

## SAFETY DATA SHEET

**Item Code: L0141**

### Section 1. Identification of the material and the supplier

Item Code: L0141  
 Product: Refrigerant Gas 404A  
 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 766 764 (National Poison Centre)**

Manufacturer: Global Refrigerants Ltd  
 9 Tuas Link 1, Singapore

Date of MSDS Preparation: 14 March 2017 – ver2

### 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 Trifluoroethane	55%	420-46-2
Pentafluoroethane	44%	354-33-6
1,1,1,2 Tetrafluoroethane	4%	811-97-2

### 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

<b>Hazard Type</b>	Compressed Gas – Non Flammable
<b>Hazards from decomposition products</b>	HFC 404A is not flammable under ambient conditions of temperature and pressure. Certain mixtures of HFC 404A 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.
<b>Suitable Extinguishing media</b>	All extinguishing agents can be used.
<b>Precautions for firefighters and special protective clothing</b>	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.
<b>HAZCHEM CODE</b>	2TE

## 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
<b>1,1,1,2-Tetrafluoroethane</b>	<b>811-97-2</b>	<b>1000</b>	<b>ppm</b>		
<b>Pentafluoroethane</b>	<b>354-33-6</b>	<b>1000</b>	<b>ppm</b>		

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

<b>Appearance</b>	Compressed Liquefied Gas, Colourless
<b>Odour</b>	Slight, ethereal
<b>Boiling Point</b>	-47.2°C – 46.4°C
<b>Melting Point</b>	160°C
<b>Oxidising properties</b>	Non oxidising material according to EEC criteria
<b>Vapour Pressure (mm Hg)</b>	8270 at 20°C
<b>Vapour density: (Air=1)</b>	>3.42 at bubble point air = 1
<b>Specific Gravity</b>	1.21
<b>Liquid density</b>	11.924Kg/M3
<b>Solubility in water</b>	Insoluble

## Section 10. Stability and Reactivity

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

## Section 11 Toxicological Information

<b>Acute Toxicity:</b>	Vapours: Published data
<b>Acute Symptoms:</b>	Effects following high level exposure: Headaches, Dizziness, Loss of Consciousness
<b>Inhalation:</b>	High exposures may cause abnormal heart rhythm and prove suddenly fatal. Very high atmospheric concentrations may cause anaesthetic effects and asphyxiation.
<b>Skin Contact &amp; Eye Contact:</b>	Liquid splashes or spray may cause freeze burns unlikely to be hazardous through skin absorption.
<b>Ingestion:</b>	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 HFC134a (40,000PPM) no significant effect in rats, HFC 125 inhalation study showed no significant effect (50,000PPM) in rats. HFC 143a 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 404A. Contact with liquefied gas causes Frostbite and causes injury to the cornea.

## Section 12. Ecotoxicological Information

<b>Behaviour in the environment:</b>	High tonnage material produced in wholly contained systems. High tonnage material used in open systems.
<b>Mobility:</b>	Product is Volatile when in aqueous solution

**Persistence/Degradability:**

Decomposes comparatively rapidly in lower atmosphere (troposphere), products of decomposition will be highly dispersed and hence will have a very low concentration.

**Bioaccumulation:** 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: 3337  
Class-primary 2.2  
Packing Group None allocated  
Proper Shipping Name: NON FLAMMABLE COMPRESSED GAS.

Air Transport

UN No: 3337  
Class-primary 2.2  
Packing Group None allocated  
Proper Shipping Name: NON FLAMMABLE COMPRESSED GAS.

Marine Transport

UN No: 3337  
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.

Product Name: Refrigerant Gas 404A Item No: L0141  
Date of MSDS: 21 November 2011

Issued by: Realcold Ltd  
Tel: 64 9 526 5700

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## Disclaimer

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Issue Date: 24 November 2011  
Review Date: 24 November 2016