SAFETY DATA SHEET

(REACH regulation (EC) n° 1907/2006 - n° 2020/878)

SECTION 1 : IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product name : FREEZE SPRAY NON-FLAMMABLE

Product code : ZE1 | ZE2 | ZEP1.

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

Indispensable for tracing intermittent electrical faults and for fault-finding on temperature-sensitive components. Only use the product as directed on the aerosol.

1.3. Details of the supplier of the safety data sheet

Registered company name : Arctic Hayes Ltd

Address : Unit 9 Millshaw Park Avenue, Leeds, LS11 0LR, United Kingdom

Telephone : +44(0)113 271 5245

info.sales@arctic-hayes.com

https://www.arctic-hayes.com

1.4. Emergency telephone number : +44(0)113 271 5245

Association/Organisation : https://www.arctic-hayes.com

Hours of operation : Monday - Thursday : 8:30-17:00; Friday : 08:30-16:00

Other emergency numbers

United Kingdom : National Poisons Information Service : +44 (0)844 892 0111. Ireland : Poisons Information Centre of Ireland : +353 1 809 2166. Malta : Emergency number : 112 ; Medicines & Poisons info Office : 2545 6508.

SECTION 2 : HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

In compliance with EC regulation No. 1272/2008 and its amendments.

Aerosol, Category 3 (Aerosol 3, H229).

This substance does not present a health hazard with the exception of possible occupational exposure thresholds (see paragraphs 3 and 8).

This substance does not present an environmental hazard. No known or foreseeable environmental damage under standard conditions of use.

2.2. Label elements

Mixture for aerosol application.

In compliance with EC regulation No. 1272/2008 and its amendments.

Signal Word :

WARNING

Product identifiers :

EC 471-480-0 TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE

Additional labeling :

Hazard statements :

H229	Pressurised container: May burst if heated.

Precautionary statements - Prevention :

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P251	Do not pierce or burn, even after use.

Precautionary statements - Storage :

P410 + P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C.

2.3. Other hazards

The substance does not fulfil the PBT or vPvP criteria in accordance with annexe XIII of the REACH regulations EC 1907/2006.

Rapid evaporation of the liquid may cause frostbite.

Inhalation may cause central nervous system effects.

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Composition :

Identification	(EC) 1272/2008	Note	%
CAS: 29118-24-9 EC: 471-480-0 REACH: 01-0000019758-54 TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE	GHS04 Wng Press. Gas, H280	[1] [7]	100%

Information on ingredients :

[1] Substance for which maximum workplace exposure limits are available.

[7] Propellant gas

SECTION 4 : FIRST AID MEASURES

As a general rule, in case of doubt or if symptoms persist, always call a doctor.

NEVER induce swallowing by an unconscious person.

4.1. description of first aid measures

In the event of exposure by inhalation :

If inhaled, remove to fresh air. Get medical attention if irritation develops and persists.

In the event of splashes or contact with eyes :

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists : Get medical advice/attention.

In the event of splashes or contact with skin :

Rapid evaporation of the liquid may cause frostbite. If there is evidence of frostbite, take a bath (do not rub) with lukewarm (not hot) water. If water is not available, cover with a clean, soft cloth or similar covering. Get medical attention if irritation develops or persists.

In the event of swallowing :

Seek medical attention, showing the label.

As this product is a gas, refer to the inhalation section.

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

See section 11.

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

If you feel unwell, seek medical advice (show the label if possible). If symptoms persist, always call a doctor.

SECTION 5 : FIREFIGHTING MEASURES

5.1. Extinguishing media

If the aerosols are exposed to a fire : keep containers cool by spraying with water from a protected position.

Suitable methods of extinction

In the event of a fire, use :

- sprayed water or water mist
- powder
- foam
- carbon dioxide (CO2)

5.2. Special hazards arising from the substance or mixture

A fire will often produce a thick black smoke. Exposure to decomposition products may be hazardous to health.

Do not breathe in smoke.

In the event of a fire, the following may be formed :

- carbon monoxide (CO)
- carbon dioxide (CO2)
- Hydrogen fluoride
- Carbonyl halides
- Halogenated compounds

In a fire or if heated, a pressure increase will occur and the container may burst. Bursting aerosol containers may be propelled from a fire at high speed. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

5.3. Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

If possible, stop the product stream. Spray from a protected position till the containers are cool. If possible, take the aerosols outside. Keep public at a distance.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Consult the safety measures listed under headings 7 and 8.

