

# SAFETY DATA SHEET



Preconditioner Unit\_temperature -90C

## Section 1. Identification

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

**Product identifier** : Preconditioner Unit\_temperature -90C

**Part no. (chemical kit)** : G5222-60003, G5222-60004, G5222-60005, G5222-60006, G5222-60007, G5222-60008, G5222-69003, G5222-69003-DEF, G5222-69004, G5222-69004-DEF, G5222-69005, G5222-69005-DEF, G5222-69006, G5222-69006-DEF, G5222-69007, G5222-69007-DEF, G5222-69008, G5222-69008-DEF

**Part no.** : **R1150 ETHYLENE** Not available.  
 Halocarbon R-14 (Tetrafluoromethane) Not available.  
 Genetron AZ-50 (R-507) Not available.

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

**Material uses** : Reagents and Standards for Analytical Chemistry Laboratory Use

**R1150 ETHYLENE** 0.98 oz (in hermetic refrigeration system)  
 Halocarbon R-14 (Tetrafluoromethane) ≤ 1.24 oz (in hermetic refrigeration system)  
 Genetron AZ-50 (R-507) 1.02 oz (in hermetic refrigeration system)

**Supplier/Manufacturer** : Agilent Technologies Australia Pty Ltd  
 679 Springvale Road  
 Mulgrave  
 Victoria 3170, Australia  
 1800 802 402

**Emergency telephone number (with hours of operation)** : CHEMTREC®: +(61)-290372994

## Section 2. Hazard(s) 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.

### Classification of the substance or mixture

**R1150 ETHYLENE**

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

**Halocarbon R-14 (Tetrafluoromethane)**

H280 GASES UNDER PRESSURE - Liquefied gas

**Genetron AZ-50 (R-507)**

H280 GASES UNDER PRESSURE - Compressed gas

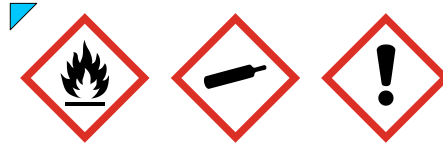
**R507 Genetron AZ-50 (R-507)** Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: > 60%  
 Percentage of the mixture consisting of ingredient(s) of unknown oral toxicity: 30 - 60%

## Section 2. Hazard(s) identification

### GHS label elements

#### Hazard pictograms

: R1150 ETHYLENE

Halocarbon R-14  
(Tetrafluoromethane)

Genetron AZ-50 (R-507)



#### Signal word

: R1150 ETHYLENE  
Halocarbon R-14  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507)DANGER  
WARNING

#### Hazard statements

: R1150 ETHYLENE

WARNING

Halocarbon R-14  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507)

H220 - Extremely flammable gas.  
H280 - Contains gas under pressure; may explode if heated.  
H336 - May cause drowsiness or dizziness.  
H280 - Contains gas under pressure; may explode if heated.  
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.  
Not applicable.

Halocarbon R-14  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507)

Not applicable.

#### Response

: R1150 ETHYLENE

P304 + P340 + P312 - IF INHALED: Remove victim to fresh air and keep at rest in a position 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 - Eliminate all ignition sources if safe to do so.  
Not applicable.

Halocarbon R-14  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507)

Not applicable.

#### Storage

: R1150 ETHYLENE

P405 - Store locked up.  
P410 - Protect from sunlight.  
P403 - Store in a well-ventilated place.  
P410 - Protect from sunlight.

Halocarbon R-14  
(Tetrafluoromethane)

P403 - Store in a well-ventilated place.  
P410 - Protect from sunlight.  
P403 - Store in a well-ventilated place.

Genetron AZ-50 (R-507)

#### Disposal

: R1150 ETHYLENE

P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Halocarbon R-14  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507)

Not applicable.

Not applicable.

## Section 2. Hazard(s) identification

### Supplemental label elements

**Additional warning phrases** : **R1150 ETHYLENE** Not applicable.  
 Halocarbon R-14 Not applicable.  
 (Tetrafluoromethane)  
 Genetron AZ-50 (R-507) Not applicable.

**Other hazards which do not result in classification** : **R1150 ETHYLENE** None known.  
 Halocarbon R-14 Acts as a simple asphyxiant. At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.  
 (Tetrafluoromethane)  
 Genetron AZ-50 (R-507) None known.

