

SAFETY DATA SHEET

Item Code: L0157

Section 1. Identification of the material and the supplier

Item Code:	L0157
Product:	Refrigerant Gas R407C
Product Use:	Refrigerant gas
New Zealand Supplier:	Realcold Ltd
Address:	9 Prescott Street Penrose, Auckland
Telephone:	09 526 5700
Fax Number:	09 526 5721
Emergency Telephone:	09 526 5700 0800 243 622 (0800 CHEMCALL)
Manufacturer:	Global Refrigerants Ltd 9 Tuas Link 1, Singapore
Date of SDS Preparation:	14 March 2017 – ver 2

Section 2. Hazards Identification

This substance has been determined by the manufacturer to be not hazardous according to the HSNO (Minimum Degrees of Hazard) Regulations 2001

This substance is classified as a dangerous good according to NZS5433: 2007 & the ADG Code

Section 3. Composition / Information on Ingredients

Ingredients	Wt%	CAS NUMBER.
1,1,1,2 Tetrafluoroethane	52%	811-97-2
Pentafluoroethane	25%	354-33-6
Difluoromethane	23%	75-10-5

Section 4. First Aid Measures

Routes of Exposure:

If in Eyes	Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.
If on Skin	Remove contaminated clothing and wash skin with warm soapy water. Do not scrub. If swelling, redness, blistering or irritation occurs, get medical assistance
If Swallowed	If swallowed, call a physician immediately. Only induce vomiting at the instruction of a physician. Never give anything by mouth to an unconscious person.

If Inhaled

Remove person to fresh air. Remove contaminated clothing and loosen remaining clothing. Allow person to assume most comfortable position and keep warm. Keep at rest until fully recovered. Get medical advice if breathing becomes difficult.

Section 5. Fire Fighting Measures

Hazard Type	Compressed Gas – Non Flammable
Hazards from decomposition products	HCF 407C is not flammable under ambient conditions of temperature and pressure. Certain mixtures of HCF 407C and air when under pressure may be flammable. Mixtures of HFC and Chlorine may be flammable or reactive under certain conditions. Thermal decomposition will evolve very toxic and corrosive vapours.
Suitable Extinguishing media	All extinguishing agents can be used.
Precautions for firefighters and special protective clothing	Stay upwind. Evacuate the personnel away from the fumes. Cool down the containers/ equipment exposed to heat with water spray. <i>Protection of the Fire Fighters:</i> Self Contained breathing apparatus and full protective clothing must be worn in fire conditions.
HAZCHEM CODE	2RE

Section 6. Accidental Release Measures

Personal Precautions: Avoid contact with skin and eyes, Do not breathe gas. No naked flames. Do not smoke for further information refer to section 8 "exposure controls/personal protection".

Heavy vapours, shut off low level openings in the vicinity(ventilation shafts, drains) prevent the product from entering cellars, basements, or pits since the vapour may create a suffocating atmosphere. Provided it is safe to do so, isolate the source of the leak. Allows small spillages to evaporate provided there is adequate ventilation.

Large Spillages: Ventilate spillage area, contain spillage with earth or sand or any suitable absorbent material.

Environmental Precautions: Contain the spilled material, prevent the product from spreading into the environment.

Methods of cleaning up: Recover as much product as possible, allow residual product to evaporate for disposal of contaminated material refer to section 13.

Section 7. Handling and Storage

Handling

Technical Measures: Ventilation is required, Use Closed systems. Avoid contact with hot surfaces. Avoid High temperatures. Smoking is forbidden. Avoid inhalation of high concentrations of vapours.

Atmospheric levels should be controlled in compliance with occupational exposure limit. The vapour is heavier than air, high

concentrations may be produced at low levels where general ventilation is poor, in such cases provide adequate ventilation or wear suitable respiratory protective equipment with positive air supply.

Avoid contact with naked flames as corrosive and very toxic decomposition products can be formed. Avoid contact between the liquid and skin and eyes.

Liquid transfer of refrigerants between refrigerant containers and to and from systems can result in static generation, ensure adequate earthing to avoid this.

Storage

Technical measures: Storage area should be equipped with ventilation at low level, Take necessary measures to avoid the accidental release of the product outside, due to rupture of containers or transfer systems.

Storage conditions: Keep the containers tightly closed and dry in a cool and well ventilated area at temperatures not exceeding 45C and away from any source of heat including direct sun light. Avoid storing near to the intake of air conditioning units, boiler units or open drains and away from any source of Ignition.

Packaging material: Steel is recommended.

