01 - IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

PRODUCT NAME: HARP® 134a / R152a blend

SUPPLIER: Harp International Limited
Gellihirion Industrial Estate
Pontypridd
Rhondda Cyon Taff
CF37 5SX
United Kingdom

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EMERGENCY TELEPHONE NUMBER: +44 (0) 1270 502891 (24 HOUR)

02 - HAZARDS IDENTIFICATION

Rapid evaporation of the liquid may cause frostbite.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing

03 - COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS No.</th>
<th>EC-No.</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2-tetrafluoroethane (R134a)</td>
<td>000811-97-2</td>
<td>212-377-0</td>
<td></td>
<td>87 +1.5 -0.5 % w/w</td>
</tr>
<tr>
<td>1,1-Difluoroethane (R152a)</td>
<td>000075-37-6</td>
<td>200-866-1</td>
<td>F+; R12</td>
<td>13 +0.5 -1.5 % w/w</td>
</tr>
</tbody>
</table>

For the full text of the R phrases mentioned in this section, see section 16.

04 - FIRST AID MEASURES

General advice: If unconscious place in recovery position and seek medical advice. Never give anything by mouth to an unconscious person. If breathing is irregular or stopped, administer artificial respiration. If symptoms persist, call a physician.

Inhalation: Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary.

Skin Contact: Wash off with warm water. Take off all contaminated clothing immediately.

Eye Contact: Rinse thoroughly with plenty of water, also under the eyelids. Consult a physician.

Note to physician: Do not give adrenaline or similar drugs
05 - FIRE-FIGHTING MEASURES

Specific hazards during fire fighting: Pressure build up.

Special protective equipment for fire-fighters: In the event of fire, wear self-contained breathing apparatus.

Further information: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Cool containers / tanks with water spray.

06 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Evacuate personnel to safe areas. Ventilate the area. Refer to protective measures listed in sections 7 and 8.

Environmental precautions: Should not be released into the environment.

Methods for cleaning up: Evaporates.

07 - HANDLING AND STORAGE

Handling

Advice on safe handling: Provide sufficient air exchange and/or exhaust in work rooms. For personal protection see section 8.

Advice on protection against fire & explosion: No special protective measures against fire required.

Storage

Requirements for storage areas & containers: Keep container tightly closed in a dry and well-ventilated place. Store in original container.

Advice on common storage: No materials to be especially mentioned.

Storage class: 2A: Compressed, liquefied or pressurised gas

08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No.</th>
<th>Type</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1,1,2-Tetrafluoroethane (R134a)</td>
<td>811-97-2</td>
<td>TWA</td>
<td>4240mg/m³</td>
<td>2005</td>
<td>EH40 OES</td>
</tr>
</tbody>
</table>

Engineering measures

Ensure adequate ventilation, especially in confined areas.
Personal protective equipment

Respiratory protection: For rescue and maintenance work in storage tanks use self-contained breathing apparatus. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.

Hand protection: Heat insulating gloves

Eye protection: Safety glasses

Hygiene measure: Handle in accordance with good industrial hygiene and safety practice.

09 - PHYSICAL AND CHEMICAL PROPERTIES

Form: liquefied gas
Colour: colourless
Odour: ether-like
Boiling point/range: -26.5 - -24.7 °C at 1013 hPa
Flash point: does not flash
Lower explosion limit: no data available
Vapour Pressure: 4490 hPa at 20°C
Vapour Pressure: 11850 hPa at 50°C
Density: 113g/cm³ at 20°C (as liquid)

10 - STABILITY AND REACTIVITY

Conditions to avoid: This product is not flammable in air under ambient conditions of temperature and pressure. When pressurised with air or oxygen the mixture may become flammable. Certain mixtures of HCFCs or HFCs with chlorine may become flammable or reactive under certain conditions.

Materials to avoid: alkali metals, alkaline earth metals, powdered metals, powdered metal salts

Hazardous Decomposition Products: hydrogen halides, carbon dioxide, carbon monoxide, fluorocarbons, carbonyl halides

11 - TOXICOLOGICAL INFORMATION

Acute inhalation toxicity
1,1,1,2-Tetrafluoroethane (R134a): LC50/4 h/rat: >2085 mg/l
1,1-Difluoroethane (R152a): LC50/2 h/rat: >5395 mg/l
LC50/2 h/mouse: 960 mg/l

Carcinogenicity assessment: Animal testing did not show any carcinogenic effects

Toxicity to reproduction assessment: Did not show mutagenic or teratogenic effects in animal experiments

Human experience: Excessive exposures may affect human health (inhalation – narcosis, severe shortness of breath, irregular cardiac activity)

Further information: Rapid evaporation of the liquid may cause frostbite
12 - ECOLOGICAL INFORMATION

Toxicity to fish  
1,1,1,2-Tetrafluoroethane (R134a): LC50/96 h/Oncorhynchus mykiss (rainbow trout): 450mg/l

Aquatic toxicity  
1,1,1,2-Tetrafluoroethane (R134a): EC50/48 h/Daphnia: 980mg/l

Further ecological information  
No data is available on the product itself

13 - DISPOSAL CONSIDERATIONS

Product:  
Can be used after re-conditioning

Contaminated packaging:  
Empty pressure vessels should be returned to the supplier

14 - TRANSPORT INFORMATION

ADR
Class:  
2
Classification code:  
2A
HI No:  
20
UN No:  
3163
Labelling No:  
2.2
Proper shipping name:  
Liquified gas, n.o.s. (Tetrafluoroethane, 1,1-Difluoroethane (R152a))

IATA_C
Class:  
2.2
UN No:  
3163
Labelling No:  
2.2
Proper shipping name:  
Liquified gas, n.o.s. (Tetrafluoroethane, 1,1-Difluoroethane (R152a))

IMDG
Class:  
2.2
UN No:  
3163
Labelling No:  
2.2
Proper shipping name:  
Liquified gas, n.o.s. (Tetrafluoroethane, 1,1-Difluoroethane (R152a))

15 - REGULATORY INFORMATION

Labelling according to EC Directives

The product does not need to be labelled in accordance with EC directives or respective national laws.

16 – OTHER INFORMATION

Text of R phrases mentioned in Section 2

R12  
Extremely flammable
This data sheet was prepared in accordance with Directive 2001/58/EC. This information contained within this safety data sheet applies only to the Harp International Limited product to which it relates. The information provided is based upon our best knowledge at the time that this safety data sheet was published. The information is believed to be accurate and is given in all good faith. When used in other preparations, in formulations or in mixtures, it is necessary to ascertain if the classification of the hazards have changed. The attention of users is drawn to the possibility of creating other hazards when the product is used for purposes other than that for which it is recommended. In such cases a complete reassessment should be made by user. This safety data sheet should only be used and reproduced in order that the necessary measures may be taken relating to the protection of health and safety at work and relating to the protection of environment. The reference to the legislative, regulatory and codes of practice documents must not be considered as exhaustive. It is the responsibility of handlers of the product to pass on the totality of the information contained within this document to any subsequent persons who will come into contact with, handle or use the product in any way. They should check the adequacy of the information contained in the safety data sheet received before passing it onto their customers.

End of document