

**Honeywell Solstice® N40 Refrigerant (R-448A)****00000017419**

Version 2.1

Revision Date 12/07/2015

Print Date 09/28/2016

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : Honeywell Solstice® N40 Refrigerant (R-448A)

Number : 00000017419

Product Use Description : Refrigerant

Manufacturer or supplier's details : Honeywell International Inc.  
115 Tabor Road  
Morris Plains, NJ 07950-2546

For more information call : 800-522-8001  
+1-973-455-6300  
(Monday-Friday, 9:00am-5:00pm)

In case of emergency call : **Medical: 1-800-498-5701 or +1-303-389-1414**  
: **Transportation (CHEMTREC): 1-800-424-9300 or +1-703-527-3887**  
:  
: (24 hours/day, 7 days/week)

**SECTION 2. HAZARDS IDENTIFICATION****Emergency Overview**

Form : Liquefied gas

Color : clear colourless

Odor : slight ether-like

**Classification of the substance or mixture**

Classification of the substance or mixture : Gases under pressure, Liquefied gas  
Simple Asphyxiant

**GHS Label elements, including precautionary statements**

Symbol(s) :



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Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.  
May displace oxygen and cause rapid suffocation.

Precautionary statements : **Prevention:**  
Use personal protective equipment as required.

**Storage:**  
Protect from sunlight. Store in a well-ventilated place.

Hazards not otherwise classified : May cause frostbite.  
May cause cardiac arrhythmia.  
May cause eye and skin irritation.

**Carcinogenicity**

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP, IARC, or OSHA.

**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Chemical nature : Mixture

| Chemical Name                       | CAS-No.    | Concentration |
|-------------------------------------|------------|---------------|
| Difluoromethane                     | 75-10-5    | 26.00 %       |
| Pentafluoroethane                   | 354-33-6   | 26.00 %       |
| 1,1,1,2-Tetrafluoroethane           | 811-97-2   | 21.00 %       |
| 2,3,3,3-Tetrafluoroprop-1-ene       | 754-12-1   | 20.00 %       |
| trans-1,3,3,3-Tetrafluoroprop-1-ene | 29118-24-9 | 7.00 %        |

**SECTION 4. FIRST AID MEASURES**

Inhalation : Move to fresh air. If breathing is irregular or stopped,

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- administer artificial respiration. Use oxygen as required, provided a qualified operator is present. Call a physician. Do not give drugs from adrenaline-ephedrine group.
- Skin contact** : After contact with skin, wash immediately with plenty of water. If there is evidence of frostbite, bathe (do not rub) with lukewarm (not hot) water. If water is not available, cover with a clean, soft cloth or similar covering. If symptoms persist, call a physician.
- Eye contact** : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. In case of frostbite water should be lukewarm, not hot. If symptoms persist, call a physician.
- Ingestion** : Unlikely route of exposure. As this product is a gas, refer to the inhalation section. Do not induce vomiting without medical advice. Call a physician immediately.

**Notes to physician**

- Treatment** : Because of the possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be used with special caution and only in situations of emergency life support. Treatment of overexposure should be directed at the control of symptoms and the clinical conditions. Treat frost-bitten areas as needed.

**SECTION 5. FIREFIGHTING MEASURES**

- Suitable extinguishing media** : The product is not flammable. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Specific hazards during firefighting** : Contents under pressure. This product is not flammable at ambient temperatures and atmospheric pressure. However, this material can ignite when mixed with air under pressure and exposed to strong ignition sources. Container may rupture on heating. Cool closed containers exposed to fire with water spray. Do not allow run-off from fire fighting to enter drains or water courses. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. In case of fire hazardous decomposition products may be produced such as:

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Hydrogen halides  
Hydrogen fluoride  
Carbon monoxide  
Carbon dioxide (CO<sub>2</sub>)  
Carbonyl halides

Special protective equipment for firefighters : In the event of fire and/or explosion do not breathe fumes.  
Wear self-contained breathing apparatus and protective suit.  
No unprotected exposed skin areas.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions : Immediately evacuate personnel to safe areas.  
Keep people away from and upwind of spill/leak.  
Wear personal protective equipment. Unprotected persons must be kept away.  
Remove all sources of ignition.  
Avoid skin contact with leaking liquid (danger of frostbite).  
Ventilate the area.  
After release, disperses into the air.  
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.  
Avoid accumulation of vapours in low areas.  
Unprotected personnel should not return until air has been tested and determined safe.  
Ensure that the oxygen content is  $\geq 19.5\%$ .