Section 8 Exposure Controls / Personal Protection

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	CAS #	TWA	STEL		
		ppm	mg/m3	ppm	mg/m3
1,1,1,2-Tetrafluoroethane	811-97-2	1000ppm			
Pentafluoroethane	354-33-6	1000ppm			

Workplace Exposure Standard – Time Weighted Average (WES-TWA). *The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure.* Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). *The 15-minute average exposure standard.* Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply.

Engineering Controls

Ensure good ventilation of the work station

Personal Protection

In event of insufficient ventilation self contained apparatus is required, Refrigerants should only be handled with the use of protective gloves insulated against the cold. Eyes should be protected with goggles and to protect the skin and body Impermeable clothing should be worn. Do not drink eat or smoke in the workplace.

Section 9 Physical and Chemical Properties

Appearance Odour

Compressed Liquefied Gas, Colourless
Slight, ethereal

Boiling Point	-45.5°C – 38.6°C
Melting point	160°C
Oxidising properties	Non oxidising material according to EEC criteria
Vapour Pressure (mm Hg)	8250 at 20°C
Vapour density: (Air=1)	>2.5 at bubble point air = 1
Specific Gravity	1.21
Liquid density	11.924Kg/M3
Solubility in water	Insoluble

Section 10. Stability and Reactivity

Stability of Substance	Stable at ambient temperature and under normal conditions of use.
Conditions to Avoid	May decompose on contact with hot surfaces and flames.
Incompatible Materials	Incompatible with Alkali metals, sodium, Potassium, Barium, Magnesium, alloys and powdered metals.
Hazardous Decomposition Products	On Combustion or thermal decomposition (Pyrolysis) and Hydrolysis releases toxic gasses (halogenated compounds) (Hydrogen Chloride and Hydrogen Fluoride)

Section 11 Toxicological Information

Acute Toxicity:	Vapours: Published data
Acute Symptoms:	Effects following high level exposure: Headaches, Dizziness, Loss of Consciousness
Inhalation:	High exposures may cause abnormal heart rhythm and prove suddenly fatal. Very high atmospheric concentrations may cause anaesthetic effects and asphyxiation.
Skin Contact & Eye Contact:	Liquid splashes or spray may cause freeze burns unlikely to be hazardous through skin absorption.
Ingestion:	Highly unlikely but should this occur freeze burns will result
Long terms exposure: . :	A lifetime of inhalation study in animals has shown that high exposure if HCF 32 (49,500PPM) no significant effect in rats, HFC 125 inhalation study showed no significant effect (50,000PPM) in rats. HFC 134a a lifetime inhalation study showed that exposure to (50,000PPM) resulted in Benign tumours of the testes and is considered not to be of any relevance to humans occupationally exposed to HFC 407C. Contact with liquefied gas causes Frostbite and causes injury to the cornea.

Section 12. Ecotoxicological Information

Behaviour in the environment:	High tonnage material produced in wholly contained systems. High tonnage material used in open systems.
Mobility:	Product is Volatile when in aqueous solution
Persistence/Degradability:	Decomposes comparatively rapidly in lower atmosphere

Bioaccumulation: (troposphere), products of decomposition will be highly dispersed and hence will have a very low concentration.
Non Bioaccumlable

Destination of Product: AIR

Section 13. Disposal Considerations

Waste from Residues: Do not allow the product to be released into the environment, Consult the manufacturer or supplier for information regarding recovery and recycling of the product, if recovery is not possible Incinerate at a licensed installation.

Contaminated Packaging: Degas Reusable containers return to supplier Disposable containers dispose of at an authorised land fill site.

The users attention is drawn to the possible existence of local regulations regarding disposal.

Section 14 Transport Information

Classified as a Dangerous Good for transport

Road and Rail Transport (in NZ ; NZS 5433:2007)

UN No: 3340
Class-primary 2.2
Packing Group None allocated
Proper Shipping Name: NON FLAMMABLE COMPRESSED GAS.

Air Transport

UN No: 3340
Class-primary 2.2
Packing Group None allocated
Proper Shipping Name: NON FLAMMABLE COMPRESSED GAS.

Marine Transport

UN No: 3340
Class-primary 2.2
Packing Group None allocated
Proper Shipping Name: NON FLAMMABLE COMPRESSED GAS.

Section 15 Regulatory Information

This substance is not hazardous according to the *HSNO (Minimum Degrees of Hazard) Regulations 2001 & NOHSC*

Management of this product must comply with the HSNO (Compresses Gases) Regulations 2004

Section 16 Other Information

1. HSNO Approved Code of Practice: Preparation of Safety Data Sheets, September 2006.

Disclaimer

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Issue Date: 14 March 2017

Review Date: 14 March 2022