## Section 3. Composition and ingredient information

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.

**Substance/mixture** : **R1150 ETHYLENE** Substance (encapsulated in article)  
 Halocarbon R-14 SubstanceSubstance (encapsulated in article)  
 (Tetrafluoromethane)  
 Genetron AZ-50 (R-507) Mixture (encapsulated in article)

### CAS number/other identifiers

Ingredient name	% (w/w)	CAS number
<b>R1150 ETHYLENE</b> Ethylene	100	74-85-1
<b>Halocarbon R-14 (Tetrafluoromethane)</b> carbon tetrafluoride	100	75-73-0
<b>Genetron AZ-50 (R-507)</b> pentafluoroethane	≥30 - ≤60	354-33-6
1,1,1-trifluoroethane	≥30 - ≤60	420-46-2

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.

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### Description of necessary 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.

Halocarbon R-14 (Tetrafluoromethane) 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.

Genetron AZ-50 (R-507) 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.

## Section 4. First aid measures

### 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 collar, tie, belt or waistband.

Halocarbon R-14  
(Tetrafluoromethane)

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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Genetron AZ-50 (R-507)

Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

### 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.

Halocarbon R-14  
(Tetrafluoromethane)

Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Genetron AZ-50 (R-507)

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing

## Section 4. First aid measures

<b>Ingestion</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane)  Genetron AZ-50 (R-507)	before reuse. Clean shoes thoroughly before reuse. As this product is a gas, refer to the inhalation section. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if adverse health effects persist or are severe. Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. Never give anything by mouth to an unconscious person. 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. As this product rapidly becomes a gas when released, refer to the inhalation section. As this product is a gas, refer to the inhalation section.
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### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

<b>Eye contact</b>	: R1150 ETHYLENE  Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	Contact with rapidly expanding gas may cause burns or frostbite. Liquid can cause burns similar to frostbite.  Contact with rapidly expanding gas may cause burns or frostbite.
<b>Inhalation</b>	: R1150 ETHYLENE  Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	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. No known significant effects or critical hazards.
<b>Skin contact</b>	: R1150 ETHYLENE  Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	Contact with rapidly expanding gas may cause burns or frostbite. Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite. Contact with rapidly expanding gas may cause burns or frostbite.
<b>Ingestion</b>	: R1150 ETHYLENE  Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	Can cause central nervous system (CNS) depression. As this product is a gas, refer to the inhalation section. Ingestion of liquid can cause burns similar to frostbite.  As this product is a gas, refer to the inhalation section.

#### Over-exposure signs/symptoms

<b>Eye contact</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane)  Genetron AZ-50 (R-507)	No specific data. Adverse symptoms may include the following:  frostbite No specific data.
<b>Inhalation</b>	: R1150 ETHYLENE  Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness No specific data.
<b>Skin contact</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane)  Genetron AZ-50 (R-507)	No specific data. No specific data. Adverse symptoms may include the following:  frostbite No specific data.

## Section 4. First aid measures

<b>Ingestion</b>	: R1150 ETHYLENE	No specific data.
	Halocarbon R-14 (Tetrafluoromethane)	Adverse symptoms may include the following:  frostbite
	Genetron AZ-50 (R-507)	No specific data.

### Indication of immediate medical attention and special treatment needed, if necessary

<b>Notes to physician</b>	: R1150 ETHYLENE	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Halocarbon R-14 (Tetrafluoromethane)	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
	Genetron AZ-50 (R-507)	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

<b>Specific treatments</b>	: R1150 ETHYLENE	No specific treatment.
	Halocarbon R-14 (Tetrafluoromethane)	No specific treatment.
	Genetron AZ-50 (R-507)	No specific treatment.

<b>Protection of first-aiders</b>	: 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.
	Halocarbon R-14 (Tetrafluoromethane)	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.
	Genetron AZ-50 (R-507)	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

## Section 5. Firefighting measures

### Extinguishing media

<b>Suitable extinguishing media</b>	: R1150 ETHYLENE	Use an extinguishing agent suitable for the surrounding fire.
	Halocarbon R-14 (Tetrafluoromethane)	Use an extinguishing agent suitable for the surrounding fire.
	Genetron AZ-50 (R-507)	Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	: R1150 ETHYLENE	None known.
	Halocarbon R-14 (Tetrafluoromethane)	None known.
	Genetron AZ-50 (R-507)	None known.



