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## 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

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### 1.1 Product identifier

**Product name** R407C (NZ)  
**Synonyms** 0307 - SDS NUMBER • BOC R407C • PRODUCT CODE: 244

### 1.2 Uses and uses advised against

**Uses** REFRIGERANT

### 1.3 Details of the supplier of the product

**Supplier name** BOC LIMITED (NEW ZEALAND)  
**Address** 988 Great South Road, Penrose, Auckland, NEW ZEALAND  
**Telephone** +64 9 525 5600  
**Email** [customer.servicenz@boc.com](mailto:customer.servicenz@boc.com)  
**Website** <http://www.boc.co.nz>

### 1.4 Emergency telephone numbers

**Emergency** 0800 111 333 (NZ only)

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## 2. HAZARDS IDENTIFICATION

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### 2.1 Classification of the substance or mixture

HAZARDOUS ACCORDING TO NZ ENVIRONMENTAL PROTECTION AUTHORITY CRITERIA

#### Physical Hazards

Gases Under Pressure: Liquefied gas

#### Health Hazards

Not classified as a Health Hazard

#### Environmental Hazards

Not classified as an Environmental Hazard

### 2.2 GHS Label elements

**Signal word** WARNING

**Pictograms**



#### Hazard statements

H280 Contains gas under pressure; may explode if heated.

#### Prevention statements

None allocated.

#### Response statements

None allocated.

#### Storage statements

P403 Store in a well-ventilated place.

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**Disposal statements**

None allocated.

**2.3 Other hazards**

No information provided.

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**3. COMPOSITION/ INFORMATION ON INGREDIENTS**

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**3.1 Substances / Mixtures**

Ingredient	CAS Number	EC Number	Content (v/v)
1,1,1,2-TETRAFLUOROETHANE (HFC 134A)	811-97-2	212-377-0	52%
PENTAFLUOROETHANE (HFC-125)	354-33-6	206-557-8	25%
DIFLUOROMETHANE (HFC-32)	75-10-5	200-839-4	23%

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**4. FIRST AID MEASURES**

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**4.1 Description of first aid measures**

<b>Eye</b>	Cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.
<b>Inhalation</b>	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.
<b>Skin</b>	Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30°C) for 15 minutes. It is recommended that warm water is applied to clothing before removing it so as to prevent further skin damage. 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.
<b>Ingestion</b>	Ingestion is not considered a potential route of exposure.
<b>First aid facilities</b>	None allocated.

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

In high concentrations may cause asphyxiation. Direct contact with the liquefied material or escaping compressed gas may cause frostbite injury.

**4.3 Immediate medical attention and special treatment needed**

Treat symptomatically.

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**5. FIRE FIGHTING MEASURES**

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**5.1 Extinguishing media**

Use water fog to cool containers from protected area.

**5.2 Special hazards arising from the substance or mixture**

Non flammable. May evolve toxic gases (fluorides, carbon oxides, hydrocarbons) when heated to decomposition.

**5.3 Advice for firefighters**

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.

**5.4 Hazchem code**

2TE	
2	Fine Water Spray.
T	Wear full fire kit and breathing apparatus. Dilute spill and run-off.
E	Evacuation of people in and around the immediate vicinity of the incident should be considered.

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**6. ACCIDENTAL RELEASE MEASURES**

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**6.1 Personal precautions, protective equipment and emergency procedures**

If the cylinder is leaking, evacuate area of personnel. Inform manufacturer/supplier of leak. Use Personal Protective Equipment (PPE) as detailed in Section 8 of the SDS.

**6.2 Environmental precautions**

Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

**6.3 Methods of cleaning up**

Carefully move material to a well ventilated remote area, then allow to discharge if safe to do so. Do not attempt to repair leaking valve or cylinder safety devices.

**6.4 Reference to other sections**

See Sections 8 and 13 for exposure controls and disposal.

**7. HANDLING AND STORAGE****7.1 Precautions for safe 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.

**7.2 Conditions for safe storage, including any incompatibilities**

Do not store near incompatible materials. Cylinders should be stored below 65°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.

**7.3 Specific end uses**

No information provided.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION****8.1 Control parameters****Exposure standards**

Ingredient	Reference	TWA		STEL	
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
1,1,1,2-Tetrafluoroethane (HCF 134a)	WES [NZ]	1000	--	--	--
PENTAFLUOROETHANE (HFC-125)	WES [NZ]	Asphyxiant			

**Biological limits**

No biological limit values have been entered for this product.

**8.2 Exposure controls****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**

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

**9. PHYSICAL AND CHEMICAL PROPERTIES****9.1 Information on basic physical and chemical properties**

<b>Appearance</b>	COLOURLESS LIQUID
<b>Odour</b>	SLIGHT SWEET/ETHEREAL ODOUR
<b>Flammability</b>	NON FLAMMABLE
<b>Flash point</b>	NOT RELEVANT
<b>Boiling point</b>	-43°C
<b>Melting point</b>	NOT AVAILABLE

**9.1 Information on basic physical and chemical properties**

Evaporation rate	NOT APPLICABLE
pH	NOT APPLICABLE
Vapour density	3 (Air = 1)
Relative density	NOT APPLICABLE
Solubility (water)	0.0015 g/g
Vapour pressure	1190 kPa @ 21°C
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

**9.2 Other information**

% Volatiles	100 %
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**10. STABILITY AND REACTIVITY**

**10.1 Reactivity**

Carefully review all information provided in sections 10.2 to 10.6.

