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.:
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

<table>
<thead>
<tr>
<th>Identified uses</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical chemistry.</td>
<td></td>
</tr>
<tr>
<td>R1150 ETHYLENE</td>
<td>0.98 oz (in hermetic refrigeration system)</td>
</tr>
<tr>
<td>Refrigerant R1270 - PROPYLENE</td>
<td>0.83 oz (in hermetic refrigeration system)</td>
</tr>
<tr>
<td>R290 PROPANE</td>
<td>0.98 oz (in hermetic refrigeration system)</td>
</tr>
</tbody>
</table>

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:

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]

Date of issue/Date of revision: 01/09/2017
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 Danger
Refrigerant R1270 - PROPYLENE Danger
R290 PROPANE 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.
H280 - Contains gas under pressure; may explode if heated.

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.
P261 - Avoid breathing gas.

R290 PROPANE
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 - Avoid breathing gas.
**SECTION 2: Hazards identification**

**Response**
- **R1150 ETHYLENE**: 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.
- **Refrigerant R1270 - PROPYLENE**: P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
- **R290 PROPANE**: P381 - In case of leakage, eliminate all ignition sources.

**Storage**
- **R1150 ETHYLENE**: P410 - Protect from sunlight.
- **Refrigerant R1270 - PROPYLENE**: P410 - Protect from sunlight.
- **R290 PROPANE**: P410 - Protect from sunlight.

**Disposal**
- **R1150 ETHYLENE**: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

**Supplemental label elements**
- **R1150 ETHYLENE**: Not applicable.
- **Refrigerant R1270 - PROPYLENE**: Not applicable.
- **R290 PROPANE**: Not applicable.

**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.

**Special packaging requirements**
- **Tactile warning of danger**
  - **R1150 ETHYLENE**: Not applicable.
  - **Refrigerant R1270 - PROPYLENE**: Not applicable.
  - **R290 PROPANE**: Not applicable.

**2.3 Other hazards**
- **Other hazards which do not result in classification**
  - **R1150 ETHYLENE**: Acts as a simple asphyxiant. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
  - **Refrigerant R1270 - PROPYLENE**: Acts as a simple asphyxiant. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
  - **R290 PROPANE**: Acts as a simple asphyxiant. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.

**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**
- **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)
Preconditioner Unit_temperature -80°C

SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identifiers</th>
<th>%</th>
<th>Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1150 ETHYLENE</td>
<td>EC: 200-815-3</td>
<td>100</td>
<td>Flam. Gas 1, H220 Press. Gas (Comp.), H280 STOT SE 3, H336</td>
</tr>
<tr>
<td>Ethylene</td>
<td>CAS: 74-85-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Index: 601-010-00-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refrigerant R1270 - PROPYLENE</td>
<td>EC: 204-062-1</td>
<td>100</td>
<td>Flam. Gas 1, H220 Press. Gas (Comp.), H280</td>
</tr>
<tr>
<td>Propylene</td>
<td>CAS: 115-07-1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Index: 601-011-00-9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R290 PROPANE</td>
<td>EC: 200-827-9</td>
<td>100</td>
<td>Flam. Gas 1, H220 Press. Gas (Comp.), H280</td>
</tr>
<tr>
<td>Propane</td>
<td>CAS: 74-98-6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact : 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 : 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
SECTION 4: First aid measures

**Preconditioner Unit_temperature -80C**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Skin contact</th>
<th>Ingestion</th>
<th>Protection of first-aiders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigerant R1270 - PROPYLENE</td>
<td><strong>R1150 ETHYLENE</strong> 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.</td>
<td>As this product is a gas, refer to the inhalation section.</td>
<td>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.</td>
</tr>
<tr>
<td>Refrigerant R1270 - PROPYLENE</td>
<td><strong>R1150 ETHYLENE</strong> 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.</td>
<td>As this product is a gas, refer to the inhalation section.</td>
<td>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.</td>
</tr>
<tr>
<td>R290 PROPANE</td>
<td><strong>R1150 ETHYLENE</strong> 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.</td>
<td>As this product is a gas, refer to the inhalation section.</td>
<td>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.</td>
</tr>
</tbody>
</table>

**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.

**Refrigerant R1270 - PROPYLENE**

**R290 PROPANE**

**Inhalation**

- **Preconditioner Unit_temperature -80C**

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

- **R1150 ETHYLENE**
  - Contact with rapidly expanding gas may cause burns or frostbite.

