

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878

SDS Reference Number: 100123400 Revision date: 11/25/2024 Supersedes version of: 2/3/2023 Version: 7.1

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

1.1. Product identifier

Product form : Substance

Solstice Propellant HFO 1234ze Name Chemical name : Trans-1,3,3,3-Tetrafluoroprop-1-ene

EC-No. : 471-480-0 CAS-No. : 29118-24-9 REACH registration No. 01-0000019758-54 Product code 100123400

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

Relevant identified uses

Use of the substance/mixture : Aerosol jet

1.3. Details of the supplier of the safety data sheet

Supplier

Dehon Service SAS 26 Avenue du Petit Parc 94683 VINCENNES Cedex

France

T 01 43 98 75 00, F 01 43 98 21 51 ContactFDS@climalife.dehon.com

Other

Climalife Kft Budepesta sucurcala Bucuresti Romania

Bulevardul Hristo Botev, Nr. 28,

Biroul NR 4. Modulul I Bucuresti Sectorul 3

Romania

ContactFDS@climalife.dehon.com

Other

Dehon Kälte-Fachvertriebs GmbH

Robert-Bosch-Strasse 14 40668 MEERBUSCH

Germany

T 00 49 2150 7073 0, F 00 49 2150 7073 17

ContactFDS@climalife.dehon.com

Other

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1090 Bruxelles

Belaium

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Other

Friogas sa

Poligono Industrial SEPES

Parcela 10

46500 SAGUNTO (Valencia)

T 00 34 9 6 266 36 32, F 00 34 9 6 266 50 25

ContactFDS@climalife.dehon.com

Other

Prochimac SA ZI Petits Champs 15 CH-1400 Yverdon-les-Bains

Switzerland

Other

Climalife Hongrie Kft. Villányi út 47 1118 Budapest Hungary

T (36) 23 431 660

ContactFDS@climalife.dehon.com

Other

Climalife Supplied by Inventec Performance Chemicals Italia SRL

Via del Lavoro, 10/G 20874 Busnago MB

Italia

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Other

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Sweden

T 00 46 735 01 90 50

ContactFDS@climalife.dehon.com

Dehon Service Nerderland B.V. Van Konijnenburgweg 84 NL-4612 PL Bergen Op Zoom

Netherlands

T 00 31 164 212 830, F 00 31 164 212 831

ContactFDS@climalife.dehon.com

Other

IDS Refrigeration Limited

22 Apex Court, Woodlands, Bradley Stoke

BS32 4JT Bristol United Kingdom

T 00 44 1179 802520, F 00 44 1179 802521

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Other

Galco s.a/n.v.

Avenue Carton de Wiart, 79

1090 BRUSSELS

Belgium

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Other

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Dubai

United Arab Emirates

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T 00 32 2 421 01 84, F 00 32 2 421 01 84 / 00 32 2 425 38 12

ContactFDS@climalife.dehon.com

Other

Galco Singapore Branch 135 Cecil Street #10-01

Singapore

ContactFDS@climalife.dehon.com

1.4. Emergency telephone number

Emergency number : +33 (0) 1 72 11 00 03

Country/Area	Organisation/Company	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 (Healthcare professionals- 24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)	
United Kingdom	National Poisons Information Service (Birmingham Centre) City Hospital	Dudley Road B18 7QH	0344 892 0111	Only for healthcare professionals

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Press. Gas (Liq.) H280 Full text of hazard classes, H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Contact with the liquid may cause frostbite and serious damage to eyes. Under certain temperature and pressure conditions may form a flammable mixture in the presence of air.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



GHS04

Signal word (CLP) : Warning

Hazard statements (CLP) : H280 - Contains gas under pressure; may explode if heated.

Precautionary statements (CLP) : P403 - Store in a well-ventilated place.

Extra phrases : Greenhouse fluorinated gas falling within Kyoto Protocol (GWP = 1,37).