Environmental precautions : Prevent further leakage or spillage if safe to do so.  
The product evaporates readily.

Methods for cleaning up : Ventilate the area.

**SECTION 7. HANDLING AND STORAGE****Handling**

Handling : Handle with care.  
Avoid inhalation of vapour or mist.  
Do not get in eyes, on skin, or on clothing.  
Wear personal protective equipment.  
Use only in well-ventilated areas.  
Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50 °C.  
Follow all standard safety precautions for handling and use of compressed gas cylinders.  
Use authorized cylinders only.

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Protect cylinders from physical damage.  
Do not puncture or drop cylinders, expose them to open flame or excessive heat.  
Do not pierce or burn, even after use. Do not spray on a naked flame or any incandescent material.  
Do not remove screw cap until immediately ready for use.  
Always replace cap after use.

Advice on protection against fire and explosion : The product is not flammable.  
Can form a combustible mixture with air at pressures above atmospheric pressure.

**Storage**

Requirements for storage areas and containers : Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use.  
Keep containers tightly closed in a dry, cool and well-ventilated place.  
Storage rooms must be properly ventilated.  
Ensure adequate ventilation, especially in confined areas.  
Protect cylinders from physical damage.

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Protective measures : Do not breathe vapour.  
Avoid contact with skin, eyes and clothing.  
Ensure that eyewash stations and safety showers are close to the workstation location.

Engineering measures : General room ventilation is adequate for storage and handling.  
Perform filling operations only at stations with exhaust ventilation facilities.

Eye protection : Wear as appropriate:  
Safety glasses with side-shields  
If splashes are likely to occur, wear:  
Goggles or face shield, giving complete protection to eyes

Hand protection : Leather gloves  
In case of contact through splashing:  
Protective gloves  
Neoprene gloves  
Polyvinyl alcohol or nitrile- butyl-rubber gloves

Skin and body protection : Avoid skin contact with leaking liquid (danger of frostbite).  
Wear cold insulating gloves/ face shield/ eye protection.

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Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment.  
Wear a positive-pressure supplied-air respirator.  
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.  
For rescue and maintenance work in storage tanks use self-contained breathing apparatus.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.  
Ensure adequate ventilation, especially in confined areas.  
Avoid contact with skin, eyes and clothing.  
Remove and wash contaminated clothing before re-use.  
Keep working clothes separately.

**Exposure Guidelines**

| Components                | CAS-No.  | Value                          | Control parameters                     | Update | Basis  |
|---------------------------|----------|--------------------------------|--|--------|--|
| Difluoromethane           | 75-10-5  | TWA :<br>Time weighted average | 2,200 mg/m <sup>3</sup><br>(1,000 ppm) | 2007   | WEEL:US. OARS.<br>WEELs Workplace Environmental Exposure Level Guide |
| Difluoromethane           | 75-10-5  | TWA :<br>Time weighted average | (1,000 ppm)                            | 1994   | Honeywell:Limit established by Honeywell International Inc.          |
| Pentafluoroethane         | 354-33-6 | TWA :<br>Time weighted average | (1,000 ppm)                            |        | Honeywell:Limit established by Honeywell International Inc.          |
| 1,1,1,2-Tetrafluoroethane | 811-97-2 | TWA :<br>Time weighted average | (1,000 ppm)                            |        | Honeywell:Limit established by Honeywell International Inc.          |
| 1,1,1,2-Tetrafluoroethane | 811-97-2 | TWA :<br>Time weighted average | 4,240 mg/m <sup>3</sup><br>(1,000 ppm) | 2007   | WEEL:US. OARS.<br>WEELs Workplace Environmental Exposure Level Guide |

