

Solstice® PF-C with N2

000000018747

Version 2.7

Revision Date 13.01.2021

Supersedes 1

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

1.1. Product identifier

Product name : Solstice® PF-C with N2
SDS-number : 000000018747
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 : Solvent
Uses advised against : none

1.3. Details of the supplier of the safety data sheet

Company : Honeywell Advanced Limited Honeywell International, Inc.
Riverview House, Harvey's 115 Tabor Road
Quay Apartments Morris Plains, NJ 07950-2546
V94 R3DE Limerick USA
Ireland
Telephone : (353) 1 903 9302
For further information, : PMTEU Product Stewardship:
please contact: SafetyDataSheet@Honeywell.com

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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Long-term (chronic) aquatic hazard Category 3
H412 Harmful to aquatic life with long lasting effects.

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.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements : P273 Avoid release to the environment.
P410 + P403 Protect from sunlight. Store in a well-ventilated place.

Hazardous components which must be listed on the label : trans-1-Chloro-3,3,3-trifluoropropene

Special labelling of certain products: : Contains fluorinated greenhouse gases.

2.3. Other hazards

High vapour concentrations can cause headaches, dizziness, drowsiness, and nausea, and may lead to unconsciousness. May cause cardiac arrhythmia. The contents are pressurized with Nitrogen (N2).

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Chemical name	CAS-No. Index-No. REACH Registration	Classification 1272/2008	Concentration	Remarks
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	Number EC-No.			
trans-1-Chloro- 3,3,3- trifluoropropene	102687-65-0 700-486-0	Aquatic Chronic 3; H412 Press. Gas Liquefied gas; H280	< 100 %	

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.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice:

First aider needs to protect himself. Move out of dangerous area. Take off all contaminated clothing immediately.

Inhalation:

Move to fresh air. Artificial respiration and/or oxygen may be necessary. Call a physician immediately.

Skin contact:

After contact with skin, wash immediately with plenty of water. Take off contaminated clothing and shoes immediately. Wash clothing before reuse. Call a physician immediately.

Eye contact:

Remove contact lenses. Rinse immediately with plenty of water, also under the eyelids, for at least 5 minutes. Call a physician immediately.

Ingestion:

Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. 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

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

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

The product is not flammable.

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

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.

Exposure to decomposition products may be a hazard to health.

Fire may cause evolution of:

Hydrogen fluoride

Gaseous hydrogen chloride (HCl).

Carbon oxides

Halogenated compounds

Carbonyl halides

5.3. Advice for firefighters

Wear full protective clothing and self-contained breathing apparatus.

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

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Immediately contact emergency personnel. Wear personal protective equipment. Unprotected persons must be kept away. Ensure adequate ventilation. In case of insufficient ventilation wear suitable respiratory equipment. Ensure that the oxygen content is $\geq 19.5\%$.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers).

6.3. Methods and materials for containment and cleaning up

Contain and collect spillage with non-combustible absorbent materials, e.g. sand, earth, vermiculite, diatomaceous earth and place in container for disposal according to local regulations (see section 13). Minimize contact of spilled material with soils to prevent runoff to surface waterways. Place spilled material in an appropriate container for disposal.

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:

Do not breathe vapours or spray mist. Do not use in areas without adequate ventilation.

Advice on protection against fire and explosion:

Keep product and empty container away from heat and sources of ignition. Can form a combustible mixture with air at pressures above atmospheric pressure.

Hygiene measures:

Handle in accordance with good industrial hygiene and safety practice. Ensure adequate ventilation, especially in confined areas. Remove and wash contaminated clothing before re-use. Keep working clothes separately. Wash thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers:

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from direct sunlight.

7.3. Specific end use(s)

Specific use information:

Restricted to professional users.

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For industrial use only.

