Marketed by:
DAIKIN MALAYSIA SALES & SERVICE SDN. BHD.
198301014326 (109719-M)

DEWPOINT R410a Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: DEWPOINT R410A

2. HAZARD IDENTIFICATION

Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 as amended

Hazard pictograms:

Signal Word : Danger

Hazard statements:

H221 : Flammable gas

H280 : Contains gas under pressure; may explode if heated

Precautionary statements:

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

P377 : Leaking gas fire: Do not extinguish, unless leak can be stopped safely.

P381 : Eliminate all ignition sources if safe to do so.

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

3. COMPOSITION AND INFORMATION OF THE INGRIDEINTS OF THE HAZARDOUS CHEMICAL

Substance Name	CAS Registry Number	% Composition
PENTAFLUOROETHANE (HFC-125)	354-33-6	50
DIFLUOROMETHANE (HFC-32)	75-10-5	50

4. FIRST AID MEASURES

ORAL EXPOSURE

If swallowed, wash out mouth with water provided person is conscious. Call a physician
INHALATION EXPOSURE
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.
DERMAL EXPOSURE

In case of skin contact, flush with copious amounts of water for at least 15 minutes.

Remove contaminated clothing and shoes. Call a physician.

EYE EXPOSURE

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes.
Assure adequate flushing by separating the eyelids with fingers. Call a physician.

5. FIRE FIGHTHING MEASURE

Flammable Properties
Flash Point : Will not burn
Flammable limits in Air, % by Volume
LEL : Not applicable
UEL : Not applicable
Fire and Explosion Hazards:
Cylinders may 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 torch flames. 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 vapours from the work area before using any open flames.

Potential combustibility:
410A is not flammable at temperatures up to 100 deg C (212 deg F) at atmospheric pressure. However, mixtures of 410A with high concentrations of air at elevated pressure can become combustible at ambient temperature. As the temperature of the mixture is increased, lower pressure (but still greater than atmospheric pressure) can create the same effect. Therefore, 410A should not be mixed with air under pressure for leak testing or other purposes. In general, 410A should not be used or allowed to exist with high concentrations of air above atmospheric pressure.

Extinguishing Media
As appropriate for combustibles in area.

Fire Fighting Instructions
Cool cylinder 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.

6. ACCIDENTAL RELEASE MEASURE

Safeguards (Personnel)
NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Accidental Release Measures
Ventilate area, especially low or enclosed places where heavy vapours might collect. Extinguish open flames. Use self-contained breathing apparatus (SCBA) for large spills or releases. Eliminate electrical sources.

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. See Fire and Explosion Data section.

STORAGE
Clean, dry area. Do not heat above 52 deg C (125 deg F).

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

ENGINEERING CONTROLS

Avoid breathing vapours. 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.

PERSONAL PROTECTIVE EQUIPMENT
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 provided exposure is maintained at or below occupational limits. Self-contained breathing apparatus (SCBA) is required if a large release occurs.

EXPOURE GUIDELINE

Applicable Exposure Limits
PENTAFLUOROETHANE (HFC-125)
PEL (OSHA) : None Established
TLV (ACGIH) : None Established
AEL * (DuPont) : 1000 ppm, 8 & 12 Hr. TWA
WEEL (AIHA) : 1000 ppm, 4900 mg/m3, 8 Hr. TWA

DIFLUOROMETHANE (HFC-32)
AEL * (DuPont) : 1000 ppm, 8 & 12 Hr. TWA
WEEL (AIHA) : 1000 ppm, 8 Hr. TWA

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

GENERAL HYGIENE MEASURES

Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance;	Colorless/Slight ethereal odour – Physical State is Liquefied Gas
pH	N/A
Boiling Point	-51.6°C
Melting Point	-136°C
Freezing Point	N/A
Critical Temp	N/A
Vapor Pressure:	239.7 psia 25°C
Vapor Density	N/A
Saturated Vapor Conc,	N/A
SG/Density:	1.1 g/cm3
Bulk Density:	N/A
Odor Threshold	N/A
Volatile %	N/A
VOC Content	N/A
Water Content	N/A
Solvent Content	N/A
Evaporation Rete	