**10.2 Chemical stability**

Stable under recommended conditions of storage.

**10.3 Possibility of hazardous reactions**

Polymerization will not occur.

**10.4 Conditions to avoid**

Avoid heat, sparks, open flames and other ignition sources.

**10.5 Incompatible materials**

Incompatible with oxidising agents (e.g. hypochlorites), alkalis (e.g. sodium hydroxide) and alkaline earth metals (e.g. manganese).

**10.6 Hazardous decomposition products**

May evolve toxic gases (fluorides, carbon oxides, hydrocarbons) when heated to decomposition.

**11. TOXICOLOGICAL INFORMATION**

**11.1 Information on toxicological effects**

**Acute toxicity** Based on available data, the classification criteria are not met.

**Information available for the ingredients:**

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
1,1,1,2-TETRAFLUOROETHANE (HFC 134A)	--	--	1500 g/m <sup>3</sup> /4 hour (rat)
PENTAFLUOROETHANE (HFC-125)	--	--	2735 g/m <sup>3</sup> /2 hours (mouse)
DIFLUOROMETHANE (HFC-32)	--	--	1810 g/m <sup>3</sup> (mouse)

**Skin** Not classified as a skin irritant. Contact with the liquefied material or escaping compressed gas may cause frostbite injury.

**Eye** Not classified as an eye irritant. Contact with the liquefied material or escaping compressed gas may cause frostbite injury.

**Sensitisation** Not classified as causing skin or respiratory sensitisation.

**Mutagenicity** Not classified as a mutagen.

**Carcinogenicity** Not classified as a carcinogen.

**Reproductive** Not classified as a reproductive toxin.

**STOT - single exposure** Asphyxiant. Effects are proportional to oxygen displacement. Over exposure may result in dizziness, drowsiness, weakness, fatigue, breathing difficulties and unconsciousness.

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**STOT - repeated exposure** Not classified as causing organ damage from repeated exposure.

**Aspiration** Not classified as causing aspiration.

**12. ECOLOGICAL INFORMATION****12.1 Toxicity**

No information provided.

**12.2 Persistence and degradability**

No information provided.

**12.3 Bioaccumulative potential**

No information provided.

**12.4 Mobility in soil**

No information provided.

**12.5 Other adverse effects**

Global warming has been predicted as a potential consequence of the emission of this product.

**13. DISPOSAL CONSIDERATIONS****13.1 Waste treatment methods**

**Waste disposal** Cylinders should be returned to the manufacturer or supplier for disposal of contents.

**Legislation** Dispose of in accordance with relevant local legislation.

**14. TRANSPORT INFORMATION**

CLASSIFIED AS A DANGEROUS GOOD ACCORDING TO LAND TRANSPORT RULE: DANGEROUS GOODS 2005; NZS 5433:2012, UN, IMDG OR IATA



	LAND TRANSPORT (NZS 5433)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
<b>14.1 UN Number</b>	3340	3340	3340
<b>14.2 Proper Shipping Name</b>	REFRIGERANT GAS, R407C	REFRIGERANT GAS, R407C	REFRIGERANT GAS, R407C
<b>14.3 Transport hazard class</b>	2.2	2.2	2.2
<b>14.4 Packing Group</b>	None allocated.	None allocated.	None allocated.

**14.5 Environmental hazards**

No information provided.

**14.6 Special precautions for user**

**Hazchem code** 2TE

**EmS** F-C, S-V

**Other information** Ensure cylinder is separated from driver and that outlet of relief device is not obstructed.

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

**Approval code** Not required

**Group standard** Not required

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**Inventory listings NEW ZEALAND: NZIoC (New Zealand Inventory of Chemicals)**  
All components are listed on the NZIoC inventory, or are exempt.

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## 16. OTHER INFORMATION

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**Additional information** APPLICATION METHOD: Transferred as a liquid into and out of refrigeration equipment by controlled pressure decanting through flexible pipework.

ASPHYXIANTS (2): There is a significant hazard associated with workers entering poorly ventilated areas (e.g. 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 report is provided as a guide only. Factors such as form of product, 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: form of product; 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 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
CCID	Chemical Classification and Information Database (HSNO)
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
EPA	Environmental Protection Authority [New Zealand]
GHS	Globally Harmonized System
HSNO	Hazardous Substances and New Organisms
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m <sup>3</sup>	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
TLV	Threshold Limit Value
TWA	Time Weighted Average

**Report status**

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

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier 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, importer or supplier.

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 R407C (NZ)**

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