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|-------------------------------------|------------|-------------------------------------|-------------|------------|---|
| 2,3,3,3-Tetrafluoroprop-1-ene       | 754-12-1   | TWA :<br>Time weighted average      | (500 ppm)   | 2009       | WEEL:US. OARS. WEELs Workplace Environmental Exposure Level Guide |
| 2,3,3,3-Tetrafluoroprop-1-ene       | 754-12-1   | TWA :<br>Time weighted average      | (500 ppm)   | 03 15 2010 | Honeywell:Limit established by Honeywell International Inc.       |
| 2,3,3,3-Tetrafluoroprop-1-ene       | 754-12-1   | STEL :<br>Short term exposure limit | (1,500 ppm) | 03 15 2010 | Honeywell:Limit established by Honeywell International Inc.       |
| trans-1,3,3,3-Tetrafluoroprop-1-ene | 29118-24-9 | TWA :<br>Time weighted average      | (800 ppm)   | 2012       | WEEL:US. OARS. WEELs Workplace Environmental Exposure Level Guide |
| trans-1,3,3,3-Tetrafluoroprop-1-ene | 29118-24-9 | TWA :<br>Time weighted average      | (800 ppm)   | 31.03.11   | Honeywell:Limit established by Honeywell International Inc.       |

**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

|                             |                           |
|-----------------------------|---------------------------|
| Physical state              | : Liquefied gas           |
| Color                       | : clear colourless        |
| Odor                        | : slight ether-like       |
| pH                          | : Note: neutral           |
| Melting point/range         | : Note: no data available |
| Boiling point/boiling range | : -45.9 - -39.8 °C        |
| Flash point                 | : Note: Not applicable    |

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|--|---|
| Lower explosion limit                  | : Note: None  |
| Upper explosion limit                  | : Note: None  |
| Vapor pressure                         | : 1,120 kPa<br>at 21.1 °C(70.0 °F)<br>2,588 kPa<br>at 54.4 °C(129.9 °F) |
| Vapor density                          | : 2.98 Note: (Air = 1.0)  |
| Density                                | : 1.11 g/cm <sup>3</sup>  |
| Water solubility                       | : Note: no data available   |
| Partition coefficient: n-octanol/water | : Note: no data available   |
| Auto-ignition temperature              | : 628 °C  |
| Decomposition temperature              | : > 250 °C<br>Note: To avoid thermal decomposition, do not overheat.    |

**SECTION 10. STABILITY AND REACTIVITY**

|                                    |  |
|------------------------------------|--|
| Chemical stability                 | : Stable under normal conditions.  |
| Possibility of hazardous reactions | : Hazardous polymerisation does not occur.   |
| Conditions to avoid                | : Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50 °C.<br>Decomposes under high temperature.<br>Some risk may be expected of corrosive and toxic decomposition products.<br>Can form a combustible mixture with air at pressures above atmospheric pressure.<br>Do not mix with oxygen or air above atmospheric pressure. |



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Incompatible materials to avoid : Potassium  
Calcium  
Powdered metals  
Finely divided aluminium  
Finely divided magnesium  
Zinc

Hazardous decomposition products : Halogenated compounds  
Hydrogen fluoride  
Carbonyl halides  
Carbon oxides

**SECTION 11. TOXICOLOGICAL INFORMATION**

Acute inhalation toxicity  
Difluoromethane : LC50: > 520000 ppm  
Exposure time: 4 h  
Species: Rat

Pentafluoroethane : > 769000 ppm  
Exposure time: 4 h  
Species: Rat

1,1,1,2-Tetrafluoroethane : LC50: > 500000 ppm  
Exposure time: 4 h  
Species: Rat

2,3,3,3-Tetrafluoroprop-1-ene : LC50: > 400000 ppm  
Exposure time: 4 h  
Species: Rat  
Method: OECD Test Guideline 403

trans-1,3,3,3-Tetrafluoroprop-1-ene : 100000 ppm  
Species: Mouse  
Note: Acute (4-Hour) Inhalation Toxicity Screening Study (mouse): No lethality at >100,000 ppm.

LC50: > 207000 ppm  
Exposure time: 4 h  
Species: Rat

Skin irritation  
2,3,3,3-Tetrafluoroprop-1-ene : Note: Not applicable  
Study technically not feasible.

