Solstice® N15 (R-515B)

10661616

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1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product information

Trade name	:	Solstice® N15 (R-515B)
Number	:	000000021925
Recommended use of the chemical and restrictions on use	:	Refrigerant
Manufacturer or supplier's details	:	Honeywell Trading (Shanghai) Co., Ltd. No.69 Xi Ya Rd, Shanghai, 020 200131
For further information, please contact:	:	800-522-8001 +1-973-455-6300 (Monday-Friday, 9:00am-5:00pm) In China: 021-28942149
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** **In China: 4001-204937 or +86 532-83889090**
	:	(24 hours/day, 7 days/week)

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture

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

GHS Label elements, including precautionary statements

Symbol(s) :



Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.

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

Other hazards which do not : Causes asphyxiation in high concentrations. The victim will not

result in classification realize that he/she is suffocating.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Mixture

Chemical name	CAS-No.	Concentration
trans-1,3,3,3-Tetrafluoroprop-1-ene trans-1,3,3,3-Tetrafluoroprop-1-ene	29118-24-9	91.10 %
1,1,1,2,3,3,3-Heptafluoropropane 1,1,1,2,3,3,3-Heptafluoropropane	431-89-0	8.90 %

4. FIRST AID MEASURES

Inhalation : Remove to fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Use oxygen as required, provided a qualified operator is present.
Call a physician.

Skin contact : Rapid evaporation of the liquid may cause frostbite.
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.
Call a physician if irritation develops or persists.

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 : Treat frost-bitten areas as needed.

5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Water mist

		Dry powder Foam Carbon dioxide (CO2)
Specific hazards during firefighting	:	Contents under pressure. Heating will cause pressure rise with risk of bursting Cool closed containers exposed to fire with water spray. Product is not combustible under normal conditions. However, this material can ignite when mixed with air under pressure and exposed to strong ignition sources. 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. Some risk may be expected of corrosive and toxic decomposition products. Fire may cause evolution of: Hydrogen fluoride Carbon oxides Carbonyl halides Halogenated compounds
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. Exposure to decomposition products may be a hazard to health.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	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.
Environmental precautions	:	Prevent further leakage or spillage if safe to do so. The product evapourates readily. Prevent spreading over a wide area (e.g. by containment or oil barriers).

Methods and materials for containment and cleaning up	:	Do not direct water spray at the point of leakage. Allow to evaporate.

7. HANDLING AND STORAGE

Handling

Precautions for safe handling	:	Handle with care. Avoid inhalation of vapour or mist. Do not get in eyes, on skin, or on clothing. Wear personal protective equipment. 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. 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	:	Do not spray on a naked flame or any incandescent material. Keep away from direct sunlight. Fire or intense heat may cause violent rupture of packages. Vapours may form explosive mixtures with air. The product is not easily combustible.

Storage

Conditions for safe storage, including any incompatibilities	:	Keep containers tightly closed in a cool, well-ventilated place. Keep away from direct sunlight. Protect cylinders from physical damage. Store away from incompatible substances.
Further information on storage conditions	:	Keep only in the original container at temperature not exceeding 50°C

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis

trans-1,3,3,3-Tetrafluoroprop-1-ene trans-1,3,3,3-Tetrafluoroprop-1-ene	29118-24-9	TWA : Time weighted average	(800 ppm)	31.03.11	Honeywell:Limit established by Honeywell International Inc.
		TWA : Time weighted average	(800 ppm)	2012	WEEL:US. OARS. WEELs Workplace Environmental Exposure Level Guide, as amended

Appropriate engineering controls

Local exhaust

Individual protection measures, such as personal protective equipment

Respiratory protection : In case of insufficient ventilation wear suitable respiratory equipment.
Wear a positive-pressure supplied-air respirator.

Hand protection : Protective gloves

Eye protection : Goggles

Skin and body protection : Impervious clothing
Wear cold insulating gloves/ face shield/ eye protection.

Hygiene measures : Avoid breathing vapours, mist or gas.
Keep working clothes separately.