## Section 5. Firefighting measures

<b>Specific hazards arising from the chemical</b>	: R1150 ETHYLENE	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.
	Halocarbon R-14 (Tetrafluoromethane)	Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.
	Genetron AZ-50 (R-507)	Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.
<b>Hazardous thermal decomposition products</b>	: R1150 ETHYLENE	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	Halocarbon R-14 (Tetrafluoromethane)	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds carbonyl halides
	Genetron AZ-50 (R-507)	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds carbonyl halides
<b>Special protective actions for fire-fighters</b>	: R1150 ETHYLENE	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.
	Halocarbon R-14 (Tetrafluoromethane)	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.
	Genetron AZ-50 (R-507)	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.
<b>Special protective equipment for fire-fighters</b>	: 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.
	Halocarbon R-14 (Tetrafluoromethane)	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and

## Section 5. Firefighting measures

Genetron AZ-50 (R-507)

thick textile or leather gloves should be worn. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

### Hazchem code

: R1150 ETHYLENE  
Halocarbon R-14  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507) 2SE  
2TE  
2TE

## Section 6. Accidental release measures

### 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.

Halocarbon R-14  
(Tetrafluoromethane)

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Genetron AZ-50 (R-507)

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

#### For emergency responders

: R1150 ETHYLENE

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".

Halocarbon R-14  
(Tetrafluoromethane)

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".

Genetron AZ-50 (R-507)

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".

#### 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).

Halocarbon R-14  
(Tetrafluoromethane)

Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant



## Section 6. Accidental release measures

Genetron AZ-50 (R-507)

authorities if the product has caused environmental pollution (sewers, waterways, soil or air). 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).

### 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.

Halocarbon R-14  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507)

Immediately contact emergency personnel. Stop leak if without risk.

Immediately contact emergency personnel. Stop leak if without risk.

## Section 7. Handling and storage

### 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 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.

Halocarbon R-14  
(Tetrafluoromethane)

Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container.

Genetron AZ-50 (R-507)

Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. 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.

Halocarbon R-14  
(Tetrafluoromethane)

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.

Genetron AZ-50 (R-507)

Eating, drinking and smoking should be prohibited in

## Section 7. Handling and storage

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.

**Conditions for safe storage, including any incompatibilities** : R1150 ETHYLENE

Halocarbon R-14  
(Tetrafluoromethane)

Genetron AZ-50 (R-507)

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.

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). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

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). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

## Section 8. Exposure controls and 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.

[Control parameters](#)

[Occupational exposure limits](#)

Ingredient name	Exposure limits
R1150 ETHYLENE Ethylene	<b>Safe Work Australia (Australia, 1/2014). Oxygen Depletion [Asphyxiant].</b>
<b>Halocarbon R-14 (Tetrafluoromethane)</b> carbon tetrafluoride	<b>Safe Work Australia (Australia, 1/2014). TWA: 2.5 mg/m<sup>3</sup>, (as F) 8 hours.</b>
<b>Genetron AZ-50 (R-507)</b> pentafluoroethane	<b>Safe Work Australia (Australia, 1/2014). TWA: 2.5 mg/m<sup>3</sup>, (as F) 8 hours.</b>
1,1,1-trifluoroethane	<b>Safe Work Australia (Australia, 1/2014). TWA: 2.5 mg/m<sup>3</sup>, (as F) 8 hours.</b>

**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.

**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 8. Exposure controls and personal protection

### 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.
- 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.

## Section 9. Physical and chemical properties

### Appearance

- Physical state** : R1150 ETHYLENE Gas.  
Halocarbon R-14 Gas. [Liquefied gas.]  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507) Gas.
- Colour** : R1150 ETHYLENE Colourless.  
Halocarbon R-14 Colourless.  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507) Clear. / Colourless.
- Odour** : R1150 ETHYLENE Musty  
Halocarbon R-14 Odourless.  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507) Ethereal. [Slight]
- Odour threshold** : R1150 ETHYLENE Not available.  
Halocarbon R-14 Not available.  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507) Not available.
- pH** : R1150 ETHYLENE Not available.  
Halocarbon R-14 Not available.  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507) Not available.
- Melting point** : R1150 ETHYLENE -169.4°C (-272.9°F)  
Halocarbon R-14 -183.6°C (-298.5°F)  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507) Not available.

