REFRIGERANT RECLAIM AUSTRALIA

Safety Data Sheet

Version date: 27/05/2025
Cancelled and replaced version dated 28/10/2021

Recovered Refrigerant – Flammable

SECTION 1 - IDENTIFICATION

Product identifier

Product name	Recovered Refrigerant - Flammable
Synonyms	Not Available
Proper shipping name	LIQUEFIED GAS, FLAMMABLE, N.O.S. (Contains 2,3,3,3-tetrafluoropropene, difluoromethane, 1,1,1-trifluoroethane)
Other means of identification	Full identification or hazard information is not available

Recommended use of the chemical and restrictions on use

Relevant identified uses	Recovered refrigerant gas for reclamation or disposal.

Details of the supplier of the safety data sheet

Registered company	Refrigerant Reclaim Australia
Address	Suite 1, 4 Lonsdale St Braddon ACT 2612
Telephone	[+61] 2 6230 5244
Website	www.refrigerantreclaim.com.au
Email	info@refrigerantreclaim.com.au

Emergency telephone number

Association	Refrigerant Reclaim Australia
Emergency	[+61] 2 6230 5244
Other emergency telephone	0417 143 687

SECTION 2 - HAZARD IDENTIFICATION

GHS classification of the hazardous chemical

Classification	Flammable Gas Category 1B Gas under Pressure (Liquefied gas) Hazardous Chemical according to the Australian GHS Criteria Dangerous Good according to the ADG Code

Label elements

Pictogram	
Signal Word	DANGER

Hazard statement(s)

H221	Flammable gas
H280	Contains gas under pressure; may explode if heated
AUH044	Risk of explosion if heated under confinement

Precautionary statement - Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No Smoking

Precautionary statement - Response

P377	Leaking gas fire: Do not extinguish unless leak can be stopped safely.
P381	In case of leakage, eliminate all ignition sources.

Precautionary statement - Storage

P403	Store in a well-ventilated place.
P410	Protect from sunlight.

Precautionary statement - Disposal

P501	Dispose of contents in accordance with the Ozone Protection and Synthetic Greenhouse Gas Management Act 1989.

SECTION 3 - COMPOSITION AND INFORMATION ON INGREDIENTS

Substances
See section below for composition of mixtures

Mixtures

CAS Number	%[weight]	Name
75-10-5	1-100%	Difluoromethane (R32)
420-46-2	1-100%	1,1,1 – Trifluoroethane (R143a)
754-12-1	1-100%	2,3,3,3 – Tetrafluoropropene (R1234yf)

SECTION 4 - FIRST AID MEASURES

Description of necessary first aid measures

Eye contact	If product comes in contact with eyes remove the patient from gas source or contaminated area to fresh air. Open the eyelid(s) wide to allow the material to evaporate. Gently rinse the affected eye(s) with clean, cool water for at least 15 minutes. Have the patient lie or sit down and tilt the head back. Hold the eyelid(s) open and pour water slowly over the eyeball(s) at the inner corners, letting the water run out of the outer corners. Transport to hospital or doctor. Even when no pain persists and vision is good, a doctor should examine the eye as delayed damage may occur. If the patient cannot tolerate light, protect the eyes with a clean, loosely tied bandage. Ensure verbal communication and physical contact with the patient. **DO NOT** allow the patient to rub the eyes **DO NOT** allow the patient to tightly shut the eyes

	DO NOT introduce oil or ointment into the eye(s) without medical advice **DO NOT** use hot or tepid water.
Skin contact	If skin contact occurs: Immediately remove all contaminated clothing, including footwear. Flush skin and hair with running water (and soap if available). Seek medical attention in event of irritation or frost bite
Inhalation	Following exposure to gas, remove the patient from the gas source or contaminated area to fresh air. NOTE: Personal Protective Equipment (PPE), including positive pressure self-contained breathing apparatus may be required to assure the safety of the rescuer. Prostheses such as false teeth, which may block the airway, should be removed, where possible, prior to initiating first aid procedures. If the patient is not breathing spontaneously, administer rescue breathing. If the patient does not have a pulse, administer CPR. If medical oxygen and appropriately trained personnel are available, administer 100% oxygen. Summon an emergency ambulance. If an ambulance is not available, contact a physician, hospital, or Poison Control Centre for further instruction. Keep the patient warm, comfortable and at rest while awaiting medical care. **MONITOR THE BREATHING AND PULSE, CONTINUOUSLY.**
Ingestion	Not considered a normal route of entry.

