

HARP® R507

Version: CLP02

Date: June 2018

Page 1 of 7

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

Product name R507

REACH registration numbers 1,1,1-Trifluoroethane 01-2119492869-13
Pentafluoroethane 01-2119485636-25

Company Harp International Ltd
Gellihirion Industrial Estate
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Use Refrigeration

2. Hazards identification

EC Classification

Regulation (EC) No. 1272/2008 (CLP) Gases under pressure – Liquefied gas

Label Elements

Name on label

Hazardous components 1,1,1-Trifluoroethane (143a)
Pentafluoroethane (R125)

Hazard statement(s) H280: Contains gas under pressure; may explode if heated

Signal word(s) Warning

Hazard pictogram(s)



Precautionary statement(s)
Storage P410 + P403: Protect from sunlight. Store in a well-ventilated place.

Supplemental label information

Contains fluorinated greenhouse gas covered by the Kyoto Protocol
Asphyxiant in high concentrations

3. Composition / information on ingredients

Substance name	CAS No.	EC No.	Concentration	Classification according to Regulation 1272/2008
1,1,1-Trifluoroethane (143a)	420-46-2	206-996-5	50%	Flam. Gas 1; H220 Press. Gas H280
Pentafluoroethane (125)	354-33-6	206-557-8	50%	Press. Gas H280

For the full text of the H-statements mentioned in this section, see section 16.

SAFETY DATA SHEET

According to Regulation (EC) No.1907/2006


HARP
INTERNATIONAL

HARP® R507

Version: CLP02

Date: June 2018

Page 2 of 7

4. First aid measures

General advice	If unconscious place in recovery position and seek medical advice. Never give anything by mouth to an unconscious person. If breathing is irregular or stopped, administer artificial respiration. First aider needs to protect himself. If symptoms persist, call a physician.
Inhalation	Remove from exposure, lie down. Move to fresh air. Keep patient warm and at rest. Oxygen or artificial respiration may be necessary. Consult a physician.
Skin contact	Take off contaminated clothing and shoes immediately. Flush area with lukewarm water. Do not use hot water. If frostbite has occurred call a physician.
Eye contact	Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Obtain medical attention.
Ingestion	Not considered a potential route of exposure.
Most important symptoms/effects, acute and delayed	
Symptoms	Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects. Other symptoms potentially related to misuse or inhalation abuse are: anaesthetic effects, light-headedness, dizziness, confusion, incoordination, drowsiness or unconsciousness, irregular heartbeat with a strange sensation in the chest, heart thumping, apprehension, feeling faint, dizziness or weakness. Skin contact may provoke the following symptoms: Frostbite Eye contact may provoke the following symptoms: Frostbite
Indication of any immediate medical attention and special treatment needed	
Treatment	Do not give adrenaline or similar drugs

5. Fire-fighting measures

Extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Specific hazards arising from the Chemical	Pressure build-up Fire or intense heat may cause violent rupture of packages Hazardous thermal decomposition products: carbon oxides, hydrogen fluoride, fluorinated compounds Exposure to decomposition products may be hazardous to health
Special protective actions for Fire-Fighters	Wear self-contained breathing apparatus Use personal protective equipment Wear neoprene gloves during clean-up work after a fire
Further information	Cool containers / tanks with water spray

HARP® R507

Version: CLP02

Date: June 2018

Page 3 of 7

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	Immediately evacuate personnel to safe areas. Ventilate area, especially low or enclosed places where heavy vapours might collect. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	Should not be released into the environment In accordance with local and national regulations
Methods and materials for containment and cleaning up	Allow to evaporate
Reference to other sections	For disposal instructions see section 13.

7. Handling and storage

Precautions for safe handling

Advice on safe handling Avoid breathing vapours or mist. Avoid contact with skin, eyes and clothing. Provide sufficient air exchange and/or exhaust in work rooms. For personal protection see section 8.

Vapours are heavier than air and may spread along floors

Advice on protection against fire and explosion The product is not flammable in air under ambient conditions of temperature and pressure. When pressurised with air or oxygen, the mixture may become flammable. Certain mixtures of HCFCs or HFCs with chlorine may become flammable or reactive under certain conditions.

Conditions for storage, including incompatibilities

Requirements for storage areas and containers Do not drag, slide or roll cylinders. Never attempt to lift cylinder by its cap. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Keep at temperature not exceeding 52°C. Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from contamination. Protect cylinders from damage. Keep away from direct sunlight. Store only in approved containers.

