

Solstice® N15 (R-515B)

000000021925

Version 1.3

Revision Date 20.04.2020

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

1.1. Product identifier

Product name : Solstice® N15 (R-515B)
SDS-number : 000000021925
Type of product : Mixture
Remarks : SDS according to Art. 31 of Regulation (EC) 1907/2006.

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

Use of the Substance/Mixture : Refrigerant
Uses advised against : none

1.3. Details of the supplier of the safety data sheet

Company : Honeywell Fluorine Products Europe B.V.
Stationsplein Zuid-West 961
1117 CE Schiphol-Oost
Netherlands
Telephone : +32 16 391 211
Telefax :
For further information, please contact: : PMTEU Product Stewardship:
SafetyDataSheet@Honeywell.com
Honeywell International, Inc.
115 Tabor Road
Morris Plains, NJ 07950-2546
USA

1.4. Emergency telephone number

Emergency telephone number : +1-703-527-3887 (ChemTrec-Transport)
+1-303-389-1414 (Medical)
Country based Poison Control Center : see chapter 15.1

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Gases under pressure Liquefied gas
H280 Contains gas under pressure; may explode if heated.

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2.2. Label elements

REGULATION (EC) No 1272/2008

Hazard pictograms



Signal word

: Warning

Hazard statements

: H280

Contains gas under pressure; may explode if heated.

Precautionary statements

: P410 + P403

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

2.3. Other hazards

None known. Results of PBT and vPvB assessment, see chapter 12.5.

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Chemical name	CAS-No. Index-No. REACH Registration Number EC-No.	Classification 1272/2008	Concentration	Remarks
trans-1,3,3,3-Tetrafluoroprop-1-ene	29118-24-9 01-0000019758-54 471-480-0	Press. Gas ; H280	91,1 %	1*
1,1,1,2,3,3,3-Heptafluoropropane	431-89-0 01-2119485489-18 207-079-2	Press. Gas ; H280	8,9 %	1*

1* - For specific concentration limits see Annexes of 1272/2008

Remaining components of this product are non-hazardous and/or are present at concentrations below reportable limits.

Occupational Exposure Limit(s), if available, are listed in Section 8.

For the full text of the H-Statements mentioned in this Section, see Section 16.

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SECTION 4: First aid measures

4.1 Description of first aid measures

General advice:

Show this safety data sheet to the doctor in attendance. Keep warm and in a quiet place.

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. 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.

4.2. Most important symptoms and effects, both acute and delayed

no data available

4.3. Indication of any immediate medical attention and special treatment needed

no data available

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

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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Water mist

Dry powder

Foam

Carbon dioxide (CO₂)

5.2. Special hazards arising from the substance or mixture

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

5.3. Advice for firefighters

Wear full protective clothing and self-contained breathing apparatus.

Exposure to decomposition products may be a hazard to health.

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. In the event of fire, cool tanks with water spray.

SECTION 6: Accidental release measures

6.1. 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.

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6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. The product evaporates readily. Prevent spreading over a wide area (e.g. by containment or oil barriers).

6.3. Methods and materials for containment and cleaning up

Do not direct water spray at the point of leakage.
Allow to evaporate.

6.4. Reference to other sections

For personal protection see section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling:

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use. Exhaust ventilation at the object is necessary.

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.

Hygiene measures:

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

7.2. Conditions for safe storage, including any incompatibilities

Further information on storage conditions:

Keep containers tightly closed in a cool, well-ventilated place. Keep only in the original container at temperature not exceeding 50°C Keep away from direct sunlight.

7.3. Specific end use(s)

no additional data available

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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits:

Components	Basis / Value type	Value / Form of exposure	Exceeding Factor	Remarks
trans-1,3,3,3-Tetrafluoroprop-1-ene	HONEYWELL TWA	800 ppm		We are not aware of any national exposure limit.

TWA - Time weighted average

DNEL/ PNEC-Values

Component	End-use/impact	Exposure duration	Value	Exposure routes	Remarks
trans-1,3,3,3-Tetrafluoroprop-1-ene	Workers / Long-term systemic effects		3902 mg/m ³	Inhalation	
trans-1,3,3,3-Tetrafluoroprop-1-ene	Consumers / Long-term systemic effects		830 mg/m ³	Inhalation	
1,1,1,2,3,3,3-Heptafluoropropane	Workers / Long-term systemic effects		61279 mg/m ³	Inhalation	
1,1,1,2,3,3,3-Heptafluoropropane	Consumers / Long-term systemic effects		6533 mg/m ³	Inhalation	

