

SAFETY DATA SHEET

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|-----------------|-----------------------------|---------------|
| Product: | HARP[®] 290 | Page: 1/5 |
| | Version: 1.0 | Date:16/11/99 |

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

| | |
|--------------|---|
| PRODUCT NAME | HARP [®] 290 (Propane) |
| SUPPLIER | Harp International Limited Gellihirion Industrial Estate Pontypridd CF37 5SX United Kingdom |
| | Telephone: +44 (0) 1443 842255 Fax: +44 (0) 1443 841805 |

EMERGENCY TELEPHONE NUMBER: +44 (0) 1865 407333 (24 HOUR)

02 - COMPOSITION/INFORMATION ON INGREDIENTS

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|--------------------------------|--|
| CHEMICAL NAME OF THE SUBSTANCE | Propane |
| CHEMICAL FORMULA | C ₃ H ₈ |
| COMPONENTS/IMPURITIES | Contains no other components/impurities that will affect the classification of this product. |
| CAS Nr. | 00074-98-6 |
| EEC NUMBER (from EINECS) | 2008279 |

03 - HAZARDS IDENTIFICATION

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| MOST IMPORTANT HAZARDS | Liquefied gas. Extremely flammable |
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04 - FIRST AID MEASURES

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| INHALATION | In high concentrations may cause asphyxiation. Symptoms may include loss of mobility and consciousness. Victim may not be aware of asphyxiation. In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination. Remove victim to well ventilated area. Keep victim warm and rested. Call for medical help. Apply artificial respiration if breathing has stopped. |
| SKIN CONTACT | Frostbite: treat as thermal burns by flushing with lukewarm water for at least 15 minutes. |
| EYE CONTACT | Wash immediately, abundantly and thoroughly with lukewarm water for at least 15 minutes. If irritation persists, consult an ophthalmologist |
| INGESTION | Not applicable |

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05 - FIRE-FIGHTING MEASURES

| | |
|----------------------------------|--|
| SPECIFIC HAZARDS | Exposure to fires may cause cylinders to rupture or explode. |
| SUITABLE EXTINGUISHING MEDIA | All known extinguishants can be used. |
| HAZARDOUS DECOMPOSITION PRODUCTS | Incomplete combustion may produce carbon monoxide. |
| OTHER INFORMATION | If possible during a fire, stop the flow of product. Move container away or cool with water spray. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. |

06 - ACCIDENTAL RELEASE MEASURES

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|---------------------------|--|
| PERSONAL PROTECTION | Wear self-contained breathing apparatus. Evacuate area. Ensure adequate air ventilation. Eliminate all sources of ignition. |
| ENVIRONMENTAL PRECAUTIONS | Try to prevent release of substance. Do not allow to enter drains or water courses or anywhere where dangerous accumulations can occur. |
| METHODS FOR CLEANING UP | Isolate spill area. Ventilate the area |

07 - HANDLING AND STORAGE

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|----------|---|
| HANDLING | Use only in well ventilated areas. Ensure that all equipment is adequately earthed. Use only correctly specified equipment which is suitable for use with the product, its supply pressure and temperature. Keep away from all sources of ignition. Separate from oxidant gases and other oxidants in storage area. |
| STORAGE | Separate from oxidant gases and other oxidants in store. Store in a dry well ventilated place away from sources of heat and direct sunlight. Do not store in ambient temperatures of more than 50°C. |

08 - EXPOSURE CONTROLS/PERSONAL PROTECTION

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| EXPOSURE LIMIT VALUE – TLV(ACGIH) | Not established. |
| EXPOSURE LIMIT VALUE FOR COUNTRY | Great Britain: LTEL:500ppm, STEL:750ppm |
| PERSNAL PROTECTION | Ensure adequate ventilation. Do not smoke |

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09 - PHYSICAL AND CHEMICAL PROPERTIES

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|--------------------------|---|
| MOLECULAR MASS | 44.1 |
| COLOUR | colourless gas |
| ODOUR | Sweetish |
| BOILING POINT | -42.1°C at atmospheric pressure |
| FREEZING POINT | -187.7°C |
| FLASH POINT | -104.0°C |
| AUTOIGNITION TEMPERATURE | 470.0°C |
| EXPLOSIVE PROPERTIES | Vapours may form explosive mixtures with air |
| FLAMMABILITY LIMITS | 2.2 to 9.5 vol. % in air |
| VAPOUR PRESSURE | (20°C): 8.36 bar |
| LIQUID DENSITY | (20°C): 500.4 kg/m ³ |
| SOLUBILITY | 75 mg/l of water |
| OTHER DATA | Gas is heavier than air. May accumulate in confined space, particularly at or below ground level. |

10 - STABILITY AND REACTIVITY

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|------------|---------------------------------------|
| STABILITY | Can form explosive mixtures with air. |
| REACTIVITY | May react violently with oxidants. |

11 - TOXICOLOGICAL INFORMATION

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|---------|---|
| GENERAL | No known toxicological effects from this product. |
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12 - ECOLOGICAL INFORMATION

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| GENERAL | No known ecological damage caused by this product. |
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13 - DISPOSAL CONSIDERATIONS

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| DISPOSAL OF PRODUCT | Do not discharge into areas where there is a risk of forming explosive mixture with air. Waste gas should be flared through a suitable burner with a flash back arrestor. Do not discharge into any place where its accumulation could be dangerous. |
| DISPOSAL OF CONTAINERS | Return all sized containers to supplier |

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14 - TRANSPORT INFORMATION

| | |
|-----------------------------|---|
| UN Nr. | 1978 |
| CLASS/DIV | 2,1 |
| ADR/RID ITEM NR. | 2,3b |
| ADR/RID HAZZARD NR. | 23 |
| LABELLING ADR | Label 3: flammable gas |
| OTHER TRANSPORT INFORMATION | Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure the 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 they are firmly secured and: - cylinder valve is closed and is not leaking - valve outlet cap nut or plug is correctly fitted - valve protection device is correctly fitted - there is adequate ventilation - there is compliance with applicable regulations |

15 - REGULATORY INFORMATION

| | |
|----------------------------------|---|
| NUMBER IN ANNEXE I OF Dir 67/548 | Material is listed in Annexe I |
| EC CLASSIFICATION | F+R12 |
| SYMBOLS | F+: Extremely flammable |
| R PHRASES | I2 |
| S PHRASES | 9-16-33 |
| LABELLING OF CYLINDERS | - |
| Symbols | Road transport symbols are used and selected according to the most stringent product classification – EC or ADR Label 3: flammable gas |
| Risk phrases | R12 Extremely flammable |
| Safety phrases | S9/16/33 Keep container in well ventilated place, away from ignition sources, including static discharge. |

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16 - OTHER INFORMATION

RECOMMENDED USES

Refrigerant

NOTE

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.

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