Advice on common storage No materials to be especially mentioned.
For further information see section 10.

Storage temperature <52°C

Specific use(s) No data available

8. Exposure controls / personal protection

Control parameters

Derived No Effect Level

	Pentafluoroethane		1,1,1-Trifluoroethane	
	Workers	Consumers	Workers	Consumers
Type of application	Workers	Consumers	Workers	Consumers
Exposure routes	Inhalation	Inhalation	Inhalation	Inhalation
Health effect	Chronic effects, systemic toxicity	Chronic effects, systemic toxicity	Chronic effects, systemic toxicity	Chronic effects, systemic toxicity
Value	16444 mg/m ³	1753 mg/m ³	38800 mg/m ³	10700 mg/m ³

SAFETY DATA SHEET

According to Regulation (EC) No.1907/2006


HARP
INTERNATIONAL

HARP® R507

Version: CLP02

Date: June 2018

Page 4 of 7

Predicted No Effect Concentration

	Pentafluoroethane			1,1,1-Trifluoroethane
Value	0.1 mg/l	1 mg/l	0.6 mg/kg	350 mg/l
Compartment	Fresh water	Water	Fresh water sediment	Fresh water
Remarks		Intermittent use / release		

Exposure controls

Engineering measures

Ensure adequate ventilation, especially in confined spaces. Local exhaust should be used when large amounts are released.

Eye protection

Wear safety glasses or coverall chemical splash goggles.
Eye protection complying with EN 166 or ANSI Z87.1
Additionally wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material.

Hand protection

Material: Leather gloves
The suitability for a specific workplace should be discussed with the producers of the protective gloves

Material: Low temperature resistant gloves
Protective gloves complying with EN 374 or US OSHA guidelines

The choice of an appropriate glove does not depend on its material but also other quality features and is different from one producer to the other. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion and the contact time.

Skin and body protection

Wear suitable protective equipment
Wear as appropriate: impervious clothing

Protective measures

Self-contained breathing apparatus (SCBA) is required if a large release occurs. The type of protective equipment must be selected according to the concentration and amount of the substance at the specific workplace.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice

Respiratory protection

For rescue and maintenance work in storage tanks use self-contained breathing apparatus. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Respiratory protection complying with EN 137.

9. Physical and chemical properties

Form	Liquefied gas
Colour	Colourless
Odour	Slight, ether-like
pH	Neutral
Boiling point	-46.7°C at 1,013.25 hPa
Flash point	Does not flash
Vapour pressure	12,826 hPa at 25°C
Relative density	1.05 at 25°C
Water solubility	Not determined

HARP® R507

Version: CLP02

Date: June 2018

Page 5 of 7

10. Stability and reactivity

Reactivity	Decomposes on heating.
Chemical stability	The product is chemically stable
Possibility of hazardous reactions	Stable under recommended storage conditions
Conditions to avoid	Avoid open flames and high temperatures. The product is not flammable in air under ambient conditions of temperature and pressure. When pressurised with air or oxygen, the mixture may become flammable. Certain mixtures of HCFCs or HFCs with chlorine may become flammable or reactive under certain conditions. Pressurised container: Do not pierce or burn, even after use. Keep at temperature not exceeding 52°C.
Incompatible materials	Alkali metals, alkaline earth metals, powdered metals, powdered metal salts
Hazardous decomposition products	May include hydrogen fluoride, carbon oxides, fluorocarbons, carbonyl fluoride

11. Toxicological information

Information on toxicological effects

	Pentafluoroethane	1,1,1-Trifluoroethane
Acute oral toxicity	Not applicable	Not applicable
Acute inhalation toxicity	LC50 / 4h rat: >800000 ppm Low Observed Adverse Effect Concentration (LOAEC) / dog: 100000 ppm Cardiac sensitization	LC50 / 4 h rat: 591000 ppm LOAEC / dog: 300000 ppm Cardiac sensitization
Acute dermal toxicity	Not applicable	Not applicable
Skin irritation	Not tested on animals Classification: Not classified as irritant Result: No skin irritation Not expected to cause skin irritation based on expert review of the properties of the substance	Not tested on animals Classification: Not classified as irritant Result: No skin irritation Not expected to cause skin irritation based on expert review of the properties of the substance
Eye irritation	Not tested on animals Classification: Not classified as irritant Result: No eye irritation Not expected to cause eye irritation based on expert review of the properties of the substance	Not tested on animals Classification: Not classified as irritant Result: No eye irritation Not expected to cause eye irritation based on expert review of the properties of the substance
Sensitisation	Not tested on animals Classification: Not a skin sensitizer Result: Does not cause skin sensitization Not expected to cause sensitization based on expert review of the properties of the substance There are no reports of human respiratory sensitization	Not tested on animals Classification: Not a skin sensitizer Result: Does not cause skin sensitization Not expected to cause sensitization based on expert review of the properties of the substance There are no reports of human respiratory sensitization
Repeated dose toxicity	Inhalation rat No toxicologically significant effects were found	Inhalation rat No toxicologically significant effects were found

