

# SAFETY DATA SHEET

According to Regulation (EC) No.1907/2006

  
INTERNATIONAL

## Solstice™ 1234ze

Version: CLP04

Date: January 2019

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### 1. Identification of the substance / preparation and company / undertaking

Product name	HFO-1234ze, trans-1,3,3,3-Tetrafluoroprop-1-ene
REACH registration number	01-0000019758-54
Company	Harp International Ltd Gellihirion Industrial Estate Pontypridd Rhondda Cynon Taff CF37 5SX Tel: +44 (0) 1443 842255 Fax: +44 (0) 1443 841805 Email: harp@harpintl.com
Emergency phone number	+44 (0) 1270 502891 (24 hour)
Use	Refrigerant, propellant, foam blowing agent

### 2. Hazards identification

#### Classification of the substance or mixture

##### Classification according to Regulation (EC) No 1272/2008/EC (CLP/GHS)

Gases under pressure, Liquefied gas

H280 Contains gas under pressure; may explode if heated

#### Label elements

##### Labelling Pictograms



##### Signal word

Warning

##### Hazard statements

H280

Contains gas under pressure; may explode if heated

##### Precautionary statements

P281

Use personal protective equipment as required

P260

Do not breathe dust/fumes/gas/mist/vapours/spray

P308 + P313

If exposed or concerned: Get medical advice/attention

P410 + P403

Protect from sunlight. Store in a well-ventilated place

##### Potential health effects

Skin

Rapid evaporation of the liquid may cause frostbite

Eyes

May irritate eyes

Ingestion

Unlikely route of exposure

Inhalation

Inhalation may cause central nervous system effects. Vapours may cause dizziness and drowsiness.

Chronic exposure

None known

General advice

Warning. Container under pressure

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### Potential environmental effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal

## 3. Composition / information on ingredients

<b>Substance / mixture:</b>	Substance
CAS number	29118-24-9
EC No (from EINECS)	471-480-0

## 4. First aid measures

### 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	If inhaled, move to fresh air. Seek medical attention if irritation develops and persists.
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	If eye irritation persists, consult a specialist.

## 5. Fire-fighting measures

### Extinguishing media

Suitable extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water mist, dry powder, foam or carbon dioxide.
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### Special hazards arising from the substance or mixture

Specific hazards	Heating will cause pressure rise with risk of bursting. Some risk may be expected of corrosive and toxic decomposition products. Fire may cause evolution of hydrogen fluoride. However, this material can ignite when mixed with air under pressure and exposed to strong ignition sources.
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### Advice for fire fighters

Special protective equipment	Wear full protective clothing and self-contained breathing apparatus. Exposure to decomposition products may be a hazard to health.
Further information	In the event of fire, cool tanks with water spray.

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Provide adequate ventilation. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Avoid skin contact with leaking liquid (danger of frostbite). Use personal protective equipment. Keep people away from and upwind of spill/leak.

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### 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.

### Methods for cleaning up

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

## 7. Handling and storage

### Advice for safe handling

Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Do not burn. 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. Do not smoke.

### Further information on storage conditions

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

### Advice on common storage

Do not store together with: Oxidising agents

## 8. Exposure controls / personal protection

### Occupational exposure limits

Components	Basis	Value type	Control parameters	Exceeding factor	Form of exposure	Remarks
Trans-1,3,3,3-Tetrafluoroprop-1-ene	Honeywell	Time weighted average	800 ppm			We are not aware of any national exposure limit

### 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; 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.

### Environmental exposure controls

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

### Engineering measures

Local exhaust

### Personal protective equipment

Respiratory protection

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

Hand protection

Glove material: Vitron (R). Heat insulating gloves.

Eye protection

Goggles

Skin and body protection

Wear suitable protective equipment. Protective footwear.