trans-1,3,3,3- : Species: Rabbit

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|   |   |
|---|---|
| Tetrafluoroprop-1-ene                           | Result: No skin irritation<br>Method: OECD Test Guideline 404   |
| Eye irritation<br>2,3,3,3-Tetrafluoroprop-1-ene | : Note: Not applicable<br>Study technically not feasible.   |
| Sensitisation<br>Difluoromethane                | : Cardiac sensitization<br>Species: dogs<br>Note: No-observed-effect level<br>>350 000 ppm  |
| Pentafluoroethane                               | : Cardiac sensitization<br>Species: dogs<br>Note: No-observed-effect level<br>75 000 ppm<br>Lowest observed effect level<br>100 000 ppm |
| 1,1,1,2-Tetrafluoroethane                       | : Cardiac sensitization<br>Species: dogs<br>Note: No-observed-effect level<br>50 000 ppm<br>Lowest observed effect level<br>75 000 ppm  |
| 2,3,3,3-Tetrafluoroprop-1-ene                   | : Dermal<br>Note: Not applicable, as this product is a gas.<br>Study technically not feasible.  |
| trans-1,3,3,3-Tetrafluoroprop-1-ene             | : Cardiac sensitization<br>Species: dogs<br>Note: Did not cause sensitisation on laboratory animals.                                    |
| Repeated dose toxicity<br>Difluoromethane       | : Species: Rat<br>Application Route: Inhalation<br>Exposure time: (90 d)<br>NOEL: 50000 ppm<br>Subchronic toxicity                      |
| Pentafluoroethane                               | : Species: Rat<br>Application Route: Inhalation<br>Exposure time: (4 Weeks)<br>NOEL: 50000 ppm<br>Subchronic toxicity                   |

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|                                     |  |
|-------------------------------------|--|
| 1,1,1,2-Tetrafluoroethane           | : Species: Rat<br>NOEL: 40000 ppm  |
| 2,3,3,3-Tetrafluoroprop-1-ene       | : Species: Rat<br>Application Route: Inhalation<br>Exposure time: (2 Weeks)<br>No-observed-effect level: 50000 ppm<br>Method: OECD Test Guideline 412<br><br>Species: Rat<br>Application Route: Inhalation<br>Exposure time: (4 Weeks)<br>NOAEL (No observed adverse effect level): 50000 ppm<br>Method: OECD Test Guideline 412<br><br>Species: Rat<br>Application Route: Inhalation<br>Exposure time: (13 Weeks)<br>NOAEL (No observed adverse effect level): 50000 ppm<br>Method: OECD Test Guideline 413<br><br>Species: Rabbit, male<br>Application Route: Inhalation<br>Exposure time: (28 d)<br>No-observed-effect level: 500 ppm<br>Method: OECD Test Guideline 412<br>There are no observed toxicological effects, which result in classification as a specific target organ toxicant.<br><br>Species: Rabbit, female<br>Application Route: Inhalation<br>Exposure time: (28 d)<br>No-observed-effect level: 1000 ppm<br>Method: OECD Test Guideline 412<br>There are no observed toxicological effects, which result in classification as a specific target organ toxicant.<br><br>Species: Mini-pig<br>Application Route: Inhalation<br>Exposure time: (28 d)<br>NOAEL (No observed adverse effect level): 10000 ppm<br>highest exposure tested |
| trans-1,3,3,3-Tetrafluoroprop-1-ene | : Species: Rat<br>Application Route: Inhalation<br>Exposure time: (13 Weeks)<br>NOEL: 5000 ppm<br>Causes mild effects on the heart.  |

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|                                     |  |
|-------------------------------------|--|
| Genotoxicity in vitro               |  |
| Difluoromethane                     | : Test Method: Ames test<br>Result: negative   |
| Pentafluoroethane                   | : Test Method: Ames test<br>Result: negative   |
| 1,1,1,2-Tetrafluoroethane           | : Note: In vitro tests did not show mutagenic effects  |
| 2,3,3,3-Tetrafluoroprop-1-ene       | : Test Method: Ames test<br>Result: 20% and higher, positive in TA 100 and e. coli WP2 uvrA, negative in TA98, TA100, and TA1535.<br>Method: OECD Test Guideline 471 |
| trans-1,3,3,3-Tetrafluoroprop-1-ene | : Test Method: Chromosome aberration test in vitro<br>Cell type: Human lymphocytes<br>Result: negative   |
|                                     | : Cell type: Human lymphocytes<br>Result: negative<br>Method: Mutagenicity (in vitro mammalian cytogenetic test)   |
|                                     | : Test Method: Chromosome aberration test in vitro<br>Result: negative   |
|                                     | : Cell type: Human lymphocytes<br>Result: negative   |
|                                     | : Cell type: Chinese Hamster Ovary Cells<br>Result: negative   |
|                                     | : Test Method: Chromosome aberration test in vitro<br>Cell type: Human lymphocytes<br>Result: negative<br>Method: OECD Test Guideline 473<br>Note: Dose 760,000 ppm  |
|                                     | : Test Method: Ames test<br>Result: negative   |
| Genotoxicity in vivo                |  |
| Difluoromethane                     | : Species: Mouse<br>Cell type: Bone marrow<br>Method: Mutagenicity (micronucleus test)<br>Result: negative   |
| 2,3,3,3-Tetrafluoroprop-1-ene       | : Species: Mouse<br>Cell type: Micronucleus<br>Dose: up to 200,000 ppm (4 hour)  |

