

SAFETY DATA SHEET

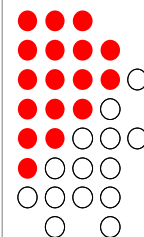
according to Regulation (EC) 1907/2006 and Regulation (EC) 2015/830

R290

Issue date: 28.02.2013

Revision: 24.06.2019.

Version: 4.00



SECTION 1: Identification of the substance/mixture and of the company/ undertaking

1.1. Product identifier

Product name:	R290
Substance/Mixture:	Substance
REACH registration name:	Propane
REACH registration number:	01-2119486944-21
EC-number:	200-827-9
CAS-number:	74-98-6

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

Identified use: Refrigerant gas.

1.3. Details of the supplier of the safety data sheet

Producer/Supplier:	Frigostar Refrigerants Kft.
Address:	H-6763 Szatymaz Kossuth u. 12.
Phone:	+36-62-283-481
Fax:	+36-62-583-550
E-mail:	info@vrec-co.hu

1.4. Emergency telephone number:

Austria tel.: +431 406 43 43, Belgium tel.: 070/245.245, Bulgaria tel.: +359 2 9154 409, Czech Republic tel.: +420 224 919 293, +420 224 915 402, Denmark tel.: 82 12 12 12, Estonia tel.: 112, Finland tel.: (09) 471 977 (direct) or (09) 4711 (exchange), France tel.: ORFILA (INRS) : + 33 (0)1 45 42 59 59, Ireland tel.: 01 809 2166, Lithuania tel.: +370 5 236 20 52, +370 687 53378, Malta tel.: 2545 0000, Medicines & Poisons Info Office tel.: 2545 6504, Norway tel.: 22 59 13 00, Portugal tel.: 808 250 143, Romania tel.: 021.318.36.06 (8:00 - 15:00), Slovakia tel.: +421 2 5477 4166, Spain tel.: + 34 91 562 04 20, Sweden tel.: 112; 08-331231 (9:00-17:00).

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture:

Regulation EC 1272/2008 (CLP):

Physical hazards :	Flammable gases - Category 1 - Danger (H220)
	Gases under pressure - Liquefied gas - Warning (H280)

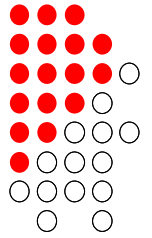
See H-statements in section 2.2 and 16.

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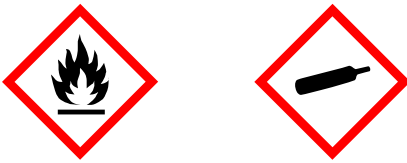
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2.2. Label elements

Regulation (EC) No 1272/2008:

Pictograms:



Signal word:

Danger

Hazard statements:

- | | |
|------|---|
| H220 | Extremely flammable gas. |
| H280 | Contains gas under pressure; may explode if heated. |

Precautionary statements, storage:

- | | |
|-----------|--|
| P102 | Keep out of reach of children. |
| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P211 | Do not spray on an open flame or other ignition source. |
| P251 | Do not pierce or burn, even after use. |
| P377 | Leaking gas fire: Do not extinguish, unless leak can be stopped safely. |
| P381 | Eliminate all ignition sources if safe to do so. |
| P410+P412 | Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122°F. |

Propane; EU-number: 200-827-9; CAS-number: 74-98-6; Index-number: 601-003-00-5.

2.3. Other hazards

Physical hazards:

Liquified gas.
The PBT-, and vPvB-assessment see in section 12.