- Refrigerant R1270 - PROPYLENE
  - Contact with rapidly expanding gas may cause burns or frostbite.

- R290 PROPANE
  - Contact with rapidly expanding gas may cause burns or frostbite.

**Inhalation**

- **R1150 ETHYLENE**
  - 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.

- Refrigerant R1270 - PROPYLENE
  - At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.

- R290 PROPANE
  - At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.

**Skin contact**

- **R1150 ETHYLENE**
  - Contact with rapidly expanding gas may cause burns or frostbite.

- Refrigerant R1270 - PROPYLENE
  - Contact with rapidly expanding gas may cause burns or frostbite.

- R290 PROPANE
  - Contact with rapidly expanding gas may cause burns or frostbite.

**Ingestion**

- **R1150 ETHYLENE**
  - Can cause central nervous system (CNS) depression. As this product is a gas, refer to the inhalation section.

- Refrigerant R1270 - PROPYLENE
  - As this product is a gas, refer to the inhalation section.

- R290 PROPANE
  - As this product is a gas, refer to the inhalation section.

**Over-exposure signs/symptoms**

**Eye contact**

- **R1150 ETHYLENE**
  - No specific data.

- Refrigerant R1270 - PROPYLENE
  - No specific data.

- R290 PROPANE
  - No specific data.

**Inhalation**

- **R1150 ETHYLENE**
  - Adverse symptoms may include the following: nausea or vomiting, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness.

- Refrigerant R1270 - PROPYLENE
  - No specific data.

- R290 PROPANE
  - No specific data.

**Skin contact**

- **R1150 ETHYLENE**
  - No specific data.

- Refrigerant R1270 - PROPYLENE
  - No specific data.

- R290 PROPANE
  - No specific data.

**Ingestion**

- **R1150 ETHYLENE**
  - No specific data.

- Refrigerant R1270 - PROPYLENE
  - No specific data.

- R290 PROPANE
  - No specific data.

4.3 Indication of any immediate medical attention and special treatment needed
## SECTION 4: First aid measures

### Notes to physician

<table>
<thead>
<tr>
<th>Substance</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1150 ETHYLENE</td>
<td>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</td>
</tr>
<tr>
<td>Refrigerant R1270 - PROPYLENE</td>
<td>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</td>
</tr>
<tr>
<td>R290 PROPANE</td>
<td>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</td>
</tr>
</tbody>
</table>

### Specific treatments

- **R1150 ETHYLENE**: No specific treatment.
- **Refrigerant R1270 - PROPYLENE**: No specific treatment.
- **R290 PROPANE**: No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

<table>
<thead>
<tr>
<th>Substance</th>
<th>Suitable extinguishing media</th>
<th>Unsuitable extinguishing media</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1150 ETHYLENE</td>
<td>Use an extinguishing agent suitable for the surrounding fire.</td>
<td>None known.</td>
</tr>
<tr>
<td>Refrigerant R1270 - PROPYLENE</td>
<td>Use an extinguishing agent suitable for the surrounding fire.</td>
<td>None known.</td>
</tr>
<tr>
<td>R290 PROPANE</td>
<td>Use an extinguishing agent suitable for the surrounding fire.</td>
<td>None known.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Substance</th>
<th>Hazards from the substance or mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1150 ETHYLENE</td>
<td>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.</td>
</tr>
<tr>
<td>Refrigerant R1270 - PROPYLENE</td>
<td>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.</td>
</tr>
<tr>
<td>R290 PROPANE</td>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substance</th>
<th>Hazardous combustion products</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1150 ETHYLENE</td>
<td>Decomposition products may include the following materials: carbon dioxide, carbon monoxide</td>
</tr>
<tr>
<td>Refrigerant R1270 - PROPYLENE</td>
<td>Decomposition products may include the following materials: carbon dioxide, carbon monoxide</td>
</tr>
<tr>
<td>R290 PROPANE</td>
<td>Decomposition products may include the following materials: carbon dioxide, carbon monoxide</td>
</tr>
</tbody>
</table>