For first aid worker

First aid workers will be equipped with suitable personal protective equipment (See section 8).

6.2. Environmental precautions

Contain and control the leaks or spills with non-combustible absorbent materials such as sand, earth, vermiculite, diatomaceous earth in drums for waste disposal.

Prevent any material from entering drains or waterways.

6.3. Methods and material for containment and cleaning up

Clean preferably with a detergent, do not use solvents.

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

6.4. Reference to other sections

No data available.

SECTION 7 : HANDLING AND STORAGE

Requirements relating to storage premises apply to all facilities where the substance is handled.

7.1. Precautions for safe handling

Always wash hands after handling.

Fire prevention :

Do not pierce or burn, even after use.

Prevent access by unauthorised personnel.

Recommended equipment and procedures :

For personal protection, see section 8.

Observe precautions stated on label and also industrial safety regulations.

Do not breathe in aerosols.

Prohibited equipment and procedures :

No smoking, eating or drinking in areas where the substance is used.

7.2. Conditions for safe storage, including any incompatibilities

No data available.

Storage

Pressurised container: protect from sunlight and do not expose to temperatures exceeding 50°C.

Keep away from heat and sources of ignition. Storage in a dry, frost-free and well ventilated place.

Store upright.

Packaging

Always keep in packaging made of an identical material to the original.

7.3. Specific end use(s)

No data available.

SECTION 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Occupational exposure limits :

Trans-1,3,3,3-Tetrafluoroprop-1-ene : RCP-TWA-ppm : 800

- Switzerland (Suva 2021) :

CAS	VME	VLE	Valeur plafond	Notations
29118-24-9	1000 ppm 4700 mg/m³	2000 ppm 9400 mg/m³		

Derived no effect level (DNEL) or derived minimum effect level (DMEL):

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE (CAS: 29118-24-9)

Final use:	**Workers.**
Exposure method:	Inhalation.
Potential health effects:	Long term systemic effects.
DNEL :	3902 mg of substance/m3

Final use:	**Consumers.**
Exposure method:	Inhalation.
Potential health effects:	Long term systemic effects.
DNEL :	830 mg of substance/m3

Predicted no effect concentration (PNEC):

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE (CAS: 29118-24-9)

Environmental compartment:	Fresh water.
PNEC :	0.1 mg/l

8.2. Exposure controls

Personal protection measures, such as personal protective equipment

Use personal protective equipment that is clean and has been properly maintained.

Store personal protective equipment in a clean place, away from the work area.

Never eat, drink or smoke during use. Remove and wash contaminated clothing before re-using. Ensure that there is adequate ventilation, especially in confined areas.

- Eye / face protection

Avoid contact with eyes.

Use eye protectors designed to protect against liquid splashes

Before handling, wear safety goggles in accordance with standard EN166.

Do not spray in the direction of the eyes.

- Hand protection

Wear suitable protective gloves in the event of prolonged or repeated skin contact.

Recommended properties :

- Protective gloves against cold (EN511)

Not necessary at efficient use. Wash your hands after contact with skin.

- Body protection

Work clothing worn by personnel shall be laundered regularly.

After contact with the product, all parts of the body that have been soiled must be washed.

Not necessary at efficient use. Product in contact with skin may cause frostbite. Wash skin that has been in contact with the product, with water and soap.

- Respiratory protection

Do not breathe spray. Use only in well-ventilated areas.

Exposure controls linked to environmental protection

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state

Physical state :	Fluid liquid.

Colour

Colourless, clear

Odour

Odour threshold :	Not stated.
Odour :	Ether-like

Freezing point

Freezing point / Freezing range :	Not stated.

Boiling point or initial boiling point and boiling range

Boiling point/boiling range :	Not relevant.

Flammability

Flammability (solid, gas) :	Not stated.
Flammability :	Not applicable

Lower and upper explosion limit

Explosive properties, lower explosivity limit (%) :	Not stated.
Explosive properties, upper explosivity limit (%) :	Not stated.

Flash point

Flash point interval :	Not relevant.

Auto-ignition temperature

Self-ignition temperature :	368 °C.

Decomposition temperature

Decomposition point/decomposition range :	Not relevant.

pH

pH (aqueous solution) :	Not stated.
pH :	Not relevant.

Kinematic viscosity

Viscosity :	Not stated.

Solubility

Water solubility :	Insoluble. 0.373 g/l
Fat solubility :	Not stated.