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SECTION 3: Composition/information on ingredients

3.1. Substances

Components	EU-number	REACH number	CAS-number	Index-number	Weight %	Classification (Regulation (EC) No 1272/2008)
Propane	200-827-9	01-2119486944-21	74-98-6	601-003-00-5	100	Flam. Gas 1, H220 Press. Gas

H-statements see in section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

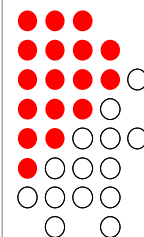
Medical intervention:	Call physician in case of asphyxiation, frostbite or burn.
Inhalation:	Victim may not be aware of asphyxiation. Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rest. Call a physician. Apply artificial respiration if breathing stopped.
Ingestion:	Ingestion is not considered a potential route of exposure.
Skin contact:	In case of frostbite spray with water for at least 15 minutes. Apply a sterile bandage. Do not scrub the frozen surface. Obtain medical assistance.
– Frostbite	
– Burn	For liquid spillage - flush with water for at least 15 minutes.
Eye contact:	Immediately flush eyes thoroughly with water for at least 15 minutes. Obtain medical assistance.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation:	In low concentration: narcotic effects. In high concentration: may cause asphyxiation. Symptoms may include loss of mobility/consciousness.
Ingestion:	Ingestion is not considered a potential route of exposure.
Skin contact:	Frostbite causes by the liquid state.
Eye contact:	Frostbite causes by the liquid state.
Delayed effects:	Not expected.
General:	May produce irregular heart beat and nervous symptoms.

4.3. Indication of any immediate medical attention and special treatment needed

Advice for physician:	Symptomatic treatment is recommended .
Special equipments at the workplace:	Not necessary.

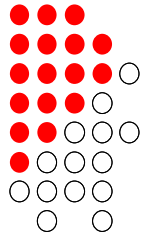


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SECTION 5: Firefighting measures

5.1. Extinguishing media

Applicable extinguishing media All known extinguishants can be used.

Not applicable extinguishing media High-pressure water jet.

5.2. Special hazards arising from the substance or mixture

Specific risk: Exposure to fire may cause containers to rupture/explode.
If involved in a fire the following toxic fumes may be produced by thermal decomposition: carbon monoxide, carbon dioxide.

5.3. Advice for firefighters

Special protective equipment: Respiratory protective devices. (EN 14593-1), protective clothing against liquid chemicals (EN 14605).

Advice: If possible, stop flow of product.
Move away from the container and cool with water from a protected position.
The container may explode if heated. Do not apply high-pressure waterjet to cool the containers.
Use self-contained breathing apparatus and chemically protective clothing.

Fire classification: F+, R12. Extremely flammable.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal emergency procedures: Evacuate the area.
Wear a self-contained breathing apparatus (EN 14593) when entering the area unless atmosphere is proved to be safe. The affected area in the direction of the wind and other personnel carrying out damage control does not stay! The evacuation of persons facing the wind to be performed.
Ensure adequate air ventilation.

6.2. Environmental precautions

Environmental precautions: Try to stop release if it is possible safely. Land of the danger area should be closed. High safety zone must be established.
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Have to call the fire department.

6.3. Methods and material for containment and cleaning up

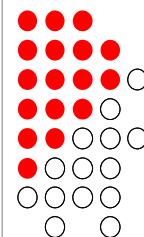
Methods for cleaning up: Ventilate area.

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6.4. Reference to other sections

Personal protective equipment: See the Section 8.
Waste management: See the Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Recommendations for safe handling: This product should be used by properly trained person!
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. (See more: section 8.)

Fire and explosion protection: Do not smoke while working, any action to avoid the use of tools, which can cause sparks! In order to avoid electrostatic charging equipment must be grounded in the explosive region, adequate security can only speed electrical devices and equipment used.

Hygiene standards: The people in contact with product should be maintained the workplace hygiene standards. After the treatment of the product at breaks, before eating, after work the hot hand and face washing is necessary.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures / Storage conditions: Can only be stored in a closed system, should be checked regularly for tightness. Store only in the original packaging. Tightly closed. Protect from sunlight and sources of heat. The bottles, containers are stored in an upright position, so as to prevent any contact with the liquid phase from the gas phase designed parts. Do not allow the temperature to rise above 50 ° C. After use, close the air outlet of the valve.

Incompatible materials: Can form explosive mixture with air. May react violently with oxidants. (Air, Oxidiser.)

7.3. Specific end use(s)

Special uses: None.

