

Product Name REFRIGERANT R407C

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name REALCOLD PTY LTD
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Synonym(s) 1,1,1,2-TETRAFLUOROETHANE (HFC 134A) · DIFLUOROMETHANE (HFC-32) · PENTAFLUOROETHANE (HFC-125)
Use(s) AIR CONDITIONING · REFRIGERANT · REFRIGERATION SYSTEMS
SDS Date 02 July 2012

2. HAZARDS IDENTIFICATION

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

RISK PHRASES

None allocated

SAFETY PHRASES

None allocated

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

UN Number	3340	DG Division	2.2
Packing Group	None Allocated	Subsidiary Risk(s)	None Allocated
Hazchem Code	2TE		

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Identification	Classification	Content
1,1,1,2-TETRAFLUOROETHANE (HFC 134A)	CAS: 811-97-2 EC: 212-377-0	E;R4 E;R44 ;S23 ;S3 ;S51 ;S7 ;S9 ;S27 ;S60	52%
PENTAFLUOROETHANE (HFC-125)	CAS: 354-33-6 EC: 206-557-8	Not Available	25%
DIFLUOROMETHANE (HFC-32)	CAS: 75-10-5 EC: 200-839-4	Not Available	23%

4. FIRST AID MEASURES

Eye Cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.

Inhalation If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Be aware of possible explosive atmospheres. Apply artificial respiration if not breathing. Give oxygen if available.

Skin Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30°C)

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for 15 minutes. Apply sterile dressing and treat as for a thermal burn. For large burns, immerse in warm water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention.

Ingestion Ingestion is not considered a potential route of exposure.

Advice to Doctor Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flammability Non flammable. May evolve toxic gases (fluorides, carbon oxides, hydrocarbons) when heated to decomposition. May also evolve halogenated compounds and hydrogen chloride when heated to decomposition.

Fire and Explosion Temperatures in a fire may cause cylinders to rupture. Cool cylinders or containers exposed to fire by applying water from a protected location. Remove cool cylinders from the path of the fire. Evacuate the area if unable to keep cylinders cool. Do not approach cylinders or containers suspected of being hot.

Extinguishing Use water fog to cool containers from protected area.

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2 Water Fog (or fine water spray if fog unavailable)
 T Self Contained Breathing apparatus and protective gloves.
 E Evacuation of people in the vicinity of the incident should be considered.

6. ACCIDENTAL RELEASE MEASURES

Spillage If the cylinder is leaking, evacuate area of personnel. Inform manufacturer/supplier of leak. Use personal protective equipment. Always ensure cylinder pressure is below equipment pressure rating and relief valve setting. Contact manufacturer for further information. Leak checking may be done by pressure drop test or by using soapy water on outlets and inlets. Shut cylinder valve to stop gas leaks from equipment if possible and safe to do so. Depressurise the equipment, disconnect cylinder from equipment and move the cylinder to a well vented area, preferably outdoors. Never attempt to repair a leaking or damaged cylinder valve.

7. STORAGE AND HANDLING

Storage Do not store near incompatible materials. Cylinders should be stored below 45°C in a secure area, upright and restrained to prevent cylinders from falling. Cylinders should also be stored in a dry, well ventilated area constructed of non-combustible material with firm level floor (preferably concrete), away from areas of heavy traffic and emergency exits.

Handling Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Do not drag, drop, slide or roll cylinders. The uncontrolled release of a gas under pressure may cause physical harm. Use a suitable hand truck for cylinder movement.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m ³	ppm	mg/m ³
1,1,1,2-Tetrafluoroethane	SWA (AUS)	1000	4240	--	--
PENTAFLUOROETHANE (HFC-125)	SWA (AUS)	Asphyxiant			

Biological Limits No biological limit allocated.

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Engineering Controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain vapour levels below the recommended exposure standard.

PPE

Eye / Face Wear safety glasses.
Hands Wear nitrile gloves.
Body Wear coveralls and safety boots.
Respiratory Where an inhalation risk exists, wear an Air-line respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	COLOURLESS GAS (LIQUEFIED UNDER PRESSURE)
Odour	FAINT ETHEREAL ODOUR
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	-45°C to -38.6°C
Melting point	160°C
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	> 2.5 (Air = 1)
Specific gravity	1.21
Solubility (water)	NOT AVAILABLE
Vapour pressure	8250 mm Hg @ 20°C
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Partition coefficient	NOT AVAILABLE
% Volatiles	NOT AVAILABLE