### 5.3 Advice for firefighters

<table>
<thead>
<tr>
<th>Substance</th>
<th>Special precautions for fire-fighters</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1150 ETHYLENE</td>
<td>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.</td>
</tr>
<tr>
<td>Refrigerant R1270 - PROPYLENE</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.
SECTION 6: Accidental release measures

For emergency responders

For R1150 ETHYLENE

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

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".

Refrigerant R1270 - PROPYLENE

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

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

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

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

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).

For 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

For 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

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...
SECTION 7: Handling and storage

Refrigerant R1270 - PROPYLENE
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:

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:

Refrigerant R1270 - PROPYLENE
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.
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)

<table>
<thead>
<tr>
<th>Name</th>
<th>Notification and MAPP threshold</th>
<th>Safety report threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>R290 PROPANE</td>
<td>Liquefied flammable gases, Category 1 or 2 (including LPG) and natural gas</td>
<td>50</td>
</tr>
</tbody>
</table>

7.3 Specific end use(s)

Recommendations:

Industrial sector specific solutions:

<table>
<thead>
<tr>
<th>Refrigerant R1270 - PROPYLENE</th>
<th>Industrial applications, Professional applications.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Refrigerant R1270 - PROPYLENE</th>
<th>Industrial applications, Professional applications.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Refrigerant R1270 - PROPYLENE</th>
<th>Industrial applications, Professional applications.</th>
</tr>
</thead>
</table>

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.

Date of issue/Date of revision: 01/09/2017
Preconditioner Unit_temperature -80C

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 - PROPYLENE Gas.
R290 PROPANE Gas.

Colour: R1150 ETHYLENE Colourless.
Refrigerant R1270 - PROPYLENE Colourless.
R290 PROPANE Colourless.
### Section 9: Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>R1150 ETHYLENE</th>
<th>Refrigerant R1270 - PROPYLENE</th>
<th>R290 PROPANE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Odour</strong></td>
<td></td>
<td>Musty</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Faint odour.</td>
<td></td>
</tr>
<tr>
<td><strong>Odour threshold</strong></td>
<td></td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td></td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td><strong>Melting point/freezing point</strong></td>
<td></td>
<td>-169.4°C</td>
<td>-185.25°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-158.89°C</td>
<td></td>
</tr>
<tr>
<td><strong>Initial boiling point and boiling range</strong></td>
<td></td>
<td>-103.68°C</td>
<td>-47°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-41.79°C</td>
<td></td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td></td>
<td>Closed cup: -136°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Closed cup: -108°C</td>
<td></td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td></td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td></td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td><strong>Upper/lower flammability or explosive limits</strong></td>
<td></td>
<td>Lower: 2.7%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Upper: 36%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Upper: 11%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lower: 2.4%</td>
<td></td>
</tr>
<tr>
<td><strong>Vapour pressure</strong></td>
<td></td>
<td>&gt;101.3 kPa [room temperature]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1043.6 kPa [room temperature]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>840 kPa [room temperature]</td>
<td></td>
</tr>
<tr>
<td><strong>Vapour density</strong></td>
<td></td>
<td>Not available.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.5 [Air = 1]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.6 [Air = 1]</td>
<td></td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td></td>
<td>0.978 [Air = 1]</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.5</td>
<td></td>
</tr>
</tbody>
</table>
### SECTION 9: Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>R1150 ETHYLENE</th>
<th>Refrigerant R1270 - PROPYLENE</th>
<th>R290 PROPANE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility(ies)</td>
<td>Insoluble in the following materials: cold water and hot water.</td>
<td>Insoluble in the following materials: cold water and hot water.</td>
<td>Insoluble in the following materials: cold water and hot water.</td>
</tr>
<tr>
<td>Refrigerant R1270 - PROPYLENE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R290 PROPANE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>R1150 ETHYLENE Not available.</td>
<td>Refrigerant R1270 - PROPYLENE Not available.</td>
<td>R290 PROPANE Not available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>R1150 ETHYLENE 490°C</td>
<td>Refrigerant R1270 - PROPYLENE 455°C</td>
<td>R290 PROPANE 449.85°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>R1150 ETHYLENE Not available.</td>
<td>Refrigerant R1270 - PROPYLENE Not available.</td>
<td>R290 PROPANE &gt;650°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viscosity</td>
<td>R1150 ETHYLENE Not available.</td>
<td>Refrigerant R1270 - PROPYLENE Not available.</td>
<td>R290 PROPANE Not available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td>R1150 ETHYLENE Explosive in the presence of the following materials or conditions: heat. Not available.</td>
<td>Refrigerant R1270 - PROPYLENE Explosive in the presence of the following materials or conditions: oxidizing materials. Not available.</td>
<td>R290 PROPANE Explosive in the presence of the following materials or conditions: oxidizing materials. Not available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>R1150 ETHYLENE Not available.</td>
<td>Refrigerant R1270 - PROPYLENE Not available.</td>
<td>R290 PROPANE Not available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 9.2 Other information