SAFETY DATA SHEET

According to Regulation (EC) No.1907/2006


HARP
INTERNATIONAL

HARP® R507

Version: CLP02

Date: June 2018

Page 6 of 7

	Pentafluoroethane	1,1,1-Trifluoroethane
Mutagenicity assessment	Animal testing did not show any mutagenic effects. Tests on bacterial or mammalian cell cultures did not show mutagenic effects	Animal testing did not show any mutagenic effects. Tests on bacterial or mammalian cell cultures did not show mutagenic effects
Carcinogenicity assessment	Not classifiable as a human carcinogen	Animal testing did not show any carcinogenic effects Not classifiable as a human carcinogen
Toxicity to reproduction assessment	No toxicity to reproduction	No toxicity to reproduction
Assessment teratogenicity	Did not show teratogenic effects in animal experiments	

Further information

Avoid skin contact with leaking liquid (danger of frostbite).

12. Ecological information

Toxicity

Pentafluoroethane					
Fish	LC50	96h	Danio rerio (zebra fish)	>200 mg/l	Information given is based on data obtained from similar substances
	LC50	96h	Oncorhynchus mykiss (rainbow trout)	450 mg/l	
Aquatic plants	EC50	96h	Algae	142 mg/l	
Aquatic invertebrates	EC50	48h	Daphnia magna (water flea)	>200 mg/l	

1,1,1-Trifluoroethane					
Fish	LC50	96h	Danio rerio (zebra fish)	>100 mg/l	
Aquatic invertebrates	EC50	48h	Daphnia	300 mg/l	

Persistence and degradability

Biodegradability 1,1,1-Trifluoroethane not readily biodegradable

Bioaccumulative potential No data available

Mobility No data available

Results of PBT and vPvB assessment No data available

Other adverse effects Ozone depletion potential = 0
Global Warming Potential = 3985

Additional ecological information IPCC – AR4 (Fourth Assessment Report of the Intergovernmental Panel on Climate Change) - 2007

13. Disposal considerations

Waste disposal methods Product can be used after re-conditioning. If re-conditioning is not practicable, dispose of in compliance with local regulations.

Contaminated packaging Empty pressure vessels should be returned to the supplier. If recycling is not practicable, dispose of in compliance with local regulations.

SAFETY DATA SHEET

According to Regulation (EC) No.1907/2006


INTERNATIONAL

HARP® R507

Version: CLP02

Date: June 2018

Page 7 of 7

14. Transport information

International transport regulations

ADR

UN number	1078
UN proper shipping name	Refrigerant gas, n.o.s. (Pentafluoroethane, 1,1,1-Trifluoroethane)
Transport hazard class(es)	2
Packing group	Not applicable
Environmental hazards	For further information see section 12
Special precautions for user	Tunnel restriction code (C/E)

IATA_C

UN number	1078
UN proper shipping name	Refrigerant gas, n.o.s. (Pentafluoroethane, 1,1,1-Trifluoroethane)
Transport hazard class(es)	2.2
Packing group	Not applicable
Environmental hazards	For further information see section 12
Special precautions for user	

IMDG

UN number	1078
UN proper shipping name	Refrigerant gas, n.o.s. (Pentafluoroethane, 1,1,1-Trifluoroethane)
Transport hazard class(es)	2.2
Packing group	Not applicable
Environmental hazards	For further information see section 12
Special precautions for user	

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

15. Regulatory information

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

Other regulations	Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work
Chemical safety assessment	Chemical safety assessments have been carried out for these substances

16. Other information

Full text of H-Statements referred to under section 3

H220	Extremely flammable gas
H280	Contains gas under pressure; may explode if heated

This datasheet was prepared in accordance with Regulation (EC) No. 1907/2006. This data sheet contains changes from the previous version, CLP01 dated March 2013. Sections 2, 3 & 16 were updated.

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