



## SAFETY DATA SHEET

### 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

#### 1.1 Product identifier

**Product name** R513A  
**Synonym(s)** Chemours Opteon™ XP10 **REALCOLD CODE:** L0173

#### 1.2 Uses and uses advised against

**Use(s)** REFRIGERANT

#### 1.3 Details of the supplier of the product

**Supplier name** Realcold NZ Ltd  
**Address** Beijer Ref Support Office, 27 Pukekiwiriki Place, Highbrook, Auckland 2013.  
**Telephone** +64 9 573 0060  
**Fax** +64 9 573 0061  
**Email** [sales@realcold.co.nz](mailto:sales@realcold.co.nz)  
**Website** [www.realcold.co.nz](http://www.realcold.co.nz)

#### 1.4 Emergency telephone number(s)

**Emergency** 09 526 5700  
**24 Hour Information** 0800 243 622 (NZ) or 0800 CHEMCALL



### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

**NOT** CLASSIFIED AS HAZARDOUS ACCORDING TO THE HAZARDOUS SUBSTANCES CLASSIFICATION NOTICE 2017. CLASSIFIED AS A DANGEROUS GOOD ACCORDING TO UN, IMDG, IATA and LAND TRANSPORT RULE: DANGEROUS GOODS 2005; NZS5433:2012.

<b>UN No.</b>	1078	<b>DG Class</b>	2.2	<b>Subsidiary Risk(s)</b>	None allocated
<b>Packing Group</b>	None	<b>Hazchem Code</b>	2TE	<b>Marine Pollutant</b>	No

**GHS classification** Compressed Gases

#### 2.2 Label elements

**Signal word** **WARNING**  
**Pictograms** **GHS04 Gas under pressure**



#### **Hazard Statement**

H280 Contains gas under pressure; may explode if heated.

#### **Prevention**

P103 Read label before use.

#### **Response**

None allocated

#### **Storage**

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

#### **Disposal**

None allocated

**2.3 Other hazards**

Inhalation may produce health effects: headache, loss of consciousness, drowsiness, dizziness, cardiac rhythm problems. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. Rapid evaporation of the liquid may cause frostbite. Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects. May cause cardiac arrhythmia.

**3. COMPOSITION / INFORMATION ON INGREDIENTS****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	44%
2,3,3,3-Tetrafluoropropene (HFO-1234yf)	754-12-1	468-710-7	56%

**4. FIRST-AID MEASURES****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). Apply artificial respiration if not breathing. Give oxygen if available. Keep patient warm and at rest. Consult a physician.
<b>Skin</b>	Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30°C) for 15 minutes. <b>DO NOT</b> 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>	No information provided.

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

Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects. Other symptoms potentially related to misuse or inhalation abuse are: anaesthetic effects, light-headedness, dizziness, confusion, incoordination, drowsiness, or unconsciousness, irregular heartbeat with a strange sensation in the chest, heart thumping, apprehension, feeling of fainting, dizziness or weakness.

Contact with liquid or refrigerated gas can cause cold burns and frostbite.

Skin contact may provoke the following symptoms: irritation, discomfort, itching, redness, or swelling of tissue.

Eye contact may provoke the following symptoms: irritation, tearing, redness, or discomfort.

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

Treat for asphyxia and cold burns.

Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, that may be used in situations of emergency life support should be used with special caution.

Notes to physician: Treat symptomatically and supportively.

**5. FIRE-FIGHTING MEASURES****5.1 Extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

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

The product is not flammable.

Pressure build-up: Fire or intense heat may cause violent rupture of packages.

Hazardous combustion products: Hydrogen fluoride, fluorinated compounds, carbon oxides.

Exposure to decomposition products may be a hazard to health.

**5.3 Advice for firefighters**

Ventilate area, especially low or enclosed places where heavy vapours might collect. Refer to protective measures listed in sections 7 and 8.

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 personnel to safe areas 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** 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.

**6. ACCIDENTAL RELEASE MEASURES**

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

Evacuate personnel to safe areas. Ventilate area, especially low or enclosed places where heavy vapours might collect. Use Personal Protective Equipment (PPE) as detailed in Section 8 of the SDS.

**6.2 Environmental precautions**

Should not be released into the environment, in accordance with legislation. Prevent from entering sewers, basements and work-pits, or any place where its accumulation can be dangerous.

**6.3 Methods of cleaning up**

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

**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**

Only experienced and properly instructed personnel should handle compressed gases. Do not drag, drop, slide or roll cylinders. Use a suitable hand truck for cylinder movement. The uncontrolled release of a gas under pressure may cause physical harm. Use of safe work practices is recommended to avoid inhalation. Wear appropriate PPE at all times when handling or using this product. Refer to Section 8.