No additional information.

### SECTION 10: Stability and reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>R1150 ETHYLENE</th>
<th>Refrigerant R1270 - PROPYLENE</th>
<th>R290 PROPANE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1 Reactivity</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td></td>
<td>R1150 ETHYLENE</td>
<td>Refrigerant R1270 - PROPYLENE</td>
<td>R290 PROPANE</td>
</tr>
<tr>
<td>10.2 Chemical stability</td>
<td>The product is stable.</td>
<td>The product is stable.</td>
<td>The product is stable.</td>
</tr>
<tr>
<td></td>
<td>R1150 ETHYLENE</td>
<td>Refrigerant R1270 - PROPYLENE</td>
<td>R290 PROPANE</td>
</tr>
<tr>
<td>10.3 Possibility of hazardous reactions</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td></td>
<td>R1150 ETHYLENE</td>
<td>Refrigerant R1270 - PROPYLENE</td>
<td>R290 PROPANE</td>
</tr>
</tbody>
</table>

**Date of issue/Date of revision**: 01/09/2017
SECTION 10: Stability and reactivity

10.4 Conditions to avoid

**R1150 ETHYLENE**
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.

Refrigerant R1270 - PROPYLENE
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.

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.

10.5 Incompatible materials

**R1150 ETHYLENE**
May react or be incompatible with oxidising materials.

Refrigerant R1270 - PROPYLENE
May react or be incompatible with oxidising materials.

R290 PROPANE
May react or be incompatible with oxidising materials.

10.6 Hazardous decomposition products

**R1150 ETHYLENE**
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Refrigerant R1270 - PROPYLENE
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

R290 PROPANE
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**
Not available.

**Conclusion/Summary**
Not available.

**Sensitiser**
Not available.

**Specific target organ toxicity (single exposure)**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>R1150 ETHYLENE</strong></td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Narcotic effects</td>
</tr>
<tr>
<td>Ethylene</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Specific target organ toxicity (repeated exposure)**
Not available.

**Aspiration hazard**
Not available.

**Information on likely routes of exposure**

<table>
<thead>
<tr>
<th><strong>R1150 ETHYLENE</strong></th>
<th>Routes of entry anticipated: Inhalation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refrigerant R1270 - PROPYLENE</td>
<td>Routes of entry anticipated: Inhalation.</td>
</tr>
<tr>
<td>R290 PROPANE</td>
<td>Routes of entry anticipated: Inhalation.</td>
</tr>
</tbody>
</table>

**Potential acute health effects**

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**SECTION 11: Toxicological information**

### Inhalation
- **R1150 ETHYLENE**
  - 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.
- **Refrigerant R1270 - PROPYLENE**
  - At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
- **R290 PROPANE**
  - At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.