Medical attention and special treatment

Intoxication due to refrigerants	Maintain an open airway and assist ventilation if necessary Treat coma and arrhythmias if they occur. Avoid (adrenaline) epinephrine or other sympathomimetic amines that may precipitate ventricular arrhythmias.
Frostbite caused by liquid gas	If part has not thawed, place in warm water bath (41-46 C) for 15-20 minutes, until the skin turns pink, or red. Analgesia may be necessary while thawing.
Gas exposures	Watch for signs of respiratory insufficiency and assist ventilation as necessary. Administer oxygen by non-rebreather mask at 10 to 15 l/min. Monitor and treat, where necessary, for pulmonary oedema. Monitor and treat, where necessary, for shock. Anticipate seizures.

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media	Carbon Dioxide, dry chemical, foam, water fog or water mist.
Unsuitable Extinguishing Media	Do not use water jet.
Specific Hazards arising from the chemical	Vapours may form flammable mixtures with air. Vapours are heavier that air and may spread along floors. Flashback along the vapour trail may occur. Keep away heat, naked flames, and sparks. Cylinders may explode when heated or may become a projectile in a fire.
Hazards from combustion products	At high temperatures – thermal decomposition causing toxic and corrosive products. Hydrogen fluoride Fluorine compounds Carbon oxides Carbonyl halides
Specific precautions	Do not extinguish burning gas unless leak can be stopped safely.

for firefighters	Cool unopened cylinders/bulk tanks by flooding quantities of water onto upper surface until well after fire is out. Fight fire from a safe distance, with adequate cover.
Special firefighting equipment (PPE)	Wear self-contained breathing apparatus and protective suit.
Hazchem Code	2YE

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Minor Spills	Avoid breathing vapour and any contact with liquid or gas. Shut off all sources of possible ignition and increase ventilation.
Major Spills	Evacuate all unprotected personnel and move upwind. Protective equipment including respirator should be used. Shut cylinder valve to stop leak if possible and safe to do so. **DO NOT** enter confined spaces where gas may have accumulated. **DO NOT** exert excessive pressure on valve. **DO NOT** attempt to operate damaged valve.

Environmental precautions

	Do not release to atmosphere

Methods and materials for contaminated and cleaning up

	Check cylinders for leaks using leak detector or soapy water on joints and outlets. Ventilate the area. Non-sparking equipment should be used. Suppress gases/vapour with water mist. Damaged cylinders should be returned to the supplier.

SECTION 7 - HANDLING AND STORAGE

Precautions for safe handling	Use only in well-ventilated areas. Wear protective equipment. Avoid inhalation of vapour. Avoid contact with skin, eyes and clothing. Use authorised cylinders only Use equipment rated for cylinder pressure. Non-sparking tools should be used. Protect cylinders from physical damage, Close valve and replace valve protection caps and valve outlet threads when not in use. Do not puncture or drop cylinders, expose them to excessive heat or ignition sources. Do not drag, slide, or roll cylinders. Do not change or force fit connections. Prevent the intrusion of water into the gas tank. Take measures to prevent the build-up of electrostatic charge. No smoking. Maintain high standards of personal hygiene i.e. wash hands prior to eating, drinking, smoking, or using toilet facilities.
Conditions of safe storage	Keep containers tightly closed in a dry, cool and well-ventilated place away from sources of ignition. Store cylinders upright on a level, fireproof floor Protect from sunlight and do not expose to temperatures exceeding 45 degrees C. Keep away from heat and sources of ignition.