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-Chloro-3,3,3-trifluoropropene	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-Chloro-3,3,3-trifluoropropene	Workers / Long-term systemic effects		1779 mg/m3	Inhalation	
trans-1-Chloro-3,3,3-trifluoropropene	Consumers / Long-term systemic effects		379 mg/m3	Inhalation	
trans-1-Chloro-3,3,3-trifluoropropene	Consumers / Long-term systemic effects		109mg/kg bw/d	Ingestion	

Component	Environmental compartment / Value	Remarks
trans-1-Chloro-3,3,3-trifluoropropene	Fresh water: 0,038 mg/l	Assessment factor: 1000
trans-1-Chloro-3,3,3-trifluoropropene	Marine water: 0,0038 mg/l	Assessment factor: 10000
trans-1-Chloro-3,3,3-trifluoropropene	Fresh water sediment: 0,691 mg/kg dw	
trans-1-Chloro-3,3,3-trifluoropropene	Marine sediment: 0,0691 mg/kg dw	
trans-1-Chloro-3,3,3-trifluoropropene	Soil: 0,126 mg/kg dw	

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8.2. Exposure controls

Occupational exposure controls

Do not breathe vapours or spray mist.

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.

Personal protective equipment

Respiratory protection:

In case of insufficient ventilation wear suitable respiratory equipment.
Self-contained breathing apparatus (EN 133)

Hand protection:

Glove material: Viton®
Gloves must be inspected prior to use.
Replace when worn.

Eye protection:

Safety glasses with side-shields

Skin and body protection:

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

Physical state	:	gaseous
Colour	:	clear colourless
Odour	:	slight
Melting point/range	:	< -90 °C
Boiling point/boiling range	:	19 °C

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Method: OECD Test Guideline 103

Flammability : The product is not flammable.
Method: Flammability (gases)

Upper explosion limit : None

Lower explosion limit : None

Flash point : Method: ISO 2719
Not applicable

Ignition temperature : 380 °C
at 986,8 - 1.035,9 hPa
Method: DIN 51794

Water solubility : ca. 1,90 g/l
at 20 °C

Partition coefficient: n-
octanol/water : log Pow 2,2
at: 25 °C

Vapour pressure : 1.516 hPa
at 30 °C

Vapour pressure : 1.065 hPa
at 20 °C

Relative vapour density : (Air = 1.0)
not determined

9.2 Other Information

Oxidizing properties : The substance or mixture is not classified as oxidizing.

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under recommended storage conditions.

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10.2. Chemical stability

No decomposition if used as directed.

10.3. Possibility of hazardous reactions

Polymerisation can occur.

10.4. Conditions to avoid

Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 55 °C.
Can form a combustible mixture with air at pressures above atmospheric pressure.
Keep away from direct sunlight.

10.5. Incompatible materials

Strong oxidizing agents
Finely divided magnesium
Finely divided aluminium

10.6. Hazardous decomposition products

Halogenated compounds
Carbon oxides
Hydrogen fluoride
Carbonyl halides
Gaseous hydrogen chloride (HCl).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity:
Not applicable

Acute dermal toxicity:
Not applicable

Acute inhalation toxicity:
LC50
Species: Rat
Value: 120000 ppm
Exposure time: 4 h
Test substance: trans-1-Chloro-3,3,3-trifluoropropene

Skin irritation:

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Species: Rabbit
Result: No skin irritation
Classification: Not classified as a skin irritant in animal testing.
Exposure time: 4 h
Method: OECD Test Guideline 404
Test substance: trans-1-Chloro-3,3,3-trifluoropropene

Eye irritation:
Not applicable

Respiratory or skin sensitisation:
Result: Does not cause skin sensitisation.
Test substance: trans-1-Chloro-3,3,3-trifluoropropene
Patch test on human volunteers did not demonstrate sensitisation properties.

Cardiac sensitization
Species: dogs
Test substance: trans-1-Chloro-3,3,3-trifluoropropene
Cardiac sensitisation threshold (dog): 25000 ppm.