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended conditions of storage.
Conditions to Avoid	Avoid heat, sparks, open flames and other ignition sources.
Material to Avoid	Incompatible with oxidising agents (eg. hypochlorites), alkalis/ alkali earth metals.
Hazardous Decomposition Products	May evolve toxic gases (fluorides, carbon oxides, hydrocarbons) when heated to decomposition.
Hazardous Reactions	Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary	Asphyxiant gas - non irritant. Adverse health effects may result from exposure at high levels or with direct contact. Prevent vapour build up and direct eye or skin contact. Over exposure may result in cardiac arrhythmias (irregular beating or arrest of the heart) in sensitive individuals. Individuals with pre-existing medical conditions may be at increased risk if over exposed.
Eye	Direct contact with evaporating liquid may result in cold burns, similar to frostbite injury, with possible permanent damage.
Inhalation	Asphyxiant. Effects are proportional to oxygen displacement. Acts as a simple asphyxiant by displacing oxygen in the lungs thereby diminishing the supply of oxygen to the blood and tissues.
Skin	Direct contact with the liquefied material or escaping compressed gas may cause cold burns similar to frostbite injury.
Ingestion	Ingestion is considered unlikely due to product form.
Toxicity Data	1,1,1,2-TETRAFLUOROETHANE (HFC 134A) (811-97-2)

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1,1,1,2-TETRAFLUOROETHANE (HFC 134A) (811-97-2)	
LC50 (inhalation)	1500 g/m ³ /4 hour (rat)
TCLo (inhalation)	5000 ppm/6 hour/2 years intermittently (rat)
PENTAFLUOROETHANE (HFC-125) (354-33-6)	
LC50 (inhalation)	2735 g/m ³ /2 hours (mouse)
DIFLUOROMETHANE (HFC-32) (75-10-5)	
LC50 (inhalation)	1810 g/m ³ (mouse)
TCLo (inhalation)	50000 ppm/6 hrs/6-15 days of pregnancy (rat)

12. ECOLOGICAL INFORMATION

Environment Release of hydrogenated chlorofluorocarbon compounds (HCFC's) into the environment should be minimised and where possible, recycling of HCFCs is recommended.

13. DISPOSAL CONSIDERATIONS

Waste Disposal It is an offence under Federal law to knowingly exhaust this product to atmosphere whether by intent or negligence.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE



	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
UN Number	3340	3340	3340
Proper Shipping Name		REFRIGERANT GAS R407C	
DG Class/ Division	2.2	2.2	2.2
Subsidiary Risk(s)	None Allocated	None Allocated	None Allocated
Packing Group	None Allocated	None Allocated	None Allocated
Hazchem Code	2TE		
Other Information	Ensure cylinder is separated from driver and that outlet of relief device is not obstructed.		

15. REGULATORY INFORMATION

Poison Schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP)

Inventory Listing(s) **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.
UNITED STATES: TSCA (US Toxic Substances Control Act)
All components are listed on the TSCA inventory, or are exempt.

16. OTHER INFORMATION

Additional Information ASPHYXIAN GASES: Asphyxiant gases may displace oxygen, leading to oxygen deficiency. Where oxygen content is low, effects may include: 12-16% oxygen: increased breathing/ pulse rate, lack of coordination; 10-14%: mental disturbance, fatigue, breathing stress; 6-10%: vomiting, collapse and possible unconsciousness; 0-6%: convulsions, respiratory collapse and death.

ASPHYXIANTS (1): When present in the atmospheres in high concentrations, asphyxiants reduce the oxygen concentration by displacement. Atmospheres deficient in oxygen do not provide adequate sensory warning of danger and most simple asphyxiants are odourless. Therefore it is not appropriate to recommend an exposure standard for each asphyxiant, but to maintain oxygen concentrations. However, some asphyxiants may be given an exposure standard due to the potential for narcotic effects at high concentrations or an explosion hazard.

ASPHYXIANTS (2): There is a significant hazard associated with workers entering poorly ventilated areas (eg. tanks) where oxygen may be deficient. An air supplied breathing apparatus may be required if adequate ventilation is not ensured.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:

The recommendation for protective equipment contained within this ChemAlert report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:

It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
GHS	Globally Harmonized System
IARC	International Agency for Research on Cancer
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m ³	Milligrams per Cubic Metre
PEL	Permissible Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
REACH	Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
TLV	Threshold Limit Value
TWA/OEL	Time Weighted Average or Occupational Exposure Limit

Revision History

Revision	Description
1.0	Initial SDS Creation Standard SDS Review

Report Status

This document has been compiled by RMT on behalf of the manufacturer of the product and serves as the manufacturer's Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

Product Name **REFRIGERANT R407C**

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End of SDS