	Ensure adequate ventilation, especially in confined areas. Full cylinders shall be stored separately from empties Properly label cylinders. Do not store near combustible materials. Do not pressurise, cut, weld, braze, solder, drill, or grind cylinder.
Incompatibilities	Alkali metals, alkaline earth metals and alloys containing more than 2% magnesium. Do not store with the following product types; Self-reactive substances and mixtures Organic peroxide Oxidizing agents Flammable liquids Flammable solids Pyrophoric liquids Pyrophoric solids Self-heating substances and mixtures Substances and mixtures which in contact with water emit flammable gases Explosives Acutely toxic substances and mixtures Substances and mixtures with chronic toxicity

SECTION 8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure control limits

Occupational exposure limit values	According to the HCIS, no exposure standards have been established for individual substances or mixtures.
Biological monitoring	No biological limits allocated
Control banding	Not available
Engineering controls	Minimise workplace exposure concentrations. Use with local exhaust ventilation, drawing vapours away from workers breathing zone.

Individual protection measures

Eye and face protection	Safety glasses with side shields, chemical goggles, or full-face shield. Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task.
Skin Protection	Leather gloves Protective clothing (cotton) – buttoned at neck and covering arms, wrist, and legs Fully enclosed leather footwear. Easily removable steel cap footwear should be selected based on the tasks being performed and the risk involved. **IN CONFINED SPACES:** Wear non-sparking protective boots and static-free clothing. Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity. For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets). Non sparking safety or conductive footwear should be considered. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot and shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds
Respiratory protection	If engineering controls are not effective and concentration limits are above recommended limits or are unknown, an approved respirator with a replaceable filter should be used.
Thermal hazards	Skin protection measures should be selected based on the task being performed. If there is a risk

	of contact with liquid refrigerant gas, all protective equipment worn should be suitable for use with extremely low temperature materials to prevent frost bite.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

	Difluoromethane (R32)	1,1,1 – Trifluoroethane (R143a)	2,3,3,3 – Tetrafluoropropene (R1234yf)
Physical state	Liquified Gas	Liquified Gas	Liquified Gas
Colour	Clear Colourless	Clear Colourless	Clear Colourless
Odour	Ether-like (slight)	Ether-like (slight)	Ether-like (slight)
Odour threshold	No data available	No data available	No data available
Melting point / freezing point (°C)	-136 °C (freezing point)	-152.2 °C (freezing point)	-111 °C (freezing point)
Initial boiling point and boiling range (°C)	-51.6 °C	-29 °C	-47.4 °C
Flammability	Flammable 1B	Flammable 1B	Flammable 1B
Lower Flammability Limit (%)	14.4 % (V)	6.2 % (V)	7.1 % (V)
Upper Flammability Limit (%)	31.0 % (V)	12.3 % (V)	16.1 % (V)
Flash point (°C)	Not Applicable	Not Applicable	Not Applicable
Auto-ignition temperature (°C)	530 °C	405 °C	750 °C
Decomposition temperature	No data available	No data available	No data available
pH (as supplied)	No data available	No data available	No data available
Kinematic viscosity	Not applicable	Not applicable	Not applicable
Solubility in water (g/L)	1.68 g/l (25 °C)	0.1982 g/l (24°C)	Immiscible
Partition coefficient n-octanol /water	Log Pow: 0.21 (25°C)	Log Pow: 2 (25°C)	No data available
Vapour pressure	1701 kPa @ 25°C	580 kPa @ 20°C	1262 kPa @ 25°C
Vapour density	2.1 kg/m^3 @ 25°C	4.8 kg/m^3 @ 20°C	3.5 kg/m^3 @ boiling point
Relative density	No data available	No data available	No data available
Particle characteristics	No data available	No data available	No data available