2.3. Other hazards

Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

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SECTION 3: Composition/information on ingredients

3.1. Substances

Name : Solstice Propellant HFO 1234ze

CAS-No. : 29118-24-9 EC-No. : 471-480-0

Name	Product identifier		Classification according to Regulation (EC) No. 1272/2008 [CLP]
Trans-1,3,3,3-Tetrafluoroprop-1-ene	CAS-No.: 29118-24-9 EC-No.: 471-480-0 REACH-no: 01-0000019758- 54	100	Press. Gas (Liq.), H280

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Evacuate danger area. Keep warm and in a quiet place. Get medical advice/attention if you

feel unwell. If possible show him this sheet. Failing this, show him the packaging or label.

Take off immediately all contaminated clothing.

First-aid measures after inhalation : Move the affected person away from the contaminated area and into the fresh air. If you feel

unwell, seek medical advice.

First-aid measures after skin contact : In the event of contact with the liquid: treat resulting frostbite as a burn. Immediately remove

contaminated clothing or footwear. Immediately rinse with plenty of water. If skin burns

appear, call a doctor immediately.

First-aid measures after eye contact : Rinse immediately and thoroughly, pulling the eyelids well away from the eye (15 minutes

minimum). Consult an eye specialist immediately.

First-aid measures after ingestion : Not specifically applicable (gas).

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

Symptoms/effects : CNS depression. Narcosis. Cardiac disorders. Lack of oxygen: risk of death.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Dry powder. Water fog. Foam. Carbon dioxide.

Unsuitable extinguishing media : Strong water jet.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Difficult to ignite. Heating will cause a rise in pressure with a risk of bursting. Vapours are

heavier than air and can cause suffocation by reducing oxygen available for breathing.

Vapours may cause fire/explosion if source of ignition is present.

Hazardous decomposition products in case of fire : Toxic and corrosive fumes are released. See Section 10.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers.

Protection during firefighting : Self-contained breathing apparatus. Complete protective clothing.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures

: Avoid contact with skin and eyes. Remove all sources of ignition. Do not smoke. Evacuate the danger area. Do not breathe smoke. Stop the leak. Local evacuation is necessary (for people in close proximity to the spillage area).

No additional information available

6.2. Environmental precautions

Do not allow product to spread into the environment. Do not allow large quantities, as are, to spread into the environment. Do not discharge into drains or rivers.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : NEVER aim a water jet directly at a liquid.

Other information : Mechanically ventilate the spillage area.

6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection". For disposal of solid materials or residues refer to section 13: "Disposal considerations".

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling

: Avoid breathing spray, mist, fume, gas, dust, vapours. Ensure good ventilation of the work station. Pressurised container. Protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Do not spray on an open flame or other ignition source. Heating will cause a rise in pressure with a risk of bursting. Vapours may form explosive mixture with air. Difficult to ignite.

Hygiene measures

: Do not drink, eat or smoke in the workplace.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

Store: only in the original container, the container tightly closed, in a cool, well-ventilated area, away from direct sunlight.

Incompatible materials : Oxidizing materials.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

National occupational exposure and biological limit values

Solstice Propellant HFO 1234ze (29118-24-9)		
EU - Indicative Occupational Exposure Limit (IOEL)		
IOEL TWA 4240 mg/m³		
	1000 ppm	
Trans-1,3,3,3-Tetrafluoroprop-1-ene (29118-24-9)		
EU - Indicative Occupational Exposure Limit (IOEL)		
IOEL TWA	800 ppm (recommended)	

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DNEL and PNEC

Trans-1,3,3,3-Tetrafluoroprop-1-ene (29118-24-9)		
DNEL/DMEL (Workers)		
Long-term - systemic effects, inhalation	3902 mg/m³	
DNEL/DMEL (General population)		
Long-term - systemic effects, inhalation	830 mg/m³	
PNEC (Water)		
PNEC aqua (freshwater) 0.117 mg/l		
PNEC aqua (intermittent, freshwater)	1.17 mg/l	

8.2. Exposure controls

Personal protection equipment

Eye and face protection

Eye protection:

Safety glasses with side shields. ISO 16321-1

Skin protection

Skin and body protection:

Majority cotton protective clothing

Hand protection:

Leather protective gloves. Nitrile-rubber protective gloves. VITON gloves. ISO 374-1

Other skin protection

Materials for protective clothing:

Standard. EN 340, 463, 468, 943-1, 943-2. safety foot-wear. EN ISO 20345

Respiratory protection

Respiratory protection:

In the event of insufficient ventilation: Mask with ABEK or AX canister AX. In a confined area: Self-contained breathing apparatus. Regulatory Standard. EN 136. ISO 13688. EN 149

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Gas Colour · Colourless Appearance : Press. Gas (Liq.). Molecular mass : 114 g/mol Odour slightly ethereal. Odour threshold : Not available Melting point : Not applicable Freezing point : Not applicable Boiling point : -19 °C

Flammability : Non flammable, Under certain temperature and pressure conditions may form a flammable

mixture in the presence of air

Explosive properties : Not explosive material according to EC criteria.

Oxidising properties : Non oxidizing material according to EC criteria.

Lower explosion limit : None under normal conditions (20°C)
Upper explosion limit : None under normal conditions (20°C)

Flash point : None
Auto-ignition temperature : 368 °C
Decomposition temperature : Not available
pH : Not applicable
Viscosity, kinematic : Not applicable

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Solubility : Water: 0.373 g/l
Partition coefficient n-octanol/water (Log Kow) : Not available
Vapour pressure : 3.2 bar (20°C)
Vapour pressure at 50°C : 8.6 bar (50°c)
Density : 1.19 g/cm³ (20°C)
Relative density : Not applicable

Relative vapour density at 20°C : 4

Particle characteristics : Not applicable

9.2. Other information

Other safety characteristics

VOC content : 100 %

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable at ambient temperature and under normal conditions of use.

10.3. Possibility of hazardous reactions

No dangerous polymerization.

10.4. Conditions to avoid

Heat. Pressurised container. Protect from sunlight and do not expose to temperatures exceeding 50°C.

10.5. Incompatible materials

Additional information

Strong oxidizing agents. alkali metals.

10.6. Hazardous decomposition products

To avoid thermal decomposition, do not overheat. Hazardous decomposition products in case of fire. On thermal decomposition (pyrolysis), releases: Carbon oxides (CO, CO2), Fluorinated hydrocarbons, Hydrogen fluoride.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

Trans-1,3,3,3-Tetrafluoroprop-1-ene (29118-24-9)

LC50 Inhalation - Rat [ppm] > 207000 ppm/4h

Skin corrosion/irritation : Not irritating to skin pH: Not applicable

: Contact with the liquid the may cause cold burns/frostbite

Serious eye damage/irritation : Not classified

pH: Not applicable

Additional information : Contact with the liquefied gas may cause severe ocular lesions

Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified

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Trans-1,3,3,3-Tetrafluoroprop-1-ene (29118-24-9)	
NOAEC (inhalation, rat, gas, 90 days)	5000 ppmv/6h/day
Aspiration hazard :	Not applicable

11.2. Information on other hazards

Endocrine disrupting properties

Adverse health effects caused by endocrine disrupting properties

: The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment, short-term

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: Not classified

Hazardous to the aquatic environment, long-term

: Not classified

(chronic)

Trans-1,3,3,3-Tetrafluoroprop-1-ene (29118-24-9)		
LC50 - Fish [1]	> 117 mg/l Test organisms (species): Cyprinus carpio	
EC50 - Crustacea [1]	> 160 mg/l Test organisms (species): Daphnia magna	
EC50 72h - Algae [1]	> 170 mg/l Test organisms (species): Raphidocelis subcapitata (previous names: Pseudokirchneriella subcapitata, Selenastrum capricornutum)	
NOEC chronic crustacea	> 160 mg/l OCDE Ligne directrice 202 (48h)	
NOEC chronic algae	> 170 mg/l OCDE Ligne directrice 201 (72h)	

12.2. Persistence and degradability

Solstice Propellant HFO 1234ze (29118-24-9)		
Persistence and degradability Not readily biodegradable.		
Trans-1,3,3,3-Tetrafluoroprop-1-ene (29118-24-9)		
Persistence and degradability Not readily biodegradable.		

12.3. Bioaccumulative potential

Trans-1,3,3,3-Tetrafluoroprop-1-ene (29118-24-9)	
Partition coefficient n-octanol/water (Log Pow)	1.6

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

Adverse effects on the environment caused by endocrine disrupting properties

The substance is not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

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12.7. Other adverse effects

Other adverse effects : ODP (R-11=1)=0.

