

SAFETY DATA SHEET



Preconditioner Unit_temperature -80C

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

This product is considered an article. This Safety Data Sheet is written based on the encapsulated substance or mixture in this article.

1.1 Product identifier

Product name	: Preconditioner Unit_temperature -80C
Part No. (Kit)	: 192268100, 192264200, 190193504, 190193505, 190193507, X192268100, X192264200, X190193504, X190193505, X190193506, X190193507, X192268100-DEF, X192264200-DEF, X190193504-DEF, X190193505-DEF, X190193506-DEF, X190193507-DEF
Part No.	: <input checked="" type="checkbox"/> R1150 ETHYLENE Not available. Refrigerant R1270 - PROPYLENE Not available. R290 PROPANE Not available.

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

Identified uses	
Analytical chemistry.	
<input checked="" type="checkbox"/> R1150 ETHYLENE	0.98 oz (in hermetic refrigeration system)
Refrigerant R1270 - PROPYLENE	0.83 oz (in hermetic refrigeration system)
R290 PROPANE	0.98 oz (in hermetic refrigeration system)

1.3 Details of the supplier of the safety data sheet

Agilent Technologies Manufacturing GmbH & Co. KG
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000

e-mail address of person responsible for this SDS : pdl-msds_author@agilent.com

1.4 Emergency telephone number

Emergency telephone number (with hours of operation) : CHEMTREC®: +(44)-870-8200418

SECTION 2: Hazards identification

This article, when used under reasonable conditions and in accordance with the directions for use, should not present a health hazard. The substance or mixture is encapsulated in the article. Only if released due to use or processing of the article in a manner not in accordance with the product's directions for use it may present potential health and safety hazards.

2.1 Classification of the substance or mixture

Product definition	: <input checked="" type="checkbox"/> R1150 ETHYLENE	Mono-constituent substance (encapsulated in article)
	Refrigerant R1270 - PROPYLENE	Mono-constituent substance (encapsulated in article)
	R290 PROPANE	Mono-constituent substance (encapsulated in article)

[Classification according to Regulation \(EC\) No. 1272/2008 \[CLP/GHS\]](#)

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SECTION 2: Hazards identification

R1150 ETHYLENE

H220 FLAMMABLE GASES - Category 1
 H280 GASES UNDER PRESSURE - Compressed gas
 H336 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Narcotic effects) - Category 3

Refrigerant R1270 - PROPYLENE

H220 FLAMMABLE GASES - Category 1
 H280 GASES UNDER PRESSURE - Compressed gas

R290 PROPANE

H220 FLAMMABLE GASES - Category 1
 H280 GASES UNDER PRESSURE - Compressed gas

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms

: R1150 ETHYLENE



Refrigerant R1270 - PROPYLENE



R290 PROPANE



Signal word

: R1150 ETHYLENE
 Refrigerant R1270 - PROPYLENE
 R290 PROPANE

Danger
 Danger

Danger

Hazard statements

: R1150 ETHYLENE

H220 - Extremely flammable gas.
 H280 - Contains gas under pressure; may explode if heated.
 H336 - May cause drowsiness or dizziness.

Refrigerant R1270 - PROPYLENE

H220 - Extremely flammable gas.

R290 PROPANE

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

Precautionary statements

Prevention

: R1150 ETHYLENE

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P271 - Use only outdoors or in a well-ventilated area.

P261 - Avoid breathing gas.

Refrigerant R1270 - PROPYLENE







P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

R290 PROPANE


P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

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SECTION 2: Hazards identification


Response	:  1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	P304 + P340 + P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 - In case of leakage, eliminate all ignition sources. P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely. P381 - In case of leakage, eliminate all ignition sources.
Storage	:  1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	P410 - Protect from sunlight. P410 - Protect from sunlight. P410 - Protect from sunlight.
Disposal	:  1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. Not applicable. Not applicable.
Supplemental label elements	:  1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Not applicable. Not applicable. Not applicable.
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	:  1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Not applicable. Not applicable. Not applicable.
<u>Special packaging requirements</u>		
Tactile warning of danger	:  1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Not applicable. Not applicable. Not applicable.

2.3 Other hazards

Other hazards which do not result in classification	:  1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Acts as a simple asphyxiant. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen. Acts as a simple asphyxiant. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen. Acts as a simple asphyxiant. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
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SECTION 3: Composition/information on ingredients

This article, when used under reasonable conditions and in accordance with the directions for use, should not present a health hazard. The substance or mixture is encapsulated in the article. Only if released due to use or processing of the article in a manner not in accordance with the product's directions for use it may present potential health and safety hazards.