SECTION 10 - STABILITY AND REACTIVITY

Reactivity	Not classified as a reactivity hazard
Chemical stability	Product is considered stable when stored and handled in accordance with section 7 Unstable in the presence of incompatible materials - refer section 7
Possibility of hazardous reactions	Polymerisation will not occur. Vapours may form flammable mixture with air Can react with strong oxidizing agents – refer section 7
Conditions to avoid	Avoid contact with flames, sparks and red-hot metallic surfaces
Incompatible materials	Alkaline earth metals Finely divided metals (aluminium, magnesium, zinc) Alkali or powdered metals Strong acids and bases Strong oxidizing agents Peroxide compounds
Hazardous decomposition products	Thermal decomposition giving toxic and corrosive products: Carbonyl halides Carbon oxides Fluorine compounds Hydrogen fluoride

SECTION 11 - TOXICOLOGICAL INFORMATION

Information on toxicological effects

	Difluoromethane (R32)	**1,1,1 – Trifluoroethane (R143a)**	**2,3,3,3 – Tetrafluoropropene (R1234yf)**
Acute Toxicity	Not classified based on available information	Not classified based on available information	Not classified based on available information
Acute inhalation	Inhalation (rat) LC50: >760000 ppm/4h Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Respiratory: shortness of breath and rapid breathing. Cardiovascular: collapse and irregular heartbeats.	Inhalation (rat) LC50: >591000 ppm/4h Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Respiratory: shortness of breath and rapid breathing. Cardiovascular: collapse and irregular heartbeats.	Inhalation (rat) LC50: >406000 ppm/4h Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Respiratory: shortness of breath and rapid breathing. Cardiovascular: collapse and irregular heartbeats.

	Gastrointestinal: mucous membrane irritation, nausea and vomiting.	Gastrointestinal: mucous membrane irritation, nausea and vomiting.	Gastrointestinal: mucous membrane irritation, nausea and vomiting.
Skin	Not classified as a skin irritant. Contact with liquified material or escaping compressed gas may cause frostbite injury.	Not classified as a skin irritant. Contact with liquified material or escaping compressed gas may cause frostbite injury.	Not classified as a skin irritant. Contact with liquified material or escaping compressed gas may cause frostbite injury.
Eye	Not classified as an eye irritant. Contact with liquified material or escaping compressed gas may cause frostbite injury.	Not classified as an eye irritant. Contact with liquified material or escaping compressed gas may cause frostbite injury.	Not classified as an eye irritant. Contact with liquified material or escaping compressed gas may cause frostbite injury.
Sensitisation	Not classified as causing skin or respiratory sensitization.	Not classified as causing skin or respiratory sensitization.	Not classified as causing skin or respiratory sensitization.
Mutagenicity	Not classified as a mutagen.	Not classified as a mutagen.	Not classified as a mutagen.
Carcinogenicity	Not classified as a carcinogen.	Not classified as a carcinogen.	Not classified as a carcinogen.
Reproductive	Not classified as a reproductive toxin.	Not classified as a reproductive toxin.	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.	Asphyxiant. Effects are proportional to oxygen displacement. Over exposure may result in dizziness, drowsiness, weakness, fatigue, breathing difficulties and unconsciousness.	Asphyxiant. Effects are proportional to oxygen displacement. Over exposure may result in dizziness, drowsiness, weakness, fatigue, breathing difficulties and unconsciousness.
STOT - repeated	Not classified as causing organ damage from repeated exposure.	Not classified as causing organ damage from repeated exposure.	Not classified as causing organ damage from repeated exposure.
Aspiration hazard	Not classified as causing aspiration.	Not classified as causing aspiration.	Not classified as causing aspiration.