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state : Liquefied gas

Colour : colourless

Odour	:	slight ether-like
pH	:	Note: neutral
Melting point/range	:	Note: no data available
	:	Note: no data available
Flash point	:	Note: Not applicable
Evaporation rate	:	Note: Not applicable
Lower explosion limit	:	Note: no data available
Upper explosion limit	:	Note: no data available
Vapour pressure	:	440 kPa at 21 °C(70 °F)
Vapour density	:	Note: no data available
Density	:	Note: no data available
Water solubility	:	Note: no data available
Partition coefficient: n-octanol/water	:	Note: no data available
Ignition temperature	:	Note: not determined
Viscosity, dynamic	:	Note: Not applicable
Viscosity, kinematic	:	Note: Not applicable

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. Can form a combustible mixture with air at pressures above atmospheric pressure. Do not mix with oxygen or air above atmospheric pressure.
Incompatible materials to avoid	:	Reactions with alkali metals.
Hazardous decomposition products	:	Carbon oxides Carbonyl halides Hydrogen fluoride Halogenated compounds

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	:	Note: Not applicable study technically not feasible
Acute inhalation toxicity 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
Acute dermal toxicity	:	Note: no data available study technically not feasible
Skin irritation trans-1,3,3,3-Tetrafluoroprop-1-ene	:	Species: Rabbit Result: No skin irritation Method: OECD Test Guideline 404
Eye irritation	:	Note: no data available study technically not feasible

Sensitisation trans-1,3,3,3-Tetrafluoroprop-1-ene	:	Cardiac sensitization Species: dogs Note: Did not cause sensitisation on laboratory animals.
Repeated dose toxicity trans-1,3,3,3-Tetrafluoroprop-1-ene	:	Species: Rat Application Route: Inhalation Exposure time: (13 Weeks) NOEL: 5000 ppm Causes mild effects on the heart.
Genotoxicity in vitro trans-1,3,3,3-Tetrafluoroprop-1-ene	:	Test Method: Chromosome aberration test in vitro Cell type: Human lymphocytes Result: negative
	:	Test Method: Ames test Result: negative
Genotoxicity in vivo trans-1,3,3,3-Tetrafluoroprop-1-ene	:	Test Method: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis) Species: Mouse Cell type: Micronucleus Application Route: Inhalation Result: negative
Teratogenicity 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	:	Note: Excessive exposure may cause central nervous system effects including drowsiness and dizziness. Excessive exposure may also cause cardiac arrhythmia. Rapid evaporation of the liquid may cause frostbite.

12. ECOLOGICAL INFORMATION

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

Toxicity to algae
trans-1,3,3,3-Tetrafluoroprop-1-ene : Growth inhibition
NOEC: > 170 mg/l
Exposure time: 72 h
Species: Algae

Biodegradability
trans-1,3,3,3-Tetrafluoroprop-1-ene : aerobic
Result: Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

CN HW China. National Catalogue of Hazardous Wastes : Hazardous waste

Disposal methods : In accordance with local and national regulations.

Disposal methods : Chemical residues in raw materials by the "National List of Hazardous Wastes" of the regulations, a hazardous waste, pollutants are according to Chinese state or local laws and regulations of the waste classification. According to our law requires specialized units to deal with commission, usually the final disposal of incineration or other legal means to dispose of.

14. TRANSPORT INFORMATION

CNDG

UN/ID No.	:	UN 3163
Description of the goods	:	LIQUEFIED GAS, N.O.S. (TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE, 1,1,1,2,3,3,3-HEPTAFLUOROPROPANE)
Class	:	2.2
Labels	:	2.2

IATA

UN/ID No.	:	UN 3163
Description of the goods	:	Liquefied gas, n.o.s. (trans-1,3,3,3-Tetrafluoroprop-1-ene, 1,1,1,2,3,3,3-Heptafluoropropane)
Class	:	2.2
Labels	:	2.2
Packing instruction (cargo aircraft)	:	200
Packing instruction (passenger aircraft)	:	200

IMDG

UN/ID No.	:	UN 3163
Description of the goods	:	LIQUEFIED GAS, N.O.S. (TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE, 1,1,1,2,3,3,3-HEPTAFLUOROPROPANE)
Class	:	2.2
Labels	:	2.2
EmS Number 1	:	F-C
EmS Number 2	:	S-V
Marine pollutant	:	no

15. REGULATORY INFORMATION

National regulatory information

: Refer to the following regulations: Dangerous Chemicals Management Ordinance, the State Council Order No. 591; GB16483-2008 MSDS content and order of items; GB-T 17519-2013 Material Safety Data Sheet written rules; GB12268-2012 Name List of dangerous goods; GB6944-2012 and the name of dangerous goods classification number; GB13690-2009 chemical formula for risk classification and General; GBZ 2.1-2007 workplace hazards Part 1 occupational exposure limit

chemical hazards; GB30000.2~29-2013 classification of chemicals, warning labels and warning statements of safety norms

Other international regulations

Notification status

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	:	Not in compliance with the inventory
Korea. Existing Chemicals Inventory (KECI)	:	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 Chemical Substances (IECSC)	:	On the inventory, or in compliance with the inventory
New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	:	On the inventory, or in compliance with the inventory

16. OTHER INFORMATION

		HMIS III	NFPA
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.
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