### Ingestion
- **R1150 ETHYLENE**
  - Can cause central nervous system (CNS) depression. As this product is a gas, refer to the inhalation section.
- **Refrigerant R1270 - PROPYLENE**
  - As this product is a gas, refer to the inhalation section.
- **R290 PROPANE**
  - As this product is a gas, refer to the inhalation section.

### Skin contact
- **R1150 ETHYLENE**
  - Contact with rapidly expanding gas may cause burns or frostbite.
- **Refrigerant R1270 - PROPYLENE**
  - Contact with rapidly expanding gas may cause burns or frostbite.
- **R290 PROPANE**
  - Contact with rapidly expanding gas may cause burns or frostbite.

### Eye contact
- **R1150 ETHYLENE**
  - Contact with rapidly expanding gas may cause burns or frostbite.
- **Refrigerant R1270 - PROPYLENE**
  - Contact with rapidly expanding gas may cause burns or frostbite.
- **R290 PROPANE**
  - Contact with rapidly expanding gas may cause burns or frostbite.

### Symptoms related to the physical, chemical and toxicological characteristics

#### Inhalation
- **R1150 ETHYLENE**
  - Adverse symptoms may include the following:
    - Nausea or vomiting
    - Headache
    - Drowsiness/fatigue
    - Dizziness/vertigo
    - Unconsciousness
  - Refrigerant R1270 - PROPYLENE
  - R290 PROPANE
  - No specific data.

#### Ingestion
- **R1150 ETHYLENE**
  - No specific data.
- **Refrigerant R1270 - PROPYLENE**
  - No specific data.
- **R290 PROPANE**
  - No specific data.

#### Skin contact
- **R1150 ETHYLENE**
  - No specific data.
- **Refrigerant R1270 - PROPYLENE**
  - No specific data.
- **R290 PROPANE**
  - No specific data.

#### Eye contact
- **R1150 ETHYLENE**
  - No specific data.
- **Refrigerant R1270 - PROPYLENE**
  - No specific data.
- **R290 PROPANE**
  - 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**
  - No known significant effects or critical hazards.
- **Refrigerant R1270 - PROPYLENE**
  - No known significant effects or critical hazards.
- **R290 PROPANE**
  - No known significant effects or critical hazards.

Carcinogenicity:
- **R1150 ETHYLENE**
  - No known significant effects or critical hazards.
- **Refrigerant R1270 - PROPYLENE**
  - No known significant effects or critical hazards.
- **R290 PROPANE**
  - No known significant effects or critical hazards.

Mutagenicity:
- **R1150 ETHYLENE**
  - No known significant effects or critical hazards.
- **Refrigerant R1270 - PROPYLENE**
  - No known significant effects or critical hazards.
- **R290 PROPANE**
  - No known significant effects or critical hazards.

Teratogenicity:
- **R1150 ETHYLENE**
  - No known significant effects or critical hazards.
- **Refrigerant R1270 - PROPYLENE**
  - No known significant effects or critical hazards.
- **R290 PROPANE**
  - No known significant effects or critical hazards.

Developmental effects:
- **R1150 ETHYLENE**
  - No known significant effects or critical hazards.
- **Refrigerant R1270 - PROPYLENE**
  - No known significant effects or critical hazards.
- **R290 PROPANE**
  - No known significant effects or critical hazards.

Fertility effects:
- **R1150 ETHYLENE**
  - No known significant effects or critical hazards.
- **Refrigerant R1270 - PROPYLENE**
  - No known significant effects or critical hazards.
- **R290 PROPANE**
  - 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

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>R1150 ETHYLENE</strong></td>
<td>1.13</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Ethylene</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Refrigerant R1270 - PROPYLENE</strong></td>
<td>1.77</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Propylene</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>R290 PROPANE</strong></td>
<td>1.09</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Propane</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12.4 Mobility in soil
Soil/water partition coefficient (K<sub>OC</sub>): Not available.

Mobility: Not available.

12.5 Results of PBT and vPvB assessment
PBT: Not applicable.

Date of issue/Date of revision: 01/09/2017
SECTION 12: Ecological information

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 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 spilt 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.