3.1 Substances	:  1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Mono-constituent substance (encapsulated in article) Mono-constituent substance (encapsulated in article) Mono-constituent substance (encapsulated in article)
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SECTION 3: Composition/information on ingredients

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
R1150 ETHYLENE Ethylene	EC: 200-815-3 CAS: 74-85-1 Index: 601-010-00-3	100	Flam. Gas 1, H220 Press. Gas (Comp.), H280 STOT SE 3, H336	[A]
Refrigerant R1270 - PROPYLENE Propylene	EC: 204-062-1 CAS: 115-07-1 Index: 601-011-00-9	100	Flam. Gas 1, H220 Press. Gas (Comp.), H280	[A]
R290 PROPANE Propane	EC: 200-827-9 CAS: 74-98-6	100	Flam. Gas 1, H220 Press. Gas (Comp.), H280 See Section 16 for the full text of the H statements declared above.	[A]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy
- Substance
 - [A] Constituent
 - [B] Impurity
 - [C] Stabilising additive

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	: <input checked="" type="checkbox"/> R1150 ETHYLENE	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
	Refrigerant R1270 - PROPYLENE	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
	R290 PROPANE	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
Inhalation	: <input checked="" type="checkbox"/> R1150 ETHYLENE	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a

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SECTION 4: First aid measures

	Refrigerant R1270 - PROPYLENE	collar, tie, belt or waistband. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	R290 PROPANE	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Skin contact	: R1150 ETHYLENE	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	Refrigerant R1270 - PROPYLENE	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	R290 PROPANE	Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	As this product is a gas, refer to the inhalation section. As this product is a gas, refer to the inhalation section. As this product is a gas, refer to the inhalation section.
Protection of first-aiders	: R1150 ETHYLENE	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	Refrigerant R1270 - PROPYLENE	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	R290 PROPANE	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are

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SECTION 4: First aid measures

still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact	: F1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Contact with rapidly expanding gas may cause burns or frostbite.
		Contact with rapidly expanding gas may cause burns or frostbite.
		Contact with rapidly expanding gas may cause burns or frostbite.
Inhalation	: F1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
		At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
		At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
Skin contact	: F1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Contact with rapidly expanding gas may cause burns or frostbite.
		Contact with rapidly expanding gas may cause burns or frostbite.
		Contact with rapidly expanding gas may cause burns or frostbite.
Ingestion	: F1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Can cause central nervous system (CNS) depression. As this product is a gas, refer to the inhalation section.
		As this product is a gas, refer to the inhalation section.
		As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact	: F1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	No specific data.
		No specific data.
		No specific data.
Inhalation	: F1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness
		No specific data.
		No specific data.
Skin contact	: F1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	No specific data.
		No specific data.
		No specific data.
Ingestion	: F1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	No specific data.
		No specific data.
		No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

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SECTION 4: First aid measures

Notes to physician	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	No specific treatment. No specific treatment. No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	None known. None known. None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.
Hazardous combustion products	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Decomposition products may include the following materials: carbon dioxide carbon monoxide Decomposition products may include the following materials: carbon dioxide carbon monoxide Decomposition products may include the following materials: carbon dioxide carbon monoxide

5.3 Advice for firefighters

Special precautions for fire-fighters	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
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SECTION 5: Firefighting measures

Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

R290 PROPANE

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters

: R1150 ETHYLENE

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

Refrigerant R1270 - PROPYLENE

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

R290 PROPANE

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

: R1150 ETHYLENE

Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Refrigerant R1270 - PROPYLENE

Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

R290 PROPANE

Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas.

Date of issue/Date of revision

: 01/09/2017

8/21

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SECTION 6: Accidental release measures

For emergency responders

: R1150 ETHYLENE

Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Refrigerant R1270 - PROPYLENE

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

R290 PROPANE

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

: R1150 ETHYLENE

Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Refrigerant R1270 - PROPYLENE

Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

R290 PROPANE

Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : R1150 ETHYLENE

Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Refrigerant R1270 - PROPYLENE

Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

R290 PROPANE

Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

6.4 Reference to other sections

: See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures : R1150 ETHYLENE

Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition

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SECTION 7: Handling and storage

	Refrigerant R1270 - PROPYLENE	source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container.
	R290 PROPANE	Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container.
Advice on general occupational hygiene	: R1150 ETHYLENE	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
	Refrigerant R1270 - PROPYLENE	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
	R290 PROPANE	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Storage	: R1150 ETHYLENE	Do not store above the following temperature: 52°C (125.6°F). Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.
	Refrigerant R1270 - PROPYLENE	Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

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SECTION 7: Handling and storage

R290 PROPANE

Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Seveso Directive - Reporting thresholds (in tonnes)

Named substances

Name	Notification and MAPP threshold	Safety report threshold
R290 PROPANE Liquefied flammable gases, Category 1 or 2 (including LPG) and natural gas	50	200

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
R1150 ETHYLENE P2: Flammable gases	10	50
Refrigerant R1270 - PROPYLENE P2: Flammable gases	10	50

7.3 Specific end use(s)

Recommendations	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.
Industrial sector specific solutions	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Not applicable. Not applicable. Not applicable.