## Section 9. Physical and chemical properties

<b>Boiling point</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	-103.68°C (-154.6°F) -127.8°C (-198°F) -46.7°C (-52.1°F)
<b>Flash point</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	Closed cup: -136°C (-212.8°F) Not available. Not applicable.
<b>Evaporation rate</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	Not available. Not available. >1 (CCl <sub>4</sub> = 1 = 1)
<b>Flammability (solid, gas)</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	Not available. Not available. Not available.
<b>Lower and upper explosive (flammable) limits</b>	: R1150 ETHYLENE  Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	Lower: 2.7% Upper: 36% Not available. Not available.
<b>Vapour pressure</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	>101.3 kPa (>760 mm Hg) [room temperature] Not available.  1061.1 kPa (7959 mm Hg) [room temperature] 2529 kPa (18969 mm Hg) [54.4 °C]
<b>Vapour density</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	Not available. 3.04 [Air = 1]  3.43 [Air = 1]
<b>Relative density</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	0.978 [Air = 1] Not available.  1.07 [Water = 1]
<b>Solubility</b>	: R1150 ETHYLENE  Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	Insoluble in the following materials: cold water and hot water. Not available. Not available.
<b>Partition coefficient: n-octanol/water</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	Not available. 1.18  1.48
<b>Auto-ignition temperature</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	490°C (914°F) >1100°C (>2012°F)  >750°C (>1382°F)
<b>Decomposition temperature</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	Not available. Not available. Not available.
<b>Viscosity</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	Not available. Not available. Not available.
<b>Physical/chemical properties comments</b>	: R1150 ETHYLENE: Gas density: 1.261 kg/m <sup>3</sup> (0°C)	

## Section 10. Stability and reactivity

<b>Reactivity</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	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.
<b>Chemical stability</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	The product is stable. The product is stable. The product is stable.
<b>Possibility of hazardous reactions</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	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.
<b>Conditions to avoid</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	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. No specific data.
<b>Incompatible materials</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	May react or be incompatible with oxidising materials. metals, Al (powder), Zn, Be May react or be incompatible with oxidising materials.
<b>Hazardous decomposition products</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	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

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Genetron AZ-50 (R-507) pentafluoroethane 1,1,1-trifluoroethane	LC50 Inhalation Vapour	Rat	2910 g/m <sup>3</sup>	4 hours
	LC50 Inhalation Gas.	Rat	>54 pph	4 hours

#### Irritation/Corrosion

Not available.

#### Sensitisation

Not available.

#### Mutagenicity

**Conclusion/Summary** : Not available.

#### Carcinogenicity

## Section 11. Toxicological information

**Conclusion/Summary** : Not available.

### Reproductive toxicity

**Conclusion/Summary** : Not available.

### Teratogenicity

**Conclusion/Summary** : Not available.

### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
<b>R1150 ETHYLENE</b> 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**  
Halocarbon R-14  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507)

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

### Potential acute health effects

**Eye contact** : **R1150 ETHYLENE**  
Halocarbon R-14  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507)

Contact with rapidly expanding gas may cause burns or frostbite.  
Liquid can cause burns similar to frostbite.  
Contact with rapidly expanding gas may cause burns or frostbite.

**Inhalation** : **R1150 ETHYLENE**  
Halocarbon R-14  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507)

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.  
No known significant effects or critical hazards.

**Skin contact** : **R1150 ETHYLENE**  
Halocarbon R-14  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507)

Contact with rapidly expanding gas may cause burns or frostbite.  
Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.  
Contact with rapidly expanding gas may cause burns or frostbite.

**Ingestion** : **R1150 ETHYLENE**  
Halocarbon R-14  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507)

Can cause central nervous system (CNS) depression.  
As this product is a gas, refer to the inhalation section.  
Ingestion of liquid can cause burns similar to frostbite.  
As this product is a gas, refer to the inhalation section.

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

**Eye contact** : **R1150 ETHYLENE**  
Halocarbon R-14  
(Tetrafluoromethane)  
Genetron AZ-50 (R-507)

No specific data.  
Adverse symptoms may include the following:  
frostbite  
No specific data.



