

SAFETY DATA SHEET

Item Code: L0199

Section 1. Identification of the material and the supplier

Item Code: L0199
 Product: Du-Pont –Isceon (R) M099
 Product Use: Refrigerant

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: Du Pont
 7 Eden Park Drive
 Macquarie Park NSW 2113
 Australia

Date of MSDS Preparation: 14 March 2017 – ver 2

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.
Pentafluorothethane	45	354-33-6
1,1,1,2-Tetrafluoroethane	44.2	811-97-2
Difluoromethane (R-32)	8.5	75-10-5
n-Butane	1.7	106-97-8
Isopentane	0.6	78-78-4

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.

Notes to Physician:

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

Section 5. Fire Fighting Measures

Hazard Type	Combustible in presence of ignition source when under pressure or elevated temperatures.
Hazards from decomposition products	Cylinders are equipped with pressure and temperature relief devices, but may still rupture under fire conditions. Decomposition may occur. Contact of welding or soldering torch flame with high concentrations of refrigerant can result in visible changes in the size and colour of the torch flame. This flame effect will only occur in concentrations of product well above the recommended exposure limit. Therefore stop all work and ventilate to disperse refrigerant vapors from the work area before using any open flames. This substance is not flammable in air at temperatures up to 100 deg. C at atmospheric pressure. However, mixtures of this substance with high concentrations of air at elevated pressure and/or temperature can become combustible in the presence of an ignition source. This substance can also become combustible in an oxygen enriched environment (oxygen concentrations greater than that in air). Whether a mixture containing this substance and air, or this substance in an oxygen enriched atmosphere become combustible depends on the inter-relationship of 1) the temperature 2) the pressure, and 3) the proportion of oxygen in the mixture. In general, this substance should not be allowed to exist with air above atmospheric pressure or at high temperatures; or in an oxygen enriched environment. For example this substance should NOT be mixed with air under pressure for leak testing or other purposes.
Suitable Extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Cool containers / tanks with water spray.
Precautions for firefighters and special protective clothing	Cool cylinders with water spray or fog. Self-contained breathing apparatus (SCBA) is required if cylinders rupture and contents are released under fire conditions. Water runoff should be contained and neutralized prior to release.
HAZCHEM CODE	2TE

Section 6. Accidental Release Measures

Ventilate area using forced ventilation, especially in low or enclosed places where heavy vapors might collect. Remove open flames. Use self-contained breathing apparatus (SCBA) for large spills or releases. Recover free liquid for reuse or reclamation.

Prevent material from entering sewers, waterways, or low areas.

Section 7. Handling and Storage

Handling Avoid breathing vapor. Avoid liquid contact with eyes and skin. Use with sufficient ventilation to keep employee exposure below recommended limits. Contact with chlorine or other strong oxidizing agents should also be avoided.

Storage Keep container tightly closed in a dry and well-ventilated place. Store in original container. Keep at temperature not exceeding 52°C.

Section 8 Exposure Controls / Personal Protection

WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	CAS #	TWA		STEL	
		ppm	mg/m ³	ppm	mg/m ³
1,1,1,2-Tetrafluoroethane	811-97-2	1000	ppm		
Pentafluoroethane	354-33-6	1000	ppm		
n-Butane	106-97-8	800	ppm, 1900		mg/m ³
Difluoromethane	75-10-5	1000	ppm		
Isopentane	78-78-4	600	ppm		

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

Avoid breathing vapors. Avoid contact with skin or eyes. Use with sufficient ventilation to keep employee exposure below the recommended exposure limit. Local exhaust should be used if large amounts are released. Mechanical ventilation should be used in low or enclosed places. Refrigerant concentration monitors may be necessary to determine vapor concentrations in work areas prior to use of torches or other open flames, or if employees are entering enclosed areas.

Personal Protection

Impervious gloves should be used to avoid prolonged or repeated exposure. Chemical splash goggles should be available for use as needed to prevent eye contact. Under normal manufacturing conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a large release occurs.