Repeated dose toxicity:
Species: Rat
Application Route: Inhalation (nose only)
Exposure time: 90 d
LOAEL: 4000
Test substance: trans-1-Chloro-3,3,3-trifluoropropene
Method: OECD Test Guideline 413
Note: Subchronic toxicity

Germ cell mutagenicity:
Test Method: Mutagenicity (Salmonella typhimurium - reverse mutation assay)
Result: negative
Test substance: trans-1-Chloro-3,3,3-trifluoropropene

Species: Rat
Cell type: Bone marrow
Method: Mutagenicity (micronucleus test)
Test substance: trans-1-Chloro-3,3,3-trifluoropropene
Result: negative

Test Method: Unscheduled DNA synthesis
Species: Rat
Test substance: trans-1-Chloro-3,3,3-trifluoropropene
Result: negative

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Species: Mouse
Cell type: Bone marrow
Method: Mutagenicity (micronucleus test)
Test substance: trans-1-Chloro-3,3,3-trifluoropropene
Result: negative

Reproductive toxicity:

Species: Rabbit
Remarks: No-observed-effect level - 15,000 ppm

Species: Rat

Remarks: No-observed-effect level - 10,000 ppm

Aspiration hazard:

No data available

11.2. Information on other hazards

Endocrine disrupting properties
No data available

Other information:

Excessive exposure may cause central nervous system effects including drowsiness and dizziness.
Cardiac Sensitization (dog): No effects for exposures up to 100000 ppm.

SECTION 12: Ecological information

12.1. Toxicity

Toxicity to fish:

LC50
Species: Oncorhynchus mykiss (rainbow trout)
Value: 38 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Test substance: trans-1-Chloro-3,3,3-trifluoropropene

Toxicity to aquatic plants:

EC50
Growth inhibition
Species: Pseudokirchneriella subcapitata (green algae)
Value: 106,7 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Test substance: trans-1-Chloro-3,3,3-trifluoropropene

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NOEC

Growth rate

Species: Pseudokirchneriella subcapitata (green algae)

Value: 115 mg/l

Exposure time: 72 h

Method: OECD Test Guideline 201

Test substance: trans-1-Chloro-3,3,3-trifluoropropene

Toxicity to aquatic invertebrates:

EC50

Immobilization

Species: Daphnia magna (Water flea)

Value: 82 mg/l

Exposure time: 48 h

Method: OECD Test Guideline 202

Test substance: trans-1-Chloro-3,3,3-trifluoropropene

12.2. Persistence and degradability

Biodegradability:

Biodegradation: 0 %

Exposure time: 28 d

Result: Not readily biodegradable.

Method: OECD 301 D

Test substance: trans-1-Chloro-3,3,3-trifluoropropene

12.3. Bioaccumulative potential

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

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

No data available

12.6. Endocrine disrupting properties

No data available

12.7. Other adverse effects

No data available

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product:

Offer surplus and non-recyclable solutions to a licensed disposal company. Refer to manufacturer/supplier for information on recovery/recycling.

Remarks:

The classification of the product may meet the criteria for a hazardous waste.

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

14.1 UN number

ADR/RID:3163

IMDG:3163

IATA:3163

14.2 UN proper shipping name

ADR/RID:LIQUEFIED GAS, N.O.S.(TRANS-1-CHLORO-3,3,3-TRIFLUOROPROPENE, NITROGEN)

IMDG:LIQUEFIED GAS, N.O.S.(TRANS-1-CHLORO-3,3,3-TRIFLUOROPROPENE,NITROGEN)

IATA:Liquefied gas, n.o.s.(Trans-1-Chloro-3,3,3-trifluoropropene, Nitrogen)

14.3 Transport hazard class(es)

ADR/RID: 2.2

IMDG: 2.2

IATA: 2.2

14.4 Packaging group

14.5 Environmental hazards

ADR/RID:no

Marine pollutant: no

14.6 Special precautions for user

No data available

14.7 Maritime transport in bulk according to IMO instruments

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No data available

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 112 (begär Giftinformation);+46104566786
Sweden	112 (begär Giftinformation);+46104566786
Switzerland	145
United Kingdom	(+44) 844 892 0111

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Other inventory information

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. Existing Chemicals Inventory (KECI)
On the inventory, or 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-Chloro-3,3,3-trifluoropropene : H412 Harmful to aquatic life with long lasting effects.
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:

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

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