## Section 11. Toxicological information

<b>Inhalation</b>	: R1150 ETHYLENE  Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	Adverse symptoms may include the following: nausea or vomiting headache drowsiness/fatigue dizziness/vertigo unconsciousness No specific data.
<b>Skin contact</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane)  Genetron AZ-50 (R-507)	No specific data. Adverse symptoms may include the following:  frostbite No specific data.
<b>Ingestion</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane)  Genetron AZ-50 (R-507)	No specific data. Adverse symptoms may include the following:  frostbite 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.

**Potential delayed effects** : Not available.

#### Potential chronic health effects

<b>General</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Carcinogenicity</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Mutagenicity</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Teratogenicity</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Developmental effects</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Fertility effects</b>	: R1150 ETHYLENE Halocarbon R-14 (Tetrafluoromethane) Genetron AZ-50 (R-507)	No known significant effects or critical hazards. No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

## Section 11. Toxicological information

Not available.

**Other information** : R1150 ETHYLENE Not available.  
 Halocarbon R-14 Not available.  
 (Tetrafluoromethane)  
 Genetron AZ-50 (R-507) Adverse symptoms may include the following:  
 heartbeat irregularity (arrhythmia).

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
Genetron AZ-50 (R-507) pentafluoroethane 1,1,1-trifluoroethane	LC50 126 mg/l Acute EC50 300 mg/l	Fish Daphnia - Daphinia magna	96 hours 48 hours

### Persistence and degradability

Not available.

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
R1150 ETHYLENE Ethylene	1.13	-	low
Halocarbon R-14 (Tetrafluoromethane) carbon tetrafluoride	1.18	-	low
Genetron AZ-50 (R-507) Genetron AZ-50 (R-507) pentafluoroethane 1,1,1-trifluoroethane	1.48 1.48 1.73 to 1.74	- 3.1 -	low low low

### Mobility in soil

Soil/water partition coefficient (K<sub>oc</sub>) : Not available.




**Other adverse effects** : This product has the potential to cause adverse ozone depletion effects.

## Section 13. Disposal considerations

**Disposal methods** : 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. 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.

	ADG	IMDG	IATA
<b>UN number</b>	UN3363	UN3363	UN3363
<b>UN proper shipping name</b>	DANGEROUS GOODS IN APPARATUS	DANGEROUS GOODS IN APPARATUS	<input checked="" type="checkbox"/> Dangerous goods in apparatus
<b>Transport hazard class(es)</b>	9 	9 	9 
<b>Packing group</b>	-	-	-
<b>Environmental hazards</b>	No.	No.	No.

### Additional information

<b>ADG</b>	: <b>Hazchem code</b> 1Z <b>Special provisions</b> 301
<b>IMDG</b>	: <b>Emergency schedules</b> F-A, _S-P_ <b>Special provisions</b> 301
<b>IATA</b>	: <b>Quantity limitation</b> Passenger and Cargo Aircraft: Packaging instructions: See 962. Cargo Aircraft Only: Packaging instructions: See 962. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden. <b>Special provisions</b> A48, A107

**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.

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

## Section 15. Regulatory information

### Standard Uniform Schedule of Medicine and Poisons

Not regulated.

### Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

### 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)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

## Section 15. Regulatory information

Not listed.

### Inventory list

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

## Section 16. Any other relevant information

### History

**Date of issue/Date of revision** : 26/02/2018

**Date of previous issue** : 13/04/2016

**Version** : 2

**Key to abbreviations** :

- ADG = Australian Dangerous Goods
- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- NOHSC = National Occupational Health and Safety Commission
- SUSMP = Standard Uniform Schedule of Medicine and Poisons
- UN = United Nations

### Procedure used to derive the classification

Classification	Justification
<input checked="" type="checkbox"/> <b>R1150 ETHYLENE</b> Flam. Gas 1, H220 Press. Gas (Comp.), H280 STOT SE 3, H336	On basis of test data On basis of test data Calculation method
<b>Halocarbon R-14 (Tetrafluoromethane)</b> Press. Gas (Liq.), H280	On basis of test data
<b>Genetron AZ-50 (R-507)</b> Press. Gas (Comp.), H280	On basis of test data

**References** : Not available.

Indicates information that has changed from previously issued version.

### Notice to reader

## Section 16. Any other relevant information

**Disclaimer:** The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.