Partition coefficient n-octanol/water (log value)

Partition coefficient: n-octanol/water :	log Pow 1.6

Vapour pressure

Vapour pressure (50°C) :	Not relevant.

Density and/or relative density

Density :	1.17

Relative vapour density

Vapour density :	Not stated.

9.2. Other information

Pressure at 20°C :	± 5.0 bar
Pressure at 50°C :	< 12 bar
Water content :	< 0.3 % w/w

9.2.1. Information with regard to physical hazard classes

No data available.

9.2.2. Other safety characteristics

No data available.

SECTION 10 : STABILITY AND REACTIVITY

10.1. Reactivity

No data available.

10.2. Chemical stability

This substance is stable under the recommended handling and storage conditions in section 7.

10.3. Possibility of hazardous reactions

Under normal conditions of storage and use, hazardous reactions will not occur.

10.4. Conditions to avoid

Avoid :

- heat
- flames and hot surfaces
- frost

10.5. Incompatible materials

Keep away from :

- alkali metals

10.6. Hazardous decomposition products

The thermal decomposition may release/form :

- carbon monoxide (CO)

- carbon dioxide (CO2)
- Hydrogen fluoride
- Carbonyl halides
- Halogenated compounds

The product is stable. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11 : TOXICOLOGICAL INFORMATION

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

No data available.

11.1.1. Substances

Acute toxicity :

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE (CAS: 29118-24-9)

Inhalation route (Gas) : LC50 > 207000 ppm
Species : Rat
OECD Guideline 403 (Acute Inhalation Toxicity)
Duration of exposure : 4 h

Skin corrosion/skin irritation :

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE (CAS: 29118-24-9)

Species : Rabbit
OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

Germ cell mutagenicity :

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE (CAS: 29118-24-9)

No mutagenic effect.

Mutagenesis (in vivo) : Negative.
Species : Mouse
OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)

Mutagenesis (in vitro) : Negative.
Species : Others
OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)

Ames test (in vitro) : Negative.

Reproductive toxicant :

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE (CAS: 29118-24-9)

No toxic effect for reproduction

Study on fertility : Species : Rat
OECD Guideline 414 (Prenatal Developmental Toxicity Study)

Study on development : Species : Rat
OECD Guideline 416 (Two-Generation Reproduction Toxicity Study)

Specific target organ systemic toxicity - repeated exposure :

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE (CAS: 29118-24-9)

Inhalation route : C = 5000 ppmV/6h/day
Species : Rat
Duration of exposure : 90 days
OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day)

11.2. Information on other hazards

SECTION 12 : ECOLOGICAL INFORMATION

12.1. Toxicity

12.1.1. Substances

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE (CAS: 29118-24-9)

Fish toxicity :	LC50 > 117 mg/l Species : Cyprinus carpio Duration of exposure : 96 h OECD Guideline 203 (Fish, Acute Toxicity Test)
	NOEC > 117 mg/l Species : Cyprinus carpio Duration of exposure : 96 h OECD Guideline 203 (Fish, Acute Toxicity Test)
Crustacean toxicity :	EC50 > 160 mg/l Species : Daphnia magna Duration of exposure : 48 h OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Algae toxicity :	ECr50 > 170 mg/l Duration of exposure : 72 h OECD Guideline 201 (Alga, Growth Inhibition Test)
	NOEC > 170 mg/l Duration of exposure : 72 h OECD Guideline 201 (Alga, Growth Inhibition Test)

12.2. Persistence and degradability

12.2.1. Substances

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE (CAS: 29118-24-9)

Biodegradability :	Non-rapidly degradable.

12.3. Bioaccumulative potential

12.3.1. Substances

TRANS-1,3,3,3-TETRAFLUOROPROP-1-ENE (CAS: 29118-24-9)

Octanol/water partition coefficient :	log Koe <= 4

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

12.6. Endocrine disrupting properties

No data available.

12.7. Other adverse effects

No data available.

SECTION 13 : DISPOSAL CONSIDERATIONS

Proper waste management of the substance and/or its container must be determined in accordance with Directive 2008/98/EC.

13.1. Waste treatment methods

Do not pour into drains or waterways.

Waste :

Waste management is carried out without endangering human health, without harming the environment and, in particular without risk to water, air, soil, plants or animals.

Recycle or dispose of waste in compliance with current legislation, preferably via a certified collector or company.

Do not contaminate the ground or water with waste, do not dispose of waste into the environment.