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|  | Method: OECD Test Guideline 474<br>Result: negative   |
|  | : Test Method: Unscheduled DNA synthesis<br>Dose: up to 50,000 ppm (4 weeks)<br>Method: OECD Test Guideline 486<br>Result: negative   |
|  | : Species: Rat<br>Cell type: Micronucleus<br>Dose: up to 50,000 ppm (4 weeks)<br>Method: OECD Test Guideline 474<br>Result: negative  |
| trans-1,3,3,3-Tetrafluoroprop-1-ene              | : Test Method: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)<br>Species: Mouse<br>Cell type: Micronucleus<br>Application Route: Inhalation<br>Result: negative  |
| Carcinogenicity<br>2,3,3,3-Tetrafluoroprop-1-ene | : Species: Rat<br>Note: Not classified as a human carcinogen. Substance not expected to be a carcinogen based on available data.  |
| Teratogenicity<br>Difluoromethane                | : Species: Rat<br>Dose: NOEL - 50,000 ppm<br>Note: Did not show teratogenic effects in animal experiments.<br><br>Species: Rabbit<br>Dose: NOEL - 50,000 ppm<br>Note: Did not show teratogenic effects in animal experiments.   |
| Pentafluoroethane                                | : Species: Rabbit<br>Application Route: Inhalation exposure<br>NOAEL, Teratog: 50,000 ppm<br>NOAEL, Maternal: 50,000 ppm<br>Note: Did not show teratogenic effects in animal experiments.<br><br>Species: Rat<br>Application Route: Inhalation exposure<br>NOAEL, Teratog: 50,000 ppm<br>NOAEL, Maternal: 50,000 ppm<br>Note: Did not show teratogenic effects in animal experiments. |

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trans-1,3,3,3-Tetrafluoroprop-1-ene : Species: Rabbit  
Method: Prenatal Developmental Inhalation Toxicity Study  
Note: Did not show teratogenic effects in animal experiments.

Species: Rat  
Method: Prenatal Developmental Inhalation Toxicity Study  
Note: Did not show teratogenic effects in animal experiments.

## Further information

1,1,1,2-Tetrafluoroethane : Note:  
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.  
Rapid evaporation of the liquid may cause frostbite.  
Avoid skin contact with leaking liquid (danger of frostbite).

**SECTION 12. ECOLOGICAL INFORMATION**

Toxicity to fish  
2,3,3,3-Tetrafluoroprop-1-ene : LC50: > 197 mg/l  
Exposure time: 96 h  
Species: Cyprinus carpio (Carp)  
Method: OECD Test Guideline 203  
Note: No demonstrable toxic effect in saturated solution.

trans-1,3,3,3-Tetrafluoroprop-1-ene : NOEC: > 117 mg/l  
Exposure time: 96 h  
Species: Cyprinus carpio (Carp)

Toxicity to daphnia and other aquatic invertebrates  
2,3,3,3-Tetrafluoroprop-1-ene : EC50: > 83 mg/l  
Exposure time: 48 h  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 202

trans-1,3,3,3-Tetrafluoroprop-1-ene : EC50: > 160 mg/l  
Exposure time: 48 h  
Species: Daphnia magna (Water flea)

Toxicity to algae  
2,3,3,3-Tetrafluoroprop-1-ene : EC50: > 100 mg/l  
Species: Scenedesmus capricornutum (fresh water algae)  
Method: OECD Test Guideline 201

trans-1,3,3,3- : Growth inhibition

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Tetrafluoroprop-1-ene

NOEC: > 170 mg/l  
Exposure time: 72 h  
Species: Algae

Bioaccumulation

2,3,3,3-Tetrafluoroprop-1-ene

: Note: Due to the distribution coefficient n-octanol/water, accumulation in organisms is not expected.

