**

UN No. : 3163

H.I. nr : 20

ADR/RID

Proper shipping name : LIQUEFIED GAS, N.O.S. (1,1,1,2-Tetrafluoroethane (R 134a))

- ADR Class : 2

- ADR/RID Classification code : 2 A

Labelling ADR : 2.2

Other transport information : 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**

EC Labelling : Not classified as dangerous preparation/substance.

Symbol(s) : None.

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.

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.

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.

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