Recycle or dispose of waste in complaince with current legislation, namely the Ordinance on the Avoidance and Disposal of Waste (Waste Ordinance, VVEA, SR 814.600), the Ordinance on Waste from June 22, 2005 (VeVA, SR 814, 610) and DETEC Ordinance on Waste Lists.

Disposal of the product (the unused product, residual quantities, the cured product, emptied but uncleaned packaging) : preferably by an approved waste collector or a specialist disposal company. Suitable containers and methods of waste treatment should be used.

Soiled packaging :

Empty container completely. Keep label(s) on container.

Give to a certified disposal contractor.

Codes of wastes (Decision 2014/955/EC, Directive 2008/98/EEC on hazardous waste) :

15 01 10 * packaging containing residues of or contaminated by dangerous substances

SECTION 14 : TRANSPORT INFORMATION

Transport product in compliance with provisions of the ADR for road, RID for rail, IMDG for sea and ICAO/IATA for air transport (ADR 2021 - IMDG 2020 - ICAO/IATA 2021).

14.1. UN number or ID number

1950

14.2. UN proper shipping name

UN1950=AEROSOLS, asphyxiant

14.3. Transport hazard class(es)

- Classification :

2.2

ADR/RID Label : Limited Quantity : 2.2 is not applicable.

14.4. Packing group

-

14.5. Environmental hazards

-

14.6. Special precautions for user

ADR/RID	Class	Code	Pack gr.	Label	Ident.	LQ	Provis.	EQ	Cat.	Tunnel
	2	5A	-	2.2	-	1 L	190 327 344 625	E0	3	E
IMDG	Class	2°Label	Pack gr.	LQ	EMS	Provis.	EQ	Stowage Handling	Segregation	
	2	See SP63	-	See SP277	F-D. S-U	63 190 277 327 344 381 959	E0	- SW1 SW22	SG69	
IATA	Class	2°Label	Pack gr.	Passager	Passager	Cargo	Cargo	note	EQ	
	2.2	-	-	203	75 kg	203	150 kg	A98 A145 A167 A802	E0	
	2.2	-	-	Y203	30 kg G	-	-	A98 A145 A167 A802	E0	

For limited quantities, see part 2.7 of the OACI/IATA and chapter 3.4 of the ADR and IMDG.

For excepted quantities, see part 2.6 of the OACI/IATA and chapter 3.5 of the ADR and IMDG.

14.7. Maritime transport in bulk according to IMO instruments

No data available.

SECTION 15: Regulatory information

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

- Classification and labelling information included in section 2:

The following regulations have been used:

- EU Regulation No. 1272/2008 amended by EU Regulation No. 2021/643 (ATP 16)
- EU Regulation No. 1272/2008 amended by EU Regulation No. 2021/849 (ATP 17)

- Container information:

No data available.

- Particular provisions :

No data available.

15.2. Chemical safety assessment

A chemical safety assessment has been carried out for the following products or for the substances in these products :

SECTION 16 : OTHER INFORMATION

Since the user's working conditions are not known by us, the information supplied on this safety data sheet is based on our current level of knowledge and on national and community regulations.

It is at all times the responsibility of the user to take all necessary measures to comply with legal requirements and local regulations.

The information in this safety data sheet must be regarded as a description of the safety requirements relating to the substance and not as a guarantee of the properties thereof.

Wording of the phrases mentioned in section 3 :

H280	Contains gas under pressure; may explode if heated.

Abbreviations :

LC50 : The concentration of a test substance resulting in 50% lethality in a given period.

EC50 : The effective concentration of substance that causes 50% of the maximum response.

ECr50 : The effective concentration of substance that causes 50% reduction in growth rate.

NOEC : The concentration with no observed effect.

REACH : Registration, Evaluation, Authorization and Restriction of Chemical Substances.

DNEL : Derived No-Effect Level

PNEC : Predicted No-Effect Concentration

STEL : Short-term exposure limit

TWA : Time Weighted Averages

TLV : Threshold Limit Value (exposure)

AEV : Average Exposure Value.

ADR : European agreement concerning the international carriage of dangerous goods by Road.

IMDG : International Maritime Dangerous Goods.

IATA : International Air Transport Association.

ICAO : International Civil Aviation Organisation

RID : Regulations concerning the International carriage of Dangerous goods by rail.

WGK : Wassergefahrdungsklasse (Water Hazard Class).

PBT: Persistent, bioaccumulable and toxic.

vPvB : Very persistent, very bioaccumulable.

SVHC : Substances of very high concern.