SECTION 8: Exposure controls/personal protection

Since the hazardous ingredient in this article is encapsulated, the risk of exposure by inhalation, ingestion, skin contact and eyes contact is minimum.

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

No DNELs/DMELs available.

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SECTION 8: Exposure controls/personal protection

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state : R1150 ETHYLENE Gas.
Refrigerant R1270 - Gas.
PROPYLENE
R290 PROPANE Gas.

Colour : R1150 ETHYLENE Colourless.
Refrigerant R1270 - Colourless.
PROPYLENE
R290 PROPANE Colourless.

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SECTION 9: Physical and chemical properties

Odour	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Musty Faint odour. Faint odour.
Odour threshold	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Not available. Not available. Not available.
pH	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Not available. Not available. Not available.
Melting point/freezing point	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	-169.4°C -185.25°C -185.89°C
Initial boiling point and boiling range	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	-103.68°C -47°C -41.79°C
Flash point	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Closed cup: -136°C Closed cup: -108°C Closed cup: -104°C
Evaporation rate	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Not available. Not available. Not available.
Flammability (solid, gas)	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Not available. Not available. Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and oxidizing materials.
Upper/lower flammability or explosive limits	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Lower: 2.7% Upper: 36% Lower: 2.4% Upper: 11% Lower: 2.1% Upper: 9.5%
Vapour pressure	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	>101.3 kPa [room temperature] 1043.6 kPa [room temperature] 840 kPa [room temperature]
Vapour density	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Not available. 1.5 [Air = 1] 1.6 [Air = 1]
Relative density	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	0.978 [Air = 1] 0.5 0.5

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SECTION 9: Physical and chemical properties

Solubility(ies)	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Insoluble in the following materials: cold water and hot water. Insoluble in the following materials: cold water and hot water. Insoluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Not available. Not available. 1.09
Auto-ignition temperature	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	490°C 455°C 449.85°C
Decomposition temperature	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Not available. Not available. >650°C
Viscosity	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Not available. Not available. Not available.
Explosive properties	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Explosive in the presence of the following materials or conditions: heat. Not available. Explosive in the presence of the following materials or conditions: oxidizing materials.
Oxidising properties	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Not available. Not available. Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	The product is stable. The product is stable. The product is stable.
10.3 Possibility of hazardous reactions	: <input checked="" type="checkbox"/> 1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.

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SECTION 10: Stability and reactivity

10.4 Conditions to avoid	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow gas to accumulate in low or confined areas. Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow gas to accumulate in low or confined areas. Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow gas to accumulate in low or confined areas.
10.5 Incompatible materials	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials.
10.6 Hazardous decomposition products	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Not available.

Acute toxicity estimates

Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
R1150 ETHYLENE Ethylene	Category 3	Not applicable.	Narcotic effects

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure : R1150 ETHYLENE
Refrigerant R1270 - PROPYLENE
R290 PROPANE

Routes of entry anticipated: Inhalation.
Routes of entry anticipated: Inhalation.

Routes of entry anticipated: Inhalation.

Potential acute health effects

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SECTION 11: Toxicological information

Inhalation	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
Ingestion	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Can cause central nervous system (CNS) depression. As this product is a gas, refer to the inhalation section. As this product is a gas, refer to the inhalation section. As this product is a gas, refer to the inhalation section.
Skin contact	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Contact with rapidly expanding gas may cause burns or frostbite. Contact with rapidly expanding gas may cause burns or frostbite. Contact with rapidly expanding gas may cause burns or frostbite.
Eye contact	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Contact with rapidly expanding gas may cause burns or frostbite. Contact with rapidly expanding gas may cause burns or frostbite. Contact with rapidly expanding gas may cause burns or frostbite.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness No specific data.
Ingestion	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	No specific data. No specific data. No specific data.
Skin contact	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	No specific data. No specific data. No specific data.
Eye contact	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	No specific data. No specific data. No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

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SECTION 11: Toxicological information

Potential delayed effects : Not available.