Section 9 Physical and Chemical Properties

Appearance	Liquified Gas
Colour	Colourless, clear
Odour	slight, ether like

Boiling Point	-45.4 F (-43 C) @ atmospheric pressure
Density (as a liquid)	Liquid = 71.13 lb/cu ft @25° C
Vapour Pressure	161.3 psia @ 77 F (25 C)
Vapour Density	3.5 at 25°C (Air=1.0)
PH	Neutral
Specific Gravity	1.14 at 25 °C
Solubility in Water	<0.5 wt% @ 25° C

Section 10. Stability and Reactivity

Stability of Substance	Stable under recommended storage conditions.
Incompatible Materials	Alkali metals Alkaline earth metals, Powdered metals, powdered metal salts
Hazardous Decomposition Products	Decomposes with heat. Potential decomposition products are hydrofluoric acid and possibly carbonyl fluoride. These materials are toxic and irritating. Contact should be avoided.

Section 11 Toxicological Information

Acute inhalation toxicity

1,1,1,2- Tetrafluoroethane: ALC/4 h/rat : 567000 ppm
 LC50/4 h/rat : 358500 ppm
 //dog : Cardiac sensitization

Pentafluoroethane (HFC-125) Cas No- 354-33-6

Inhalation 4 h LC50 : > 800000 ppm , rat

Butane :

LC50/4 h/rat : 658 mg/l
 Central nervous system depression
 Decreased heart rate changes in blood pressure

Potential Health Effects

Gross overexposure by inhalation may cause central nervous system depression with dizziness, confusion, incoordination, drowsiness or unconsciousness; irregular heart beat with a strange sensation in the chest, "heart thumping", apprehension, lightheadedness, feeling of fainting, dizziness, weakness, sometimes progressing to loss of consciousness and death; and suffocation, if air is displaced by vapors. Skin contact with liquid or escaping vapor may cause frostbite. Significant skin permeation, and systemic toxicity, after contact appears unlikely. There are no reports of human sensitization. "Frostbite-like" effects may occur if liquid or escaping vapors contact the eyes. Increased susceptibility to the effects of overexposure to this product may be observed in persons with pre-existing disease of the central nervous system or cardiovascular system.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

Section 12. Ecotoxicological Information

Aquatic Toxicity

1,1,1,2-Tetrafluoroethane (HFC-134a)

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 Tel: 64 9 526 5700

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96 h LC50 : Oncorhynchus mykiss (rainbow trout) 450 mg/l

72 h EC50 : Algae > 118 mg/l

Information given is based on data obtained from similar substances.

48 h EC50 : Daphnia magna (Water flea) 980 mg/l

Pentafluoroethane (HFC-125)

96 h LC50: Oncorhynchus mykiss (rainbow trout) > 81.8 mg/l

Information given is based on data obtained from similar substances.

96 h LC50: Danio rerio (zebra fish) > 200 mg/l

Information given is based on data obtained from similar substances.

96 h LC50: Oncorhynchus mykiss (rainbow trout) 450 mg/l

Information given is based on data obtained from similar substances.

72 h EC50 :Pseudokirchneriella subcapitata (green algae) > 118 mg/l

Information given is based on data obtained from similar substances.

72 h EC50 :Pseudokirchneriella subcapitata (green algae) > 114 mg/l

Information given is based on data obtained from similar substances.

96 h EC50 :Algae 142 mg/l

Information given is based on data obtained from similar substances.

48 h EC50: Daphnia magna (Water flea) > 200 mg/l

Information given is based on data obtained from similar substances.

48 h EC50: Daphnia magna (Water flea) > 97.9 mg/l

Information given is based on data obtained from similar substances.

Butane

96 h LC50: Fish (unspecified species) > 1,000 mg/l

Section 13. Disposal Considerations

Can be used after re-conditioning. Recover by distillation or remove to a permitted waste disposal facility. Comply with Local Regulations.

Environmental Hazards : Empty pressure vessels should be returned to the supplier.

Section 14 Transport Information

Classified as a Dangerous Good for transport

Road and Rail Transport (in NZ ; NZS 5433:2007)

UN No:	1078
Class-primary	2.2
Packing Group	None allocated
Proper Shipping Name:	Refrigerant gas, N.O.S

Air Transport

UN No:	1078
Class-primary	2.2
Packing Group	None allocated
Proper Shipping Name:	Refrigerant gas, N.O.S

Marine Transport

UN No:	1078
Class-primary	2.2
Packing Group	None allocated

Proper Shipping Name: Refrigerant gas, N.O.S

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.

Disclaimer

This document has been issued by Realcold Limited and serves as their Safety Data Sheet ('SDS'). It is based on information concerning the product which has been provided to Realcold Limited 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 Realcold Limited have 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, Realcold Limited accept 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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