Biodegradability

Difluoromethane

: Note: Minimal

Pentafluoroethane

: Result: Not readily biodegradable.  
Value: 5 %  
Method: OECD 301 D

2,3,3,3-Tetrafluoroprop-1-ene

: Result: Not readily biodegradable.  
Method: OECD Test Guideline 301F

trans-1,3,3,3-Tetrafluoroprop-1-ene

: aerobic  
Result: Not readily biodegradable.**Further information on ecology**

Additional ecological information

: This product is subject to U.S. Environmental Protection Agency Clean Air Act Regulations at 40 CFR Part 82. This product contains greenhouse gases which may contribute to global warming. Do NOT vent to the atmosphere. To comply with provisions of the U.S. Clean Air Act, any residual must be recovered.

**SECTION 13. DISPOSAL CONSIDERATIONS**

Disposal methods

: Observe all Federal, State, and Local Environmental regulations.

**SECTION 14. TRANSPORT INFORMATION**

DOT

UN/ID No.

: UN 3163

Proper shipping name

: LIQUEFIED GAS, N.O.S.  
(Pentafluoroethane, Difluoromethane, 1,1,1,2-Tetrafluoroethane)

Class

2.2

Packing group

Hazard Labels

2.2

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|-------------|--|--|
| <b>IATA</b> | UN/ID No.                                | : UN 3163  |
|             | Description of the goods                 | : LIQUEFIED GAS, N.O.S.<br>(Pentafluoroethane, Difluoromethane, 1,1,1,2-Tetrafluoroethane) |
|             | Class                                    | : 2.2  |
|             | Hazard Labels                            | : 2.2  |
|             | Packing instruction (cargo aircraft)     | : 200  |
|             | Packing instruction (passenger aircraft) | : 200  |
| <b>IMDG</b> | UN/ID No.                                | : UN 3163  |
|             | Description of the goods                 | : LIQUEFIED GAS, N.O.S.<br>(PENTAFLUOROETHANE, DIFLUOROMETHANE, 1,1,1,2-TETRAFLUOROETHANE) |
|             | Class                                    | : 2.2  |
|             | Hazard Labels                            | : 2.2  |
|             | EmS Number                               | : F-C, S-V   |
|             | Marine pollutant                         | : no   |

**SECTION 15. REGULATORY INFORMATION****Inventories**

|  |   |
|--|---|
| US. Toxic Substances Control Act   | : On TSCA Inventory                                       |
| Australia. Industrial Chemical (Notification and Assessment) Act                     | : On the inventory, or in compliance with the inventory   |
| Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL) | : All components of this product are on the Canadian DSL. |
| Japan. Kashin-Hou Law List   | : On the inventory, or in compliance with the inventory   |
| Korea. Toxic Chemical Control Law (TCCL) List  | : On the inventory, or in compliance with the inventory   |
| Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act        | : Not in compliance with the inventory                    |
| China. Inventory of Existing   | : Not in compliance with the inventory                    |



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## Chemical Substances

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand : Not in compliance with the inventory

TSCA 12B : US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

2,3,3,3-Tetrafluoroprop-1-ene 754-12-1

**National regulatory information**

US. Toxic Substances Control Act (TSCA) Section 5(a)(2) Final Significant New Use Rules (SNURs) (40 CFR 721, Subpt E) : Issued.

: 2,3,3,3-Tetrafluoroprop-1-ene 754-12-1

**SARA 302 Components** : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

**SARA 311/312 Hazards** : Sudden Release of Pressure Hazard  
Acute Health Hazard

**California Prop. 65** : WARNING! This product contains a chemical known to the State of California to cause cancer.  
Dichloromethane 75-09-2

**Honeywell Solstice® N40 Refrigerant (R-448A)****000000017419**

Version 2.1

Revision Date 12/07/2015

Print Date 09/28/2016

: WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Chloromethane 74-87-3

**Massachusetts RTK** : Dichloromethane 75-09-2

**Pennsylvania RTK** : Difluoromethane 75-10-5

**WHMIS Classification** : A: Compressed Gas  
This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

**SECTION 16. OTHER INFORMATION**

|                 | <b>HMIS III</b> | <b>NFPA</b> |
|-----------------|-----------------|-------------|
| Health hazard   | : 1             | 2           |
| Flammability    | : 1             | 1           |
| Physical Hazard | : 0             |             |
| Instability     | :               | 0           |

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

**Further information**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

Previous Issue Date: 08/24/2015

Prepared by Honeywell Performance Materials and Technologies Product Stewardship Group