Difference Report

Revision: N°5 (21/10/2021) / GHS n°2 / HCS n°) / Version: N°1 (21/10/2021)

(REACH regulation (EC) n° 1907/2006 - n° 2020/878)

~~Revision: N°4 (10/01/2019) / GHS n°1 / HCS n°) / Version: N°4 (14/01/2019)~~

SAFETY DATA SHEET

~~(REACH regulation (EC) n° 1907/2006 - n° 2015/830)~~

SECTION 2 : HAZARDS IDENTIFICATION

In compliance with EC regulation No. 1272/2008 and its amendments.

Additional labeling :

SECTION 4 : FIRST AID MEASURES

In the event of swallowing :

Seek medical attention, showing the label.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

6.3. Methods and material for containment and cleaning up

Clean preferably with a detergent, do not use solvents.

SECTION 7 : HANDLING AND STORAGE

Storage

Store upright.

SECTION 8 : EXPOSURE CONTROLS/PERSONAL PROTECTION

- Hand protection

~~- Impervious gloves in accordance with standard EN ISO 374-2~~

- Respiratory protection

~~Wear a disposable half-mask aerosol filter in accordance with standard EN149.~~

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES

General information :

~~Spray.~~

~~Color :~~ ~~Colourless, clear~~

Important health, safety and environmental information

~~Flash point :~~ ~~Not applicable~~

Colour

Colourless, clear

Odour

Odour threshold : Not stated.

Freezing point

Freezing point / Freezing range : Not stated.

Boiling point or initial boiling point and boiling range

Boiling point/boiling range : Not relevant.

Flammability

Flammability (solid, gas) : Not stated.

Lower and upper explosion limit

Explosive properties, lower explosivity limit (%) : Not stated.

Explosive properties, upper explosivity limit (%) : Not stated.

Decomposition temperature

Decomposition point/decomposition range : Not relevant.

pH

pH (aqueous solution) : Not stated.

Kinematic viscosity

Viscosity : Not stated.

Solubility

Fat solubility : Not stated.

Relative vapour density

Vapour density : Not stated.

9.2.1. Information with regard to physical hazard classes

No data available.

9.2.2. Other safety characteristics

No data available.

SECTION 11 : TOXICOLOGICAL INFORMATION

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

No data available.

SECTION 14 : TRANSPORT INFORMATION

~~Transport product in compliance with provisions of the ADR for road, RID for rail, IMDG for sea and ICAO/IATA for air transport (ADR 2017 - IMDG 2016 - ICAO/IATA 2017).~~

ADR/RID	Class	Code	Pack gr.	Label	Ident.	LQ	Provis.	EQ	Cat.	Tunnel
	~~2~~	~~5A~~	~~-~~	~~2.2~~	~~-~~	~~1 L~~	~~190 327 344 625~~	~~E0~~	~~3~~	~~E~~

IMDG	Class	2°Label	Pack gr.	LQ	EMS	Provis.	EQ
	~~2~~	~~See SP63~~	~~-~~	~~See SP277~~	~~F-D,S-U~~	~~63 190 277 327 344 381 959~~	~~E0~~

Transport product in compliance with provisions of the ADR for road, RID for rail, IMDG for sea and ICAO/IATA for air transport (ADR 2021 - IMDG 2020 - ICAO/IATA 2021).

	2	5A	-	2.2	-	1 L	190 327 344 625	E0	3	E

IMDG	Class	2°Label	Pack gr.	LQ	EMS	Provis.	EQ	StowageHandling		Segregation
	2	See SP63	-	See SP277	F-D. S-U	63 190 277 327 344 381 959	E0	- SW1 SW22	SG69	

SECTION 15: Regulatory information

~~SECTION 15 : REGULATORY INFORMATION~~

- Classification and labelling information included in section 2:

~~- EU Regulation No. 1272/2008 amended by EU Regulation No. 2018/669 (ATP 11)~~

- EU Regulation No. 1272/2008 amended by EU Regulation No. 2021/643 (ATP 16)
- EU Regulation No. 1272/2008 amended by EU Regulation No. 2021/849 (ATP 17)

SECTION 16 : OTHER INFORMATION

Abbreviations :

LC50 : The concentration of a test substance resulting in 50% lethality in a given period.

EC50 : The effective concentration of substance that causes 50% of the maximum response.

ECr50 : The effective concentration of substance that causes 50% reduction in growth rate.

NOEC : The concentration with no observed effect.

REACH : Registration, Evaluation, Authorization and Restriction of Chemical Substances.