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### 9. Physical and chemical properties

<b>Form</b>	Liquefied gas
<b>Appearance/colour</b>	Colourless
<b>Odour</b>	Slight, ether-like
<b>Boiling point</b>	-19°C
<b>Flash point</b>	Does not flash
<b>Auto-ignition temperature</b>	368°C
<b>Lower explosion limit</b>	No LEL and UEL was assigned at standard testing conditions, 20°C Exhibits flame limits at temperatures in excess of 28°C
<b>Upper explosion limit</b>	No LEL and UEL was assigned at standard testing conditions, 20°C Exhibits flame limits at temperatures in excess of 28°C
<b>Vapour pressure</b>	4.271 hPa at 20°C
<b>Vapour pressure</b>	11.152 hPa at 54,4°C
<b>Density</b>	1,17 g/cm <sup>3</sup> at 21,1°C
<b>pH</b>	Neutral
<b>Solubility in water</b>	0,373 g/l
<b>Partition coefficient (n-octanol/water)</b>	log Pow 1,6
<b>Relative vapour density</b>	4 (Air = 1.0)

### 10. Stability and reactivity

Conditions to avoid	Some risk may be expected of corrosive and toxic decomposition products. Avoid heat, flames and sparks.
Materials to avoid	Reactions with alkali metals.
Hazardous decomposition products	Pyrolysis products containing fluoride. Fluorocarbons. Hydrogen fluoride.
Stability and reactivity	Stable under normal conditions. Hazardous decomposition products formed under fire conditions. To avoid thermal decomposition, do not over heat.

### 11. Toxicological information

#### Information on toxicological effects

Acute oral toxicity	Not applicable
Acute dermal toxicity	No data available
Acute inhalation toxicity	LC50/rat, value: >207000 ppm, >965 mg/l. Exposure time: 4 h
Skin irritation	Species: rabbit, result: no skin irritation. Method: OECD Test guideline 404
Eye irritation	No data available
Sensitisation	Species: human, classification: non-sensitizing
Further information	Not mutagenic in Ames Test. May cause headache and dizziness. No experimental indications on genotoxicity in vivo found. Detailed toxicological data and examinations, exceeding the data set in the MSDS are available for professional users on request.

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### 12. Ecological information

#### Persistence and degradability

Biodegradability Aerobic. Result: Not readily biodegradable

#### Ecotoxicity effects

		Species	Value	Exposure time	Comment
Toxicity to fish	NOEC	Cyprinus carpio (Carp)	>117 mg/l	96 h	
Toxicity to aquatic plants	NOEC	Algae	>170 mg/l	72 h	Growth inhibition
Acute toxicity to aquatic invertebrates	EC50	Daphnia magna (water flea)	>160 mg/l	48 h	

### 13. Disposal considerations

Product	Dispose according to legal requirements. Contact manufacturer.
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; 91/689/EEC Regulation No. 1013/2006

### 14. Transport information

#### ADR/RID

Class	2
Classification code	2A
UN number	3163
Labels	2.2
Proper shipping name	LIQUIFIED GAS, N.O.S. (TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE)
Hazard number	20
Environmentally hazardous	No

#### IATA

Class	2.2
UN number	3163
Hazard labels	2.2
Proper shipping name	LIQUIFIED GAS, N.O.S. (TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE)

#### IMDG

Class	2.2
UN number	3163
Hazard labels	2.2
Proper shipping name	LIQUIFIED GAS, N.O.S. (TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE)
EmS number	F-C,S-V
Marine pollutant	No

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### 15. Regulatory information

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

#### Other inventory information

Country	Legislation	Information
US	Toxic Substances Control Act	On TSCA inventory
Australia	Industrial Chemical (Notification & Assessment) Act	Not in compliance with inventory
Canada	Canadian Environmental Protection Act (CEPA) Domestic Substances List (DSL)	Not in compliance with inventory
Japan	Kashin-Hou Law List	On the inventory or in compliance with the inventory
Korea	Existing Chemicals Inventory (KECI)	Not in compliance with inventory
Philippines	The Toxic Substances and Hazardous and Nuclear Waste Control Act	Not in compliance with inventory
China	Inventory of Existing Chemical Substances	On the inventory or in compliance with the inventory
New Zealand	Inventory of Chemicals (NZIoC), as published by ERMA New Zealand	Not in compliance with inventory

### 16. Other information

#### Abbreviations

EC	European Community
CAS	Chemical Abstract Service
WEL	Workplace Exposure Limit
MAK	Maximale Arbeitsplatz-Konzentration
AGW	Arbeitsplatzgrenzwert
STEL	Short Term Exposure Limit

#### Note

When using this document care should be taken as the decimal sign and its position complies with rules for the structure and drafting of international standards and is a comma on the line. As an example 2,000 is two (to three decimal places) and not two thousand, whilst 1.000 is one thousand and not one (to three decimal places).

This data sheet contains changes from the previous version, CLP03 dated January 2018. Sections 1 and 9 have been updated.

This datasheet was prepared in accordance with Regulation (EC) No. 1907/2006.

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