


## Safety Data Sheet R290

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name : R290  
 Supplier : Alpha Refrigerants UK Limited  
 Address : Shelton Street, Covent Garden, London, United Kingdom  
 Contact : info@alpharefrigerants.co.uk  
 Website : www.alpharefrigerants.co.uk

### 2. HAZARDS IDENTIFICATION

CLASSIFICATION : H220 - Flammable Gas; H280 - Compressed Gas

HAZARD PICTOGRAM : 

SIGNAL WORD : Danger

HAZARD STATEMENT : H220 - Extremely Flammable Gas;  
 H280 - Contain gas under pressure, may explode if heated

SYMBOL : Flames, Gas Cylinder

PRECAUTIONARY STATEMENT : P210 – Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. 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  
 P403 – Protect from sunlight. Store in a well-ventilated place.

OTHER HAZARDS : Contact with liquid may cause cold burns/frostbite.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	REACH Registration	EEC No.	% (w/w)	Classification according to 1272/2008 [CLP]
Propane (R290)	74-98-6	01-2119486944-21	200-827-9	100%	Flam. Gas 1: H220 Compressed gas: H280

### 4. FIRST AID MEASURES

**EYES:** Immediately flush with plenty of water. Get medical attention if irritation persists.

**SKIN:** Flush exposed skin with lukewarm water (not hot), or use other means to warm skin slowly. Get medical attention if frostbitten by liquid or if irritation occurs.

**SWALLOWED:** Not applicable - product is a gas at ambient temperatures.

**INHALED:** In high concentrations, may cause asphyxiation. Symptoms may include loss of mobility/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.

## 5. FIRE FIGHTING MEASURES

### 5.1 Extinguishing Media:

Carbon dioxide. Dry powder. Water fog. Use water spray or fog to control fire fumes. Do not use a solid water stream.

### 5.2 Special hazards arising from the Substance or Mixture:

Exposure to fire may cause containers to rupture/explode. Incomplete combustion may form carbon monoxide.

### 5.3 Advice for Fire Fighters:

Stop leak if safe to do so. Do not extinguish flames at leak because possibility of uncontrolled explosive re-ignition exists. Continue water spray from protected position until container stays cool. Use extinguishants to contain the fire. Isolate the source of the fire or let it burn out. Use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots and in enclosed spaces, self-contained breathing apparatus.

## 6. ACCIDENTAL RELEASE MEASURES

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

Consider the risk of potentially explosive atmospheres. Evacuate personnel to a safe area. Ensure adequate ventilation of the working area. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Eliminate all sources of ignition. Vapours are heavier than air. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

### 6.2 Environmental precautions :

Prevent further leakage or spillage if safe to do so. Prevent spillage entering a sewer or watercourse, contaminating soil or vegetation. If this is not possible, notify police and appropriate authorities immediately.

### 6.3 Methods and materials for containment and cleaning up :

Ventilate the area. Allow to evaporate. Keep area free from ignition sources until any spilled material has evaporated (ground free from frost).

## 7. HANDLING STORAGE

### 7.1 Precautions for Safe Handling

Only experienced and properly instructed persons should handle gases under pressure. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Take precautionary measures against static discharges. Ensure equipment is adequately earthed. Purge air from system before introducing gas. Assess the risk of potentially explosive atmosphere and the need for explosion-proof equipment. Protect containers from physical damage. Do not drag, roll, slide or drop. Never attempt to repair or modify container valves or safety relief devices. Close container valves after each use and when empty, even if still connected to equipment. Never use direct flame or electrical heating devices to raise the pressure of a container. Do not allow back-feed into the container. Avoid suck back of water

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

Segregate from oxidant gases and other oxidants in store. Keep container below 52°C. Keep container in a well-ventilated place. Keep away from sources of ignition – no smoking. Keep away from combustible material. All equipment in storage areas should be compatible with the risk of potentially explosive atmospheres.