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

	CAS-NUMBER	Limit value, Eight hours (mg/m ³)	Limit value, Short term (mg/m ³)	Country
Propane	74-98-6	1800	3600	Austria
		1000	-	Belgium
		1800	3600	Denmark
		1800	7200	Germany (AGS)
		1800	7200	Germany (DFG)
		1800	-	Poland
		1000 (ppm)	-	Spain
		1800	7200	Switzerland

8.2. Exposure controls

Engineering measures:

Do not inhale the gas! Avoid contact with liquefied gas with eyes or skin! Provide adequate ventilation! Only in closed, leak-proof network. No smoking, open flames and ignition sources related activities are prohibited!

Hygiene standards:

The people in contact with product should be maintained the workplace hygiene standards. After the treatment of the product at breaks, before eating, after work the hot hand and face washing is necessary.

Personal protective equipment

Eye and face protection:

Safety glasses with side-shields (EN 166) or face shield recommended to wear.

Skin protection

Hand protection:

Avoid hand contact. Proper contact is recommended to wear gloves to protect against cold (EN 511).

Other:

Long-sleeved clothing and anti-static anti-static footwear (EN ISO 20345) must be wear.

Inhalation protection:

In gas leak case, to wear compressed air breathing apparatus (EN 14593) is recommended.

Environmental exposure controls

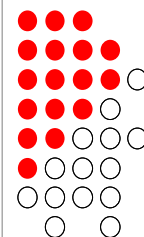
Environmental exposure control : Not necessary.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical condition (20°C):

Gas

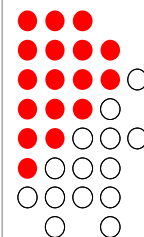


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Colour: Colourless
Odour: Sweetish. Stenchant often added.

Properties**Value**

pH (20°C): No information.
Melting point / Freezing point: -188 °C
Initial boiling point and boiling range: -42,1 °C
Fire point: No information.
Evaporating rate: No information.
Flammability: Extremely flammable.
Upper / lower flammability or explosive limits
– lower explosive limit: 1,7 %
– upper explosive limit: 9,5 %
Vapor Pressure (20°C): 8,3 bar
Vapor density:
Relative density, gas: 1,5 (air=1)
Relative density, liquified gas: 0,58 (water=1)
Solubility
– Water: 75 mg/l
– Organic solvents: No information.
Partition coefficient: n-octanol/water: No information.
Auto-ignition temperature: 470°C
Decomposition temperature: No information.
Kinematic viscosity: No information.
Explosive properties: No information.
Oxidizing properties: No information.

9.2. Other information

None.

SECTION 10: Stability and reactivity**10.1. Reactivity**

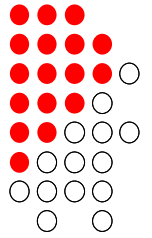
Reactivity: No specific reactivity other than those specified under section 10.5.

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10.2. Chemical stability

Stability: Stable in the recommended storage conditions.
Liquefied, flammable gas. With the rapid decreasing of the pressure large amounts of cold fog and explosive mixtures are formed. May form explosive mixture with air.

10.3. Possibility of hazardous reactions

Hazardous reactions: There are no under normal conditions of use.

10.4. Conditions to avoid

Situations to avoid Ignition sources, naked flames, sparks, statical discharge, leaks.

10.5. Incompatible materials

Materials to avoid: Can form explosive mixture with air. May react violently with oxidants.

10.6. Hazardous decomposition products

Hazardous decomposition products: Thermal decomposition: carbon monoxide, carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity:

Acute toxicity:

- Skin: Frostbite/burn caused by the liquid state.
- Eyes: Frostbite/burn caused by the liquid state.
- Inhalation: In low concentration: narcotic effects.
In high concentration: may cause asphyxiation. Symptoms may include loss of mobility/consciousness.
- Ingestion: Ingestion is not considered a potential route of exposure.

Corrosion/irritation:

Skin corrosion/irritation: Not irritative.

Serious eye damage/irritation: Not irritative.

Respiratory or skin sensitisation: Not sensitising.

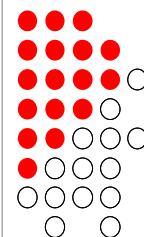
Germ cell mutagenicity: Not mutagenic.

