

# SAFETY DATA SHEET

## Refrigerant R290

Version 1.0

Revision Date: 12.06.2013



## SAFETY DATA SHEET REFRIGERANT R290

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

#### 1.1. Product Identifier

**Product name:** REFRIGERANT R290 (REFRIGERANT GRADE PROPANE)  
**EC Number:** 200-827-9  
**REACH Registration Number:**  
**CAS Number:** 74-98-6

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Use:** Refrigeration – Industrial and professional use only. Perform risk assessment prior to use.

#### 1.3. Details of the supplier of the safety data sheet

**Company name:**  
National Refrigerants Ltd.  
4 Watling Close  
Sketchley Meadows Business Park  
Hinckley LE10 3EZ  
Tel: +44(0)1455 630790  
Fax: +44(0) 1455 630791  
Email: [sds@nationalref.com](mailto:sds@nationalref.com)

#### 1.4. Emergency telephone number

Emergency Tel: +44(0) 1865 407333

### SECTION 2: HAZARDS IDENTIFICATION

#### 2.1. Classification of the substance of mixture

**Hazard Class & Category Code:** **Physical Hazards:** Flammable gases – Category 1 – Danger (H220)  
**Regulation (EC) No. 1272/2008** Gases under pressure – Liquefied gas – Warning (H280)  
**(CLP)**  
**Classification EC67/548 or** F+; R12  
**EC199/45**

#### 2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard Pictogram(s)



GHS02



GHS04

**Signal Word:** Danger

**Hazard Statements:** H220: Extremely Flammable Gas  
H280: Contains gas under pressure; may explode if heated.

#### Precautionary Statements

**Prevention:** P210: Keep away from heat/sparks/open flames/hot surfaces – No Smoking.

**Response:** P337: Leaking gas fire: Do not extinguish unless leak can be stopped Safely.  
P381: Eliminate all ignition sources if safe to do so.

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**Storage:** P403: Store in a well ventilated place.

**Directives 67/458/EEC or 1999/45/EC:**

**Symbol(s)** F+: Extremely Flammable



**R Phrases:** R12: Extremely Flammable

**S Phrases:** S9: Keep container in a well-ventilated place.  
S16: Keep away from sources of ignition.

### 2.3. Other hazards

None

## SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

### 3.1. Substances

**Hazardous Ingredients:** Propane  
**Chemical Formula** CH<sub>3</sub>-CH<sub>2</sub>-CH<sub>3</sub>

EINECS	CAS	CHIP Classification	CLP Classification	Percent
200-827-2	74-98-6	F+; R12	GHS02;GHS04 H220;H280 P210 P337;P381;P403	>97%
Contains no other components or impurities which will influence the classification of the product. Listed in Annex IV/V REACH, exempted from registration. Full text of R phrases and H & P statements see section 16.				

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

The first aid advice given for skin contact, eye contact and ingestion is applicable following exposure to the liquid or spray. Also see section 11.

**Skin contact:** Thaw affected areas with water. Remove contaminated clothing.  
Caution: Clothing may adhere to the skin in the case of freeze burns.  
After contact with skin, wash immediately with plenty of water. If irritation or blistering occurs, obtain medical attention.

**Eye contact:** Immediately irrigate with eyewash solution or clean water, holding the eyelids apart for at least 15 minutes. Obtain immediate medical attention.

**Ingestion:** Unlikely route of exposure. Do not induce vomiting. Provided the patient is conscious, wash out mouth with water and give 200 -300 ml (half a pint) water to drink. Obtain immediate medical attention.

**Inhalation:** Remove patient from exposure, keep warm and at rest. Administer oxygen if necessary. Apply artificial respiration if breathing has ceased or shows signs of failing. In the event of cardiac arrest apply external cardiac massage. Obtain immediate medical attention.

## SECTION 5: FIRE-FIGHTING MEASURES

**Specific Hazard:** Exposure to fire may cause containers to rupture/explode.

### 5.1. Extinguishing media

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**Extinguishing media:** Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire. All known extinguishing media can be used. Move away from container and cool with water from a protected position. If possible, stop flow of product.