<table>
<thead>
<tr>
<th>14.1 UN number</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN3363</td>
<td>UN3363</td>
<td>UN3363</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.2 UN proper shipping name</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dangerous goods in machinery or dangerous goods in apparatus</td>
<td>DANGEROUS GOODS IN APPARATUS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14.3 Transport hazard class(es)</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>D-9</td>
<td>D-9</td>
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</table>

<table>
<thead>
<tr>
<th>14.4 Packing group</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
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<td>-</td>
<td>-</td>
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</table>

<table>
<thead>
<tr>
<th>14.5 Environmental hazards</th>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
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<tbody>
<tr>
<td>No.</td>
<td>No.</td>
<td>No.</td>
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**Additional information**

<table>
<thead>
<tr>
<th>ADR/RID</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tunnel code (E)</td>
<td>Emergency schedules F-A, <em>S-P</em></td>
<td>Special provisions 301</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Name</th>
<th>Danger criteria</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1150 ETHYLENE</td>
<td>P2: Flammable gases</td>
<td></td>
</tr>
<tr>
<td>Refrigerant R1270 - PROPYLENE</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>R290 PROPANE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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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Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

<table>
<thead>
<tr>
<th>Country</th>
<th>Status Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Canada</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>China</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Europe</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Japan</td>
<td>Japan inventory (ENCS): All components are listed or exempted.</td>
</tr>
<tr>
<td></td>
<td>Japan inventory (ISHL): All components are listed or exempted.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>New Zealand</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Philippines</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Taiwan</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Thailand</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Turkey</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>United States</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Not determined.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATE</td>
<td>Acute Toxicity Estimate</td>
</tr>
<tr>
<td>CLP</td>
<td>Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]</td>
</tr>
<tr>
<td>DNEL</td>
<td>Derived No Effect Level</td>
</tr>
<tr>
<td>EUH statement</td>
<td>CLP-specific Hazard statement</td>
</tr>
<tr>
<td>PNEC</td>
<td>Predicted No Effect Concentration</td>
</tr>
<tr>
<td>RRN</td>
<td>REACH Registration Number</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1150 ETHYLENE</td>
<td>On basis of test data</td>
</tr>
<tr>
<td>Flam. Gas 1, H220</td>
<td>On basis of test data</td>
</tr>
<tr>
<td>Press. Gas (Comp.), H280</td>
<td>Calculation method</td>
</tr>
<tr>
<td>STOT SE 3, H336</td>
<td></td>
</tr>
<tr>
<td>Refrigerant R1270 - PROPYLENE</td>
<td>On basis of test data</td>
</tr>
<tr>
<td>Flam. Gas 1, H220</td>
<td>On basis of test data</td>
</tr>
<tr>
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<td>On basis of test data</td>
</tr>
<tr>
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<td>On basis of test data</td>
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<td>Press. Gas (Comp.), H280</td>
<td>On basis of test data</td>
</tr>
</tbody>
</table>

Full text of abbreviated H statements

Preconditioner Unit_temperature -80C

SECTION 16: Other information

<table>
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<tr>
<th>Substance</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1150 ETHYLENE</td>
<td>H220</td>
</tr>
<tr>
<td></td>
<td>H280</td>
</tr>
<tr>
<td></td>
<td>H336</td>
</tr>
<tr>
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<td>H220</td>
</tr>
<tr>
<td></td>
<td>H280</td>
</tr>
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<td>R290 PROPANE</td>
<td>H220</td>
</tr>
<tr>
<td></td>
<td>H280</td>
</tr>
</tbody>
</table>

Full text of classifications [CLP/GHS]

<table>
<thead>
<tr>
<th>Substance</th>
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<tbody>
<tr>
<td>R1150 ETHYLENE</td>
<td>Flam. Gas 1, H220</td>
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<td></td>
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</tr>
</tbody>
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Date of issue/Date of revision: 01/09/2017
Date of previous issue: 31/01/2017.
Version: 1.1

Notice to reader

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