Potential chronic health effects

General	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	No known significant effects or critical hazards. No known significant effects or critical hazards.
Carcinogenicity	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	No known significant effects or critical hazards. No known significant effects or critical hazards.
Teratogenicity	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	No known significant effects or critical hazards. No known significant effects or critical hazards.
Developmental effects	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	No known significant effects or critical hazards. No known significant effects or critical hazards.
Fertility effects	: R1150 ETHYLENE Refrigerant R1270 - PROPYLENE R290 PROPANE	No known significant effects or critical hazards. No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Conclusion/Summary : Not available.

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
R1150 ETHYLENE Ethylene	1.13	-	low
Refrigerant R1270 - PROPYLENE Propylene	1.77	-	low
R290 PROPANE Propane	1.09	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

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SECTION 12: Ecological information

vPvB : Not applicable.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.




Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spill material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

This Safety Data Sheet is written based on the encapsulated substance or mixture in this article. Since the hazardous ingredient is encapsulated, the risk of exposure by inhalation, ingestion, skin contact and eyes contact is minimum.

	ADR/RID	IMDG	IATA
14.1 UN number	UN3363	UN3363	UN3363
14.2 UN proper shipping name	Dangerous goods in machinery or dangerous goods in apparatus	DANGEROUS GOODS IN APPARATUS	Dangerous goods in apparatus
14.3 Transport hazard class(es)			
14.4 Packing group	-	-	-
14.5 Environmental hazards	No.	No.	No.

Additional information

ADR/RID : **Tunnel code** (E)

IMDG : **Emergency schedules** F-A, _S-P_
Special provisions 301

IATA : **Quantity limitation** Passenger and Cargo Aircraft: Packaging instructions: See 962. Cargo Aircraft Only: Packaging instructions: See 962. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.
Special provisions A48, A107

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SECTION 14: Transport information

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code : Not available.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	R1150 ETHYLENE	Not applicable.
	Refrigerant R1270 - PROPYLENE	Not applicable.
	R290 PROPANE	Not applicable.

Other EU regulations

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Seveso Directive

This product is controlled under the Seveso Directive.

Named substances

Name

R290 PROPANE

Liquefied flammable gases, Category 1 or 2 (including LPG) and natural gas

Danger criteria

Category

R1150 ETHYLENE

P2: Flammable gases

Refrigerant R1270 - PROPYLENE

P2: Flammable gases

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

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SECTION 15: Regulatory information

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	: All components are listed or exempted.
Canada	: All components are listed or exempted.
China	: All components are listed or exempted.
Europe	: All components are listed or exempted.
Japan	: Japan inventory (ENCS) : All components are listed or exempted. Japan inventory (ISHL) : All components are listed or exempted.
Malaysia	: All components are listed or exempted.
New Zealand	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.
Thailand	: <input checked="" type="checkbox"/> Not determined.
Turkey	: All components are listed or exempted.
United States	: All components are listed or exempted.
Viet Nam	: <input checked="" type="checkbox"/> Not determined.

15.2 Chemical safety assessment

: This product contains substances for which Chemical Safety Assessments might still be required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms

: ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
<input checked="" type="checkbox"/> R1150 ETHYLENE Flam. Gas 1, H220 Press. Gas (Comp.), H280 STOT SE 3, H336	On basis of test data On basis of test data Calculation method
Refrigerant R1270 - PROPYLENE Flam. Gas 1, H220 Press. Gas (Comp.), H280	On basis of test data On basis of test data
R290 PROPANE Flam. Gas 1, H220 Press. Gas (Comp.), H280	On basis of test data On basis of test data

Full text of abbreviated H statements

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SECTION 16: Other information

R1150 ETHYLENE

H220
H280
H336

Extremely flammable gas.
Contains gas under pressure; may explode if heated.
May cause drowsiness or dizziness.

Refrigerant R1270 - PROPYLENE

H220
H280

Extremely flammable gas.
Contains gas under pressure; may explode if heated.

R290 PROPANE

H220
H280

Extremely flammable gas.
Contains gas under pressure; may explode if heated.

[Full text of classifications \[CLP/GHS\]](#)

R1150 ETHYLENE

Flam. Gas 1, H220
Press. Gas (Comp.), H280
STOT SE 3, H336

FLAMMABLE GASES - Category 1
GASES UNDER PRESSURE - Compressed gas
SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE
(Narcotic effects) - Category 3

Refrigerant R1270 - PROPYLENE

Flam. Gas 1, H220
Press. Gas (Comp.), H280

FLAMMABLE GASES - Category 1
GASES UNDER PRESSURE - Compressed gas

R290 PROPANE

Flam. Gas 1, H220
Press. Gas (Comp.), H280

FLAMMABLE GASES - Category 1
GASES UNDER PRESSURE - Compressed gas

Date of issue/ Date of revision : 01/09/2017

Date of previous issue : 31/01/2017.

Version : 1.1

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