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Carcinogenicity:	Not carcinogenic.
Reproductive toxicity:	No information.
STOT-single exposure:	No information.
STOT-repeated exposure:	No information.
Aspiration hazard:	No information.

SECTION 12: Ecological information**12.1. Toxicity**

General informations: No information.

12.2. Persistence and degradability

General informations: No information.

12.3. Bioaccumulative potential

General informations: No information.

log P_{ow} No information.**12.4. Mobility in soil**

- Air: No information.
- Water: No information.
- Soil: No information.

12.5. Results of PBT and vPvB assessment

No information.

12.6. Other adverse effects

None.

SECTION 13: Disposal considerations**13.1. Waste treatment methods**

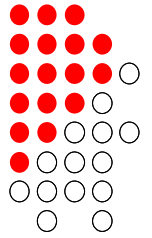
Should not be released into the environment. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

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Material:

Avoid discharge to atmosphere.

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used. Render harmless by incineration.

Contaminated packaging:

Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14: Transport information

14.1. UN-number

	In small gas cartridges	In cylinders
UN-number:	UN2037	UN1978

14.2. UN proper shipping name

International transport:	RECEPTACLES, SMALL, CONTAINING GAS (GAS CARTRIDGES)	PROPANE
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14.3. Transport hazard class(es)

Classification code:	5F	2F
Labels:	2.1	2.1

14.4. Packing group

None.	None.
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14.5. Environmental hazards

ADR/RID	None.	None.
IMDG	None.	None.
ADN	None.	None.

14.6. Special precautions for user

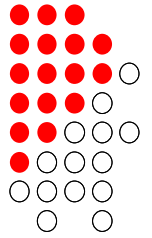
ADR/RID	Transport category: 2 Tunnel restriction code: (D) Hazard identification No.: – Limited quantities: 1 L Excepted quantities: E0 Special provision(s): CV9 CV12 S2	Transport category: 2 Tunnel restriction code: (B/D) Hazard identification No.: 23 Limited quantities: 0 Special provision(s): CV9 CV10 CV36 S2 S20
IMDG	EMS Code: F-D, S-U Stowage category: Category B SW2	EMS Code: F-D, S-U Stowage category: Category E SW2

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Properties and notices: Normally contain mixtures of liquefied butane and propane in various proportions for use in camping stoves, etc.

Properties and notes: Flammable hydrocarbon gas. Explosive limits: 2.3% to 9.5%. Heavier than air (1.56).

ICAO

Limited quantity: 1 KG (Y203)
Passanger and Cargo Aircraft: 1 KG (203)
Cargo Aircraft only: 15 kg (203)

Limited quacity: forbidden
Passanger and Cargo Aircraft: forbidden
Cargo Aircraft only: 150 kg (200)

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.

Not applicable.

SECTION 15: Regulatory information

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

- 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
- COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
- Regulation (EC) No 2037/2000 of the European Parliament and of the Council of 29 June 2000 on substances that deplete the ozone layer.
- DIRECTIVE 2012/18/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC
Hazard categories in accordance with Regulation (EC) No 1272/2008: P5.c
Qualifying quantity (tonnes) lower-tier requirements: 5000
Qualifying quantity (tonnes) upper-tier requirements: 50000

15.2. Chemical safety assessment

No information.

SECTION 16: Other information

The full H-statements from the Section 2. and 3. :

H220 Extremely flammable gas.

H280 Contains gas under pressure; may explode if heated .

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Changes:

Section 14.

Used evaluation of hazard information:

According to Regulation (EC) 1272/2008 Article 9 for the classification used paragraph 1. and 5.

This safety data sheet serves to complete but not to replace the technical product sheets. The information contained herein is given in good faith and is accurate to the best of knowledge at the date indicated above. It is understood by the user that any use of the product for purposes other than those for which it was designed entails potential risk. The information given herein in no way dispenses the user from knowing and applying all provisions regulating his activity. The user bears sole liability for the precautions required when using the product. The regulatory texts indicated herein are intended to aid the user to fulfill his obligations. This list is not to be considered complete and exhaustive. It is the user's responsibility to ensure that he is subject to no other obligations than those mentioned.

End of safety data sheet.