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SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity

Ingredient	Endpoint	Test Duration (hr)	Species	Value
R32	EC50	384	Crustacea	17.989mg/L
R32	LC50	96	Fish	77.251mg/L
R32	NOEC	96	Fish	10mg/L
R32	EC50	48	Crustacea	>97.9mg/L
R32	EC50	72	Algae or other aquatic plants	>114mg/L
R143a	EC50	72	Algae or other aquatic plants	71mg/L
R1234yf	EC50	384	Crustacea	3.623mg/L
R1234yf	LC50	96	Fish	15.051mg/L
R1234yf	EC50	48	Crustacea	65mg/L
R1234yf	EC50	72	Algae or other aquatic plants	>2.5mg/L
R1234yf	NOEC	72	Algae or other aquatic plants	>=2.5mg/L

DO NOT discharge into sewer, waterways, or atmosphere.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
R32	LOW	LOW
R143a	HIGH	HIGH
R1234yf	HIGH	HIGH

Bio accumulative potential

Ingredient	Bioaccumulation
R32	LOW (LogKOW = 0.2)
R143a	LOW (LogKOW = 1.7393)
R1234yf	LOW (LogKOW = 2.1485)

Mobility in soil

Ingredient	Mobility
R32	LOW (KOC = 23.74)
R143a	LOW (KOC = 48.64)
R1234yf	LOW (KOC = 154.4)

Other adverse effects

Ingredient	Global Warming Potential (GWP)	Ozone Depletion Potential (ODP)
R32	675	0
R143a	4470	0

Global warming potential (GWP) relative to CO^2. IPCC AR4 100-year time horizon.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal of product and packaging	Do not release cylinder contents or residual to atmosphere. Recover and reclaim unused contents or residual. Return recovered/reclaimed product to supplier. Return empty containers to supplier. Pyrolise or incinerate residue at an approved facility. Ensure damaged or non-returnable cylinders are gas-free prior to disposal. Observe all Commonwealth, State and local environment regulations and law.

SECTION 14 - TRANSPORT INFORMATION

	Land transport (ADG)	Sea Transport (IMDG)
UN number	3161	3161
Proper shipping name	LIQUEFIED GAS, FLAMMABLE, N.O.S. (Contains 2,3,3,3-tetrafluoropropene, difluoromethane, 1,1,1-trifluoroethane)	LIQUEFIED GAS, FLAMMABLE, N.O.S. (Contains 2,3,3,3-tetrafluoropropene, difluoromethane, 1,1,1-trifluoroethane)
Transport hazard class	Class 2.1 Sub risk – None allocated	Class 2.1 Sub risk – None allocated
Packing group number	None allocated	None allocated
Environmental hazards for transport purposes	Not a marine pollutant Synthetic Greenhouse Gas	Not a marine pollutant Synthetic Greenhouse Gas

Special precautions for user	Special provisions 274 Limited Quantities 0 EmS F-D, S-U
Hazchem Code	2YE

SECTION 15 - REGULATORY INFORMATION

Regulatory information

Classified as hazardous according to the Globally Harmonised System of classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

Montreal Protocol

Listed

The Stockholm Convention

Not available

The Rotterdam Convention

Not available

Basel Convention

Not available

International Convention for the Prevention of Pollution from Ships (MARPOL)

Not available

Safety, health and environmental regulations

All components of this product are listed on the Australian Inventory of Chemical Substances (AICS)

SECTION 16 - OTHER INFORMATION

Date of preparation

SDS reviewed: May 2025

Supersedes: September 2021

Definitions and abbreviations

ADG Code:	Australian Code for the Transport of Dangerous Goods by Road and Rail
CAS Number:	Chemical Abstract Service number
EC50:	Effect Concentration 50%
GHS:	Globally Harmonised System of classification and labelling of chemicals
GWP:	Global Warming Potential
HCIS:	Hazardous Chemicals Information System
LC50:	Lethal Concentration Limit, 50% median lethal concentration
NOEC:	No Observed Effect Concentration

Key Literature

Australian Code for the Transport of Dangerous Goods by Road and Rail 2024 edition 7.9
Hazardous Chemicals Information System
International Maritime Dangerous Goods (IMDG) Code
Ozone Protection and Synthetic Greenhouse Gas Management Act 1989
Preparation of safety data sheets for hazardous chemicals Code of Practice June 2023

END OF SDS