Additional information : GWP (CO2=1/100 years) = 1,37

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations

 $: \ \ \text{Methods of disposal of packaging. Reuse or recycle following decontamination. Destroy at} \\$

an authorised site.

Additional information

: The user's attention is drawn to the possible existence of specific european, national or

local regulations regarding disposal.

Ecological waste information

 $: \ \ \text{Must not be discharged to atmosphere. Refer to manufacturer or supplier for information on} \\$

recovery or recycling.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA

ADR	IMDG	IATA
14.1. UN number or ID number		
UN 3163	UN 3163	UN 3163
14.2. UN proper shipping name		
LIQUEFIED GAS, N.O.S. (Trans-1,3,3,3- Tetrafluoroprop-1-ene)	LIQUEFIED GAS, N.O.S. (Trans-1,3,3,3- Tetrafluoroprop-1-ene)	Liquefied gas, n.o.s. (Trans-1,3,3,3- Tetrafluoroprop-1-ene)
Transport document description		
UN 3163 LIQUEFIED GAS, N.O.S. (Trans-1,3,3,3-Tetrafluoroprop-1-ene), 2.2, (C/E)	UN 3163 LIQUEFIED GAS, N.O.S. (Trans-1,3,3,3-Tetrafluoroprop-1-ene), 2.2	UN 3163 Liquefied gas, n.o.s. (Trans-1,3,3,3- Tetrafluoroprop-1-ene), 2.2
14.3. Transport hazard class(es)		
2.2	2.2	2.2
14.4. Packing group		
Not applicable	Not applicable	Not applicable
14.5. Environmental hazards		
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No EmS-No. (Fire): F-C EmS-No. (Spillage): S-V	Dangerous for the environment: No

14.6. Special precautions for user

Overland transport

Classification code (ADR) : 2A
Special provisions (ADR) : 274, 662
Limited quantities (ADR) : 120ml
Tank code (ADR) : PxBN(M)
Transport category (ADR) : 3
Hazard identification number (Kemler No.) : 20

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Orange plates :

20 3163

Tunnel restriction code (ADR) : C/E EAC code : 2TE

Transport by sea

Special provisions (IMDG) : 274 Limited quantities (IMDG) : 120 ml

Air transport

PCA Limited quantities (IATA) : Forbidden
PCA limited quantity max net quantity (IATA) : Forbidden
PCA packing instructions (IATA) : 200
PCA max net quantity (IATA) : 75kg
CAO packing instructions (IATA) : 200
CAO max net quantity (IATA) : 150kg

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

EU-Regulations

REACH Annex XVII (Restriction List)

Not listed on REACH Annex XVII

REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Not listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Not listed on the PIC list (Regulation EU 649/2012)

POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

Ozone Regulation (1005/2009)

Not listed on the Ozone Depletion list (Regulation EU 1005/2009)

Council Regulation (EC) for the control of dual-use items

Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

VOC Directive (2004/42)

VOC content : 100 %

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

National regulations

Ensure all national/local regulations are observed.

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15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Indication of changes		
Section	Changed item	Comments
	Revision date	Modified
	Supersedes	Modified
	Adverse health effects caused by endocrine disrupting properties	Added
	Indication of changes	Removed
2.2	Extra phrases	Added
2.2	Precautionary statements (CLP)	Modified
3	Composition/information on ingredients	Modified
8	IOEL TWA	Added
8	IOEL TWA	Added
9	Vapour pressure	Modified
9	Vapour pressure at 50°C	Modified
9	VOC content	Added
9	Partition coefficient n-octanol/water (Log Pow)	Removed
12.3	Bioaccumulative potential	Removed
12.6	Adverse effects on the environment caused by endocrine disrupting properties	Added

Other information

: For more information regarding the use of this product, please refer to our technical information or contact the sales department in your region.

Full text of H- and EUH-statements:	
H280 Contains gas under pressure; may explode if heated.	
Press. Gas (Liq.)	Gases under pressure : Liquefied gas

Safety Data Sheet (SDS), EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.