### 5.2. Special hazards arising from the substance or mixture

**Special hazards arising from the mixture** Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire.

### 5.3. Advice for fire-fighters

**Advice for fire-fighters:** In a confined space use self-contained breathing apparatus.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures

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

### 6.2. Environmental precautions

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

### 6.3. Methods and material for containment and cleaning up

**Clean-up procedures:** Ventilate area.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

**Handling requirements:** Protect cylinders from physical damage, do not drag, roll, slide or drop. Only Experienced and/or properly trained persons should handle this product. Before using the product determine its identity by reading the label. Know and understand the properties and hazards of the product before use. Take precautionary measures against static discharge. Suck-back of water into the container must be prevented. Purge air from system before introducing gas. Do not allow back-feed into the container. Use properly specified equipment which is suitable for this product, its supply pressure and temperature. If in doubt of the correct handling procedures, contact your gas supplier. Refer to supplier's container General Safety & Handling Procedure.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage conditions:** Cylinders should be stored below 50°C in a well-ventilated place. Segregate cylinders from oxidant gases and other oxidants in store. Refer to UKLPG Code of Practice No. 7. Refer to HSG51 The Storage of Flammable Liquids in Containers. Refer to suppliers General Safety & Handling Procedure.

### 7.3. Specific end use(s)

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**Specific end use(s)** Refrigeration.

### SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

#### 8.1. Control parameters

##### Hazardous ingredients:

Workplace exposure limits Propane (CAS No. 74-98-6; EC No. 200-827-2)

State	8 hour TWA	15 min. STEL
UK	2500 ppm	-

#### 8.2. Exposure controls

**Engineering measures:** Provide natural or explosion-proof ventilation that is adequate to ensure flammable gas does not reach its lower explosive limit.

**Respiratory protection:** High Concentrations can cause rapid suffocation and are in the flammable range the area should not be entered.

**Hand protection:** Sturdy work gloves are recommended for handling cylinders.

**Eye protection:** Safety glasses recommended when using the product.

**Skin protection:** Arms and legs need to be protected from possible liquid gas contact. Safety footwear recommended when handling cylinders.

### SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1. Information on basic physical and chemical properties

**State:** Liquefied gas.  
State at 20°C: Gas

**Colour:** Colourless

**Odour:** Sweet. Poor warning properties at low concentrations.

**Boiling Point/range:** -42.1°C

**Flash Point:** Not applicable

**Auto ignition Temperature:** 470°C

**Upper/Lower explosive limit/flammability limit:** 9.5%/2.2% (V)

**Vapour pressure:** 8.3 Bar @ 20°C

**Liquid Density:** 499.85 kg/m<sup>3</sup> at 20°C

**Vapour Density:** 18.11 kg/m<sup>3</sup> at 20°C

**Water solubility:** 0.075 g/l

**Vapour Density (Air = 1)** 1.5

### SECTION 10. STABILITY AND REACTIVITY

#### 10.1. Reactivity

**Hazardous decomposition products:** None

**Incompatible materials:** Can form explosive mixture with air.  
May react violently with oxidants, air, oxidisers

**Conditions to avoid:** Keep away from heat/sparks/open flames/hot surfaces. – No Smoking

### SECTION 11: TOXICOLOGICAL INFORMATION

#### 11.1. Information on toxicological effects

Relevant effects for mixture:

No Known toxicological effects from this product

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### SECTION 12. ECOLOGICAL INFORMATION

No known ecological damage caused by this product.

### SECTION 13. DISPOSAL CONSIDERATIONS

#### 13.1. Waste treatment methods

**General:** Do not discharge into an area where product can form an explosive mixture with air. Waste gas should be flared through a suitable burner with flashback arrestor.  
Do not discharge into a place where accumulation could be dangerous. Contact supplier if guidance is necessary.