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

Storage of compressed gas cylinders shall be in compliance with New Zealand regulations. Cylinders shall be stored in a cool, dry, well-ventilated area out of direct sunlight and away from heat and ignition sources. No part of cylinders shall be exposed to temperatures above 50°C. Cylinders shall be stored upright on a level, fireproof floor, secure in position and protected from damage. Full cylinders shall be stored separately from empty cylinders. Avoid any contact with oil or grease, particularly to the cylinder valve. Valve caps must remain in place when cylinder is not in use, and must be replaced as soon as the container is disconnected from equipment. Any defects, damage, or faulty valves should be reported to the supplier. Always lift cylinders by the handles.

**7.3 Specific end use(s)**

No information provided.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**8.1 Control parameters  
Exposure standards**

Ingredient	Reference	TWA		STEL	
		ppm	mg/m3	ppm	mg/m3
1,1,1,2-Tetrafluoroethane (HFC-134a)	WES (NZ)	1000	4240		
2,3,3,3-Tetrafluoropropene (HFO-1234yf)	WEL	500			

**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.

<b>PPE:</b>	<b>Eye / face</b>	Wear safety glasses. Additionally, wear a face shield where the possibility exists for face contact due to splashing, spraying or airborne contact with this material.
	<b>Hands</b>	Gloves: Leather gloves are suitable for handling sealed and insulated cylinders. Where the possibility of exposure to the product exists, impermeable gloves (PVA, butyl rubber) should be used.
	<b>Body</b>	Wear safety boots and overalls
	<b>Respiratory</b>	Where an inhalation risk exists, wear an air-line respirator. Self-contained breathing apparatus (SCBA) is required if large release occurs.



Please refer to the Health and Safety at Work (General Risk and Workplace Management) Regulations 2016 for information on the duties of a PCBU and workers with regard to the provision and use of personal protective equipment.

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

<b>Appearance</b>	COLOURLESS GAS (LIQUEFIED UNDER PRESSURE)
<b>Odour</b>	SLIGHT ETHEREAL ODOUR
<b>Odour threshold</b>	NOT AVAILABLE
<b>Flammability</b>	NOT APPLICABLE
<b>Flash point</b>	NOT APPLICABLE
<b>Boiling point</b>	-29.2 °C
<b>Melting point</b>	NOT AVAILABLE
<b>Evaporation rate</b>	>1 (CCL4=1.0)
<b>pH</b>	NOT AVAILABLE
<b>Vapour density</b>	3.83 @25 °C (Air =1)
<b>Specific gravity</b>	1.17 @25 °C
<b>Solubility (water)</b>	NOT AVAILABLE
<b>Vapour pressure</b>	706.36kPa @25 °C
<b>Upper explosion limit</b>	NOT APPLICABLE
<b>Lower explosion limit</b>	NOT APPLICABLE
<b>Partition coefficient</b>	NOT AVAILABLE
<b>Autoignition</b>	NOT AVAILABLE
<b>Decomposition temperature</b>	NOT AVAILABLE
<b>Viscosity</b>	NOT APPLICABLE
<b>Explosive properties</b>	NOT EXPLOSIVE
<b>Oxidising properties</b>	NOT CLASSIFIED AS OXIDISING

**9.2 Other information**

<b>Critical pressure</b>	3766kPa (abs.)
<b>Critical temperature</b>	96.5 °C
<b>Density</b>	1185.7kg/m <sup>3</sup> (Liquid @21.1 °C)
<b>GWP</b>	573
<b>ODP</b>	0
<b>ASHRAE Safety Class.</b>	A1

**10. STABILITY AND REACTIVITY****10.1 Reactivity**

Not classified as a reactivity hazard. Carefully review all information provided in sections 10.2 to 10.6

**10.2 Chemical stability**

Stable under recommended conditions of storage and if used as directed. Follow precautionary advice and avoid incompatible materials and conditions.

**10.3 Possibility of hazardous reactions**

Polymerisation will not occur. Can react with strong oxidising agents.

**10.4 Conditions to avoid**

Heat, flame and sparks.

**10.5 Incompatible materials**

Oxidising agents.

**10.6 Hazardous decomposition products**

May evolve toxic gases (carbon oxides, hydrogen fluoride) and other harmful products when heated to decomposition.

