

Section 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier****Product name:** HEPTAFLUOROPROPANE**REACH registered number(s):** 01-2119485489-18**CAS number:** 431-89-0**EINECS number:** 207-079-2**Product code:** R227EA**Synonyms:** REFRIGERANT R227EA**1.2. Relevant identified uses of the substance or mixture and uses advised against****1.3. Details of the supplier of the safety data sheet**

Company name: National Refrigerants Ltd
4 Watling Close
Sketchley Meadows Business Park
Hinckley
Leicestershire
LE10 3EZ
United Kingdom
Tel: 01455 630790
Fax: 01455 630791
Email: sds@nationalref.com

1.4. Emergency telephone number**Emergency tel:** Carechem24 +44 (0)1865 407333**Section 2: Hazards identification****2.1. Classification of the substance or mixture****Classification under CLP:** Press. Gas: H280**Most important adverse effects:** Contains gas under pressure; may explode if heated.**2.2. Label elements****Label elements:****Hazard statements:** H280: Contains gas under pressure; may explode if heated.**Hazard pictograms:** GHS04: Gas cylinder**Signal words:** Warning

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Precautionary statements: P410+403: Protect from sunlight. Store in a well-ventilated place.

2.3. Other hazards

PBT: This product is not identified as a PBT/vPvB substance.

Section 3: Composition/information on ingredients

3.1. Substances

Chemical identity: HEPTAFLUOROPROPANE

CAS number: 431-89-0

EINECS number: 207-079-2

REACH registered number(s): 01-2119485489-18

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Remove all contaminated clothes and footwear immediately unless stuck to skin. Drench the affected skin with running water for 10 minutes or longer if substance is still on skin. Do not use hot water. If frostbite has occurred call a physician.

Eye contact: Bathe the eye with running water for 15 minutes. Transfer to hospital for specialist examination.

Ingestion: Not applicable.

Inhalation: If conscious, ensure the casualty sits or lies down. If unconscious, check for breathing and apply artificial respiration if necessary. Consult a doctor.

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

Skin contact: There may be redness or whiteness of the skin in the area of exposure. Frost-bite may occur causing the affected area to become white and numb.

Eye contact: There may be severe pain. Corneal burns may occur. May cause permanent damage.

Ingestion: Not applicable.

Inhalation: Inhalation may produce the following symptoms: Shortness of breath, dizziness, weakness, nausea, headache, narcosis, irregular cardiac activity. Asphyxia. May cause cardiac arrhythmia.

Delayed / immediate effects: May cause cardiac arrhythmia.

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

Immediate / special treatment: Do Not give adrenaline or similar drugs.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Carbon dioxide. Alcohol resistant foam. Dry chemical powder. Water spray. Use water spray to cool containers.

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5.2. Special hazards arising from the substance or mixture

Exposure hazards: Non flammable gas. In combustion emits toxic fumes of carbon dioxide / carbon monoxide. In combustion emits toxic fumes of hydrogen fluoride.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: If outside keep bystanders upwind and away from danger point. Ventilate the area, especially low or enclosed places where heavy vapours might collect.

6.2. Environmental precautions

Environmental precautions: The product evaporates readily. Stop release if safe to do so. Prevent from entering sewers, basements and work pits, or any place where the accumulation can be dangerous.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Material evaporates. Ventilate the area, especially low or enclosed places where heavy vapours might collect.

6.4. Reference to other sections

Reference to other sections: Refer to section 8 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Ensure there is sufficient ventilation of the area. Ensure there is exhaust ventilation of the area. Do not handle in a confined space.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in a cool, well ventilated area. Store at a temperature not exceeding 45°C.

Suitable packaging: Must only be kept in original packaging.

7.3. Specific end use(s)

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits:

Respirable dust

State	8 hour TWA	15 min. STEL	8 hour TWA	15 min. STEL
EU	1000 ppm	-	-	-

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DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: Ensure there is sufficient ventilation of the area. Ensure there is exhaust ventilation of the area. Use only in closed systems.

Respiratory protection: Self-contained breathing apparatus must be available in case of emergency.

Hand protection: Protective gloves.

Eye protection: Safety glasses with side-shields. Safety goggles. Face-shield. Ensure eye bath is to hand.

Skin protection: Protective clothing.

Environmental: Gas escapes to be kept to the minimum by engineering processes and operating methods.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquified gas

Colour: Colourless

Odour: Characteristic odour

Boiling point/range°C: -16.5

Melting point/range°C: -129.5

Flammability limits %: lower: Not applicable.

upper: Not applicable.

Flash point°C: Not applicable.

Part.coeff. n-octanol/water: log Pow: 2.3

Vapour pressure: 390 kPa at 20°C

Relative density: 6.04 (Air=1)

9.2. Other information

Other information: R227ea Liquid Density: 1.41 kg/l

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: Stable under recommended transport or storage conditions.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

Conditions to avoid: Heat. Hot surfaces. Flames. Direct sunlight.

10.5. Incompatible materials

Materials to avoid: Alkali metals. Alkali earth metals. Finely powdered metals. Oxidising agents.

10.6. Hazardous decomposition products

Haz. decomp. products: In combustion emits toxic fumes of carbon dioxide / carbon monoxide. In combustion emits toxic fumes of hydrogen fluoride.

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Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values:

Route	Species	Test	Value	Units
GASES	RAT	4H LC50	>788696	ppmV

Symptoms / routes of exposure

Skin contact: There may be redness or whiteness of the skin in the area of exposure. Frost-bite may occur causing the affected area to become white and numb.

Eye contact: There may be severe pain. Corneal burns may occur. May cause permanent damage.

Ingestion: Not applicable.

Inhalation: Inhalation may produce the following symptoms: Shortness of breath, dizziness, weakness, nausea, headache, narcosis, irregular cardiac activity. Asphyxia. May cause cardiac arrhythmia.

Delayed / immediate effects: May cause cardiac arrhythmia.

Section 12: Ecological information

12.1. Toxicity

Ecotoxicity values:

Species	Test	Value	Units
ZEBRAFISH (Brachydanio rerio)	96H LC50	>200	mg/l
Daphnia magna	48H EC50	>200	mg/l
GREEN ALGA (Selenastrum capricornutum)	72H ErC50	>114	mg/l

12.2. Persistence and degradability

Persistence and degradability: Not biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential: No bioaccumulation potential.

12.4. Mobility in soil

Mobility: Absorbed only slowly into soil.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

12.6. Other adverse effects

Other adverse effects: Ozone Depletion Potential (ODP): 0 (R11 = 1) R227ea Global Warming Potential (GWP): 3220 (CO₂=1)

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Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Product evaporates.

Recovery operations: Consult manufacturer or supplier for information regarding recovery and recycling of the product. If recovery is not possible, incinerate at a licenced instalation.

Waste code number: 14 06 01

Disposal of packaging: Return to supplier.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

14.1. UN number

UN number: UN3296

14.2. UN proper shipping name

Shipping name: HEPTAFLUOROPROPANE (R 227)

14.3. Transport hazard class(es)

Transport class: 2

14.4. Packing group

14.5. Environmental hazards

Environmentally hazardous: No

Marine pollutant: No

14.6. Special precautions for user

Tunnel code: C/E

Transport category: 3

Section 15: Regulatory information

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

Specific regulations: Contains fluorinated greenhouse gases covered by the Kyoto Protocol.

15.2. Chemical Safety Assessment

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 2015/830.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and s.3: H280: Contains gas under pressure; may explode if heated.

Legal disclaimer: National Refrigerants Ltd believes that the information and recommendations contained

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