### SECTION 14. TRANSPORT INFORMATION

#### 14.1. ADR

**UN Number:** 1978  
**Proper Shipping Name:** PROPANE  
**Class/Division:** 2  
**Tunnel Code:** B/D  
**Hazard Identification Number:** 23  
**Labelling ADR:** 2.1  
**Further Information**

#### 14.2. IATA

**UN Number:** 1978  
**Proper Shipping Name:** PROPANE  
**Class/Division:** 2.1  
**Hazard Identification Number:** 23  
**Further Information**

#### 14.3. IMDG

**UN Number:** 1978  
**Proper Shipping Name:** PROPANE  
**Class/Division:** 2.1  
**Hazard Identification Number:** 23  
**EmS:** F-D; S-U

### SECTION 15. REGULATORY INFORMATION

#### 15.1. Safety, health and environment regulations/legislation specific for the substance or mixture

#### 15.2. Chemical Safety Assessment

### 16. OTHER INFORMATION

**Other information:** Ensure operators understand the flammability hazard.  
The hazard of asphyxiation is often overlooked and must be stressed during operator training.  
**R Phrases**  
R12: Extremely flammable  
**H & P Statements**  
H220: Extremely flammable gas  
H280: Contains gas under pressure; may explode if heated.  
P210: Keep away from heat/sparks/open flames/ hot surfaces – No Smoking  
P377: Leaking gas fire: Do not extinguish unless leak can be stopped safely.  
P381: Eliminate all ignition sources if safe to do so.  
R403: Store in a well-ventilated place.

This safety sheet is prepared in accordance with Commission Regulation (EU) No. 453/2010.

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\* Indicates text in SDS which has changed since the last revision.

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### GENERAL SAFETY & HANDLING DATA

#### 1. GENERAL

Only trained persons should handle compressed gases. Observe all regulations and local requirements regarding the storage of containers  
Do not remove or deface labels provided by the supplier for the identification of the container contents.  
Ascertain the identity of the gas before using it.  
Know and understand the properties and hazards associated with each gas before using it.  
When doubt exists as to the correct handling procedure for a particular gas contact the supplier.

#### HANDLING AND USE

Wear stout gloves.  
Never lift a container by the cap or guard unless the supplier states it is designed for that purpose.  
Use trolley or other suitable device or technique for transporting heavy containers, even for a short distance.  
Where necessary wear suitable eye and face protection. The choice between safety glasses, chemical goggles, or full face shield will depend on the pressure and nature of the gas being used,

Where necessary for toxic gases see that self-contained positive pressure breathing apparatus or full face airline respirator is available in the vicinity of the working area.  
Employ suitable pressure regulating device on all containers when gas is being emitted to systems with lower pressure rating than that of the container.  
Ascertain that all electrical systems in the area are suitable for service with each gas.

Never use direct flame or electrical heating devices to raise the pressure of a container, Containers should not be subjected to temperatures above 45°C.  
Never re-compress a gas mixture without consulting the supplier. Never attempt to transfer gases from one container to another.  
Do not use containers as rollers or supports, or for any other purpose other than to contain the gas as supplied.  
Never permit oil, grease or other readily combustible substances to come into contact with valves of containers containing oxygen or other oxidants.  
Keep container valves clean and free from contaminants particularly oil and water.

Do not subject containers to mechanical shocks which may cause damage to their valves or safety devices.

Never attempt to repair or modify container valves or safety relief devices. Damaged valves should be reported immediately to the supplier.  
Close the container valve whenever gas is not required even if the container is still connected to the equipment.

#### 2. STORAGE

Containers should be stored in a well-ventilated area. Some gases will require a purpose built area.  
Store containers in a location free from fire risk and away from sources of heat and ignition. Designate as a no smoking area.

Gas containers should be segregated in the storage according to the various categories.

The storage area should be kept clear and access should be restricted to authorized persons only, the area should be clearly marked as a storage area and appropriate hazard warning signs displayed (Flammable, Toxic etc.).

The amount of flammable or toxic gases should be kept to a minimum.

Flammable gases should be stored away from other combustible materials.

Containers held in storage should be periodically checked for general condition and leakage.

Containers in storage should be properly secured to prevent toppling or rolling.  
Vertical storage is recommended where the container is designed for this.  
Container valves should be tightly closed and, where appropriate, valves should be capped or plugged.  
Protect containers stored in the open against rusting and extremes of weather.  
Containers should not be stored in conditions likely to encourage corrosion.  
Store full and empty containers separately and arrange full containers so that the oldest stock is used first.

FOR FURTHER INFORMATION CONTACT YOUR NEAREST DISTRIBUTION CENTRE