## 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

<b>Engineering Controls</b>	:	Consider work permit system e.g. for maintenance activities. Ensure adequate ventilation of the working area. Product to be handled in a closed system. Systems under pressure should be regularly checked for leaks. Gas detectors should be used when quantities of flammable gases or vapours may be released.
<b>Personal Protective Equipment</b>		
Eye and Face Protection	:	Safety eyewear, goggles or face-shield to EN166 should be used to avoid exposure to liquid splashes
Skin protection	:	Protective gloves against cold to EN511. Safety footwear to ISO 20345. Wear flame resistant/retardant clothing. Take precautionary measures against static discharges.
Respiratory Protection	:	In an emergency (e.g.: unintentional release of the substance, exceeding the occupational exposure limit value) respiratory protection must be worn. Consider the maximum period for wear. Wear self- contained breathing apparatus.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Liquefied gas.
Colour	:	Clear, colorless
Odour	:	Sweetish.
pH	:	Not applicable
Melting point	:	-185.90 °C
Boiling point	:	-41.80 °C
Flammability	:	1.7% (V) – 10.8% (V)
Vapour Density	:	1.60 (air = 1)
Vapour pressure	:	8.3 bar (20 °C)
Partition coefficient (n -octanol/water)	:	1.09 log Pow
Solubility in water	:	0.0244 g/liter
Flash point	:	-104°C (-155°F)
Critical Temperature	:	97 °C
Critical Pressure	:	Not available
Decomposition temperature	:	No data available.
Auto Flammability	:	470°C
Viscosity (dynamic)	:	Not applicable
GWP	:	3
ODP	:	Non-Ozone Depleting
Molecular Weight	:	44.11 (g/mol)

## 10. STABILITY AND REACTIVITY

**REACTIVITY:** Stable under normal conditions

**CHEMICAL STABILITY:** Stable under normal conditions.

**POSSIBILITY OF HAZARDOUS REACTIONS:** Can form a potentially explosive atmosphere in air. May react violently with oxidants.

**CONDITIONS TO AVOID:** Keep away from heat and sources of ignition. Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

**INCOMPATIBLE MATERIALS:** Air and Oxidisers

**HAZARDOUS DECOMPOSITION PRODUCT:** Under normal conditions of storage and use, hazardous decomposition products should not be produced

## 11. TOXICOLOGICAL INFORMATION

**IDLH:** 2100 ppm

**Chronic effects on humans:** Causes damage to the following organs - the nervous system.

**Acute toxic effects on humans:** No specific information is available in our database regarding the other toxic effects of this material for humans.

## 12. ECOLOGICAL INFORMATION

**DEGRADABILITY (BOD):**

**Products of degradation:** These products are carbon oxides (CO,CO<sub>2</sub>) and water.

**Toxicity of the products of biodegradation:** The product itself and its products of degradation are not toxic.

**Environmental fate:** Not available

**Environmental hazards:** No known significant effects or critical hazards.

**Toxicity to the environment:** Not available.

## 13. DISPOSAL CONSIDERATIONS

**WASTE DISPOSAL METHOD:**

Do not discharge into any place where its accumulation could be dangerous. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor. Dispose of in accordance with all local and national regulations. Dispose of container via supplier only.

## 14. TRANSPORTATION INFORMATION

Hazard pictograms	:	
UN number	:	UN 1978
UN proper shipping name	:	PROPANE (REFRIGERANT GAS R290)

### ADR/RID

Class	:	2
Labels	:	2.1
Hazard No. (ADR)	:	23
Tunnel category	:	(B/D)
Emergency action code	:	2YE

### IMDG

Class	:	2.1
EmS No.	:	F-D, S-U

### IATA

Class	:	2.1
Packing instruction	:	-
Packing group	:	P200

## 15. REGULATORY INFORMATION

REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.

## 16. OTHER INFORMATION

### Text of Hazard Statements in Section 2

H280: Contains gas under pressure; may explode if heated.

H220: Extremely flammable gas

Reference Materials - HSE publication EH40/2005 Workplace exposure limits (latest edition)

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