Component	Environmental compartment / Value	Remarks
trans-1,3,3,3-Tetrafluoroprop-1-ene	Fresh water: 0,1 mg/l	Assessment factor: 1000
1,1,1,2,3,3,3-Heptafluoropropane	Fresh water: 0,1 mg/l	Assessment factor: 1000
1,1,1,2,3,3,3-Heptafluoropropane	Sewage treatment plant: 1,73 mg/l	Assessment factor: 100
1,1,1,2,3,3,3-Heptafluoropropane	Fresh water sediment: 1,3 mg/kg dw	

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8.2. Exposure controls

Occupational exposure controls

The Personal Protective Equipment must be in accordance with EN standards:respirator EN 136, 140, 149; safety glasses EN 166; protective suit: EN 340, 463, 468, 943-1, 943-2; gloves EN 374, 511; safety shoes EN-ISO 20345.

The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Avoid inhalation of vapour or mist.

Engineering measures

Local exhaust

Personal protective equipment

Respiratory protection:

In case of insufficient ventilation wear suitable respiratory equipment.

Self-contained breathing apparatus (EN 133)

Hand protection:

Protective gloves against cold
(EN 511)

Gloves must be inspected prior to use.

Replace when worn.

Eye protection:

Goggles

Skin and body protection:

Wear suitable protective equipment.

Wear as appropriate:

Protective suit

Environmental exposure controls

Handle in accordance with local environmental regulations and good industrial practices.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form : Liquefied gas

Colour : colourless

Odour : slight
ether-like

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	:	no data available
Flash point	:	Not applicable
Ignition temperature	:	not determined
Lower explosion limit	:	no data available
Upper explosion limit	:	no data available
Vapour pressure	:	440 kPa at 21 °C
Density	:	no data available
Viscosity, dynamic	:	Not applicable
Viscosity, kinematic	:	Not applicable
pH	:	neutral
Water solubility	:	no data available
Partition coefficient: n- octanol/water	:	no data available
Relative vapour density	:	no data available
Evaporation rate	:	Not applicable

9.2 Other Information

no additional data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions.

10.2. Chemical stability

Hazardous decomposition products formed under fire conditions.
To avoid thermal decomposition, do not overheat.

10.3. Possibility of hazardous reactions

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Hazardous polymerisation does not occur.

10.4. 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.

10.5. Incompatible materials

Reactions with alkali metals.

10.6. Hazardous decomposition products

Carbon oxides
Carbonyl halides
Hydrogen fluoride
Halogenated compounds

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity:

Not applicable
study technically not feasible

Acute dermal toxicity:

no data available
study technically not feasible

Acute inhalation toxicity:

LC0
Species: Rat
Value: > 207000 ppm
Exposure time: 4 h
Method: OECD Test Guideline 403
Test substance: trans-1,3,3,3-Tetrafluoroprop-1-ene

LC50

Species: Rat
Value: > 241000 ppm
Exposure time: 4 h
Test substance: Propane, 1,1,1,2,3,3,3-heptafluoro- (HFC-227ea)

Skin irritation:

Species: Rabbit
Result: No skin irritation
Method: OECD Test Guideline 404

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Test substance: trans-1,3,3,3-Tetrafluoroprop-1-ene

Eye irritation:

no data available

study technically not feasible

Respiratory or skin sensitisation:

Species: human

Result: Does not cause skin sensitisation.

Test substance: trans-1,3,3,3-Tetrafluoroprop-1-ene

Repeated dose toxicity:

Species: Rat

Application Route: Inhalation

Exposure time: 90 d

NOEL: 5000 ppm

Test substance: trans-1,3,3,3-Tetrafluoroprop-1-ene

Method: OECD Test Guideline 413

Note: Subchronic toxicity

Carcinogenicity:

Note: no data available

Germ cell mutagenicity:

Test Method: Chromosome aberration test in vitro

Cell type: Human lymphocytes

Result: negative

Method: OECD Test Guideline 473

Test substance: trans-1,3,3,3-Tetrafluoroprop-1-ene

Test Method: Ames test

Result: negative

Test substance: 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

Method: OECD Test Guideline 474

Test substance: trans-1,3,3,3-Tetrafluoroprop-1-ene

Result: negative

Species: Rabbit

Test substance: trans-1,3,3,3-Tetrafluoroprop-1-ene

Method: OECD 416

Note: Did not show teratogenic effects in animal experiments.

Species: Rat

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Test substance: trans-1,3,3,3-Tetrafluoroprop-1-ene
Method: OECD 416
Note: Did not show teratogenic effects in animal experiments.

Reproductive toxicity:

Test Type: Two-generation study
Method: OECD Test Guideline 416
Species: Rat
Route of Application: Inhalation
General Toxicity - Parent: NOEL: > 20.000 ppm
General Toxicity F1: NOEL: > 20.000 ppm
Remarks: trans-1,3,3,3-Tetrafluoroprop-1-ene

Method: OECD Test Guideline 414
Species: Rat
Route of Application: Inhalation
General Toxicity Maternal: NOEC: 15.000 ppm
Developmental Toxicity: NOAEC: 15.000 ppm
Remarks: trans-1,3,3,3-Tetrafluoroprop-1-ene

Aspiration hazard:

no data available

Other information:

Cardiac Sensitization (dog): No effects

SECTION 12: Ecological information

12.1. Toxicity

Toxicity to fish:

LC0
static test
Species: Cyprinus carpio (Carp)
Value: > 117 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Test substance: trans-1,3,3,3-Tetrafluoroprop-1-ene

Toxicity to aquatic plants:

NOEC
Growth rate
Species: Algae
Value: > 170 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Test substance: trans-1,3,3,3-Tetrafluoroprop-1-ene

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NOEC
Biomass
Species: Algae
Value: > 170 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Test substance: trans-1,3,3,3-Tetrafluoroprop-1-ene

Toxicity to aquatic invertebrates:

EC50
static test
Species: Daphnia magna (Water flea)
Value: > 160 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Test substance: trans-1,3,3,3-Tetrafluoroprop-1-ene

12.2. Persistence and degradability

Biodegradability:

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

12.3. Bioaccumulative potential

Test substance: trans-1,3,3,3-Tetrafluoroprop-1-ene
No bioaccumulation is to be expected (log Pow <= 4).

12.4. Mobility in soil

no data available

12.5. Results of PBT and vPvB assessment

no data available

12.6. Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product:

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Dispose according to legal requirements.

Packaging:

Legal requirements are to be considered in regard of reuse or disposal of used packaging materials

Further information:

Provisions relating to waste:

EC Directive 2006/12/EC; 2008/98/EEC
Regulation No. 1013/2006

For personal protection see section 8.

SECTION 14: Transport information

ADR/RID

UN Number : 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
Classification Code : 2A
Hazard Identification : 20
Number
ADR/RID-Labels : 2.2
Environmentally hazardous : no

IATA

UN Number : 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
Hazard Labels : 2.2

IMDG

UN Number : 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
Hazard Labels : 2.2
EmS Number : F-C, S-V
Marine pollutant : no

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SECTION 15: Regulatory information

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

Poison Control Center

Country	Phone Number
Austria	+4314064343
Belgium	070 245245
Bulgaria	(+35929154233
Croatia	(+3851)23-48-342
Cyprus	+357 2240 5611
Czech Republic	+420224919293; +420224915402
Denmark	82121212
Estonia	16662; (+372)6269390
Finland	9471977
France	+33(0)145425959
Greece	+30 210 779 3777
Hungary	(+36-80)201-199
Iceland	5432222
Ireland	+353(1)8092166
Italy	0382 24444
Germany	Berlin : 030/19240
	Bonn : 0228/19240
	Erfurt : 0361/730730
	Freiburg : 0761/19240
	Göttingen : 0551/19240
	Homburg : 06841/19240
	Mainz : 06131/19240
Munich : 089/19240	
Latvia	+37167042473

Country	Phone Number
Liechtenstein	+41 442515151
Lithuania	+370532362052
Luxembourg	070245245; (+352)80002-5500
Malta	+356 2395 2000
Netherlands	030-2748888
Norway	22591300
Poland	+48 42 25 38 400
Portugal	808250143
Romania	+40 21 318 3606
Slovakia (NTIC)	+421 2 54 774 166
Slovenia	+386 1 400 6051
Spain	+34915620420
Sweden	112 (begär Giftinformation);+46104566786
Switzerland	145
United Kingdom	(+44) 844 892 0111

Other inventory information

US. Toxic Substances Control Act

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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

15.2 Chemical safety assessment

A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

Text of H-statements referred to under heading 3

trans-1,3,3,3-Tetrafluoroprop-1-ene : H280 Contains gas under pressure; may explode if heated.

1,1,1,2,3,3,3-Heptafluoropropane : H280 Contains gas under pressure; may explode if heated.

Further information

All directives and regulations refer to amended versions.
Vertical lines in the left hand margin indicate a relevant amendment from the previous version.

Abbreviations:

EC European Community
CAS Chemical Abstracts Service
DNEL Derived no effect level

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PNEC Predicted no effect level

vPvB Very persistent and very bioaccumulative substance

PBT Persistent, bioaccumulative und toxic substance

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.