**11. TOXICOLOGICAL INFORMATION**

**11.1 Information on toxicological effects**

<b>Acute toxicity</b>	Not classified as acutely toxic.
<b>Aspiration hazard</b>	Not classified as an aspiration hazard.
<b>Respiratory irritation</b>	Not classified as a respiratory irritant.
<b>Skin</b>	Not classified as a skin irritant or corrosive.
<b>Eye</b>	Not classified as an eye irritant. Contact with the liquefied material or escaping compressed gas may cause frostbite injury.
<b>Sensitisation</b>	Not classified as causing skin or respiratory sensitisation.
<b>Mutagenicity</b>	Not classified as a mutagen.
<b>Carcinogenicity</b>	Not classified as a carcinogen.
<b>Reproductive</b>	Not classified as a reproductive toxin.
<b>STOT-SE (single Exposure)</b>	Not classified based on available information.
<b>STOT-RE (repeated Exposure)</b>	Not classified based on available information.
<b>Narcotic effects</b>	Not classified based on available information.

**12. ECOLOGICAL INFORMATION**

**12.1 Ecotoxicity**

Not classified as ecotoxic according to GHS or the Hazardous Substances (Minimum Degrees of Hazard) Notice 2017.

Ingredient	Fish	Daphnia and other aquatic invertebrates EC50, 48h (Water flea)	Algae/aquatic plants (Algae)
1,1,1,2-Tetrafluoroethane (HFC-134a)	450mg/l (LC50, 96h [Rainbow trout])	980mg/l	142mg/l (ErC50, 96h [Algae])
2,3,3,3-Tetrafluoropropene (HFO-1234yf)	197mg/l (LC50, 96h [Carp])	>100mg/l	>100mg/l (NOEC, 72h)

**12.2 Persistence and degradability**

This product is not readily biodegradable.

Ingredient	Biodegradability
1,1,1,2-Tetrafluoroethane (HFC-134a)	Not readily biodegradable.
2,3,3,3-Tetrafluoropropene (HFO-1234yf)	Not readily biodegradable. (Method: OECD test Guideline 301F)

**12.3 Bioaccumulative potential**

This product is not expected to bioaccumulate.

**1,1,1,2-Tetrafluoroethane**

Partition coefficient: n-octanol/water log P<sub>ow</sub>: 1.06

**2,3,3,3-Tetrafluoropropene**

No bioaccumulation expected. Log P<sub>ow</sub>: <4

**12.4 Mobility in soil**

No data available but, because of its high volatility, the product is unlikely to cause ground or water pollution.

**12.5 Other adverse effects**

This mixture contains fluorinated synthetic greenhouse gases (SGG) which may contribute to the global warming effect, and which are covered by the Kyoto Protocol.

**13. DISPOSAL CONSIDERATIONS**

**13.1 Waste treatment methods**

**Waste disposal** Unwanted refrigerant should be transferred into an approved recovery cylinder and delivered to an accredited Refrigerant Recovery NZ depot. Empty containers of this product can be disposed of as scrap metal once the remaining refrigerant has been recovered.

**Legislation** It is an offence under the Climate Change Response Act 2002, with a penalty of up to \$50,000, to wilfully and knowingly release this refrigerant into the atmosphere.

The Health and Safety at Work (Hazardous Substances) Regulations 2017 require a PCBU in control of a workplace to ensure that no person at the workplace charges this product into a recovery cylinder unless the person is an Approved Filler, or is undertaking training and is supervised at all times by an Approved Filler. A PCBU who contravenes this regulation is liable to a fine of up to \$6,000 for an individual or \$30,000 for any other person (body corporate, company etc.).

**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)
14.1 UN Number	1078	1078	1078
14.2 Proper Shipping Name	REFRIGERANT GAS, N.O.S. (Contains R134a, R1234yf)	REFRIGERANT GAS, N.O.S. (Contains R134a, R1234yf)	REFRIGERANT GAS, N.O.S. (Contains R134a, R1234yf)
14.3 Transport Hazard Class (DG Code)	2.2	2.2	2.2
14.4 Packing Group	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  
**ERG** 06  
**Marine pollutant** No

**Other information** Before transporting product containers:

- Ensure that containers are firmly secured.
- Ensure that cylinder valve is closed and not leaking.
- Ensure that there is adequate ventilation.

Comply with applicable regulations.

## 15. REGULATORY INFORMATION

### 15.1 Safety, health and environmental regulations / legislation specific for the substance or mixture

<b>Approval code</b>	HSR002533
<b>Group Standard</b>	Compressed Gas Mixtures (Non-hazardous) Group Standard 2006
<b>Inventory listing(s)</b>	<p><b>New Zealand: NZIoC (New Zealand Inventory of Chemicals)</b> All components are listed on the NZIoC, and the following inventories.</p> <p><b>Australia: AICS</b>  <b>Canada: DSL</b>  <b>Japan: ENCS</b>  <b>Korea: KECI</b>  <b>Taiwan: TCSI</b>  <b>Thailand: TECI</b>  <b>Vietnam: NCI</b>  <b>USA: TSCA</b></p>

#### Regulatory Controls:

- **Climate Change Response Act 2002;**  
It is an offence under the Climate Change Response Act 2002, with a penalty of up to \$50,000, to wilfully and knowingly release this refrigerant into the atmosphere.
- **HSW (Hazardous Substances) Regulations 2017;**  
A PCBU in control of a workplace must ensure that no person at the workplace charges this product into a recovery cylinder unless the person is an Approved Filler or is undertaking training and is supervised at all times by an Approved Filler. A PCBU who contravenes this regulation is liable to a fine of up to \$6,000 for an individual or \$30,000 for any other person (body corporate, company etc.).  
A person who charges this product into a recovery cylinder who is not an Approved Filler is liable to an Infringement Fee of \$500 or, upon conviction, a fine of up to \$2,000.
- **HSNO Act 1996 Part 7;**  
Gases under pressure are covered by this Part (Inspection, enforcement, and ancillary powers) whether or not they are classified as hazardous.
- **HSW (General Risk and Workplace Management) Regulations 2016**  
These regulations set out the requirements for the provision and use of personal protective equipment (PPE).
- This product is subject to the **Kigali Amendment to the Montreal Protocol**.

## 16. OTHER INFORMATION

<b>Additional information</b>	Cylinder colour: Sky Blue Cylinder valve outlet: Right-hand (clockwise)
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**ASPHYXIAN:** There is a significant hazard associated with workers entering poorly-ventilated areas 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 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 report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

**Abbreviations**

AICS	Australia Inventory of Chemical Substances
AIHA	American Industrial Hygiene Association
CAS	Chemical Abstract Service (number) - used to uniquely identify chemical compounds
CCID	Chemical Classification and Information Database
CCL4	Carbon Tetrachloride
DG	Dangerous Good(s)
DSL	Domestic Substances List (Canada)
EC50	Half maximal Effective Concentration. The concentration which induces a response halfway between the baseline and maximum after a specified exposure time
EC No.	EC No - European Community Number
EEC	European Economic Commission
EmS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
EN	European Norm
ENCS	Japanese Existing and New Chemical Substances
ErC50	Concentration at which 50% reduction of the biomass is observed
ERG	Emergency Response Guide (number)
F-C	IMDG Emergency Procedure code for fire – non-flammable gases
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
GWP	Global Warming Potential
HFC	Hydrofluorocarbon
HFO	Hydrofluoroolefin
HSNO	Hazardous Substances and New Organisms (Act 1996)
HSW	Health and Safety at Work (Act)
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organisation
KECI	Korea Existing Chemicals Inventory
LC50	The concentration of the compound in feed, or water in the case of fish, that is lethal for 50% of the exposed population. The Median Lethal Concentration.
kg/m <sup>3</sup>	Kilograms per cubic metre
kPa	Kilopascals
log P <sub>ow</sub>	Partition co-efficient. Ratio of concentrations of a substance in octanol/water mixture
NCI	National Chemical Inventory
N.O.S.	Not Otherwise Specified
NOEC	No Observed Effect Concentration
NZS	New Zealand Standard
ODP	Ozone Depletion Potential
OECD	Organisation for Economic Co-operation and Development
PCBU	Person in Control of a Business or Undertaking (HSW Act)
pH	Relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
PPE	Personal Protective Equipment
SCBA	Self-contained Breathing Apparatus
SDS	Safety Data Sheet
S-V	IMDG Emergency Procedure code for spillage – non-flammable, non-toxic gases
STEL	Short-term Exposure Limit
STOT-RE	Specific Target Organ Toxicity (repeated exposure)
STOT-SE	Specific Target Organ Toxicity (single exposure)
TECI	Thailand Existing Chemicals Inventory
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substances Control Act (Chemical Substance Inventory) (USA)
TWA	Time Weighted Average
UFL	Upper Flammability Limit (according to EN1839)
UN No.	United Nations (Recommendations on the Transport of Dangerous Goods) number
WEEL	Workplace Environmental Exposure Limit (AIHA)
WEL	Workplace Exposure Limits
WES	Workplace Exposure Standards

**References**

The CCID Database, and the New Zealand Inventory of Chemicals:

<https://www.epa.govt.nz/database-search/chemical-classification-and-information-database-ccid/>

Chemours Opteon™ XP10 SDS Version 3.5, 25.03.2019

Hazardous Substances (Safety Data Sheets) Notice 2017

Hazardous Substances (Minimum Degrees of Hazard) Notice 2017



**Report status**

This document has been compiled by Beijer Ref Support Office for **Realcold NZ Ltd.**

It is based on information concerning the product which has been provided to Beijer Ref 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 Beijer Ref 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, Beijer Ref 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.

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23 July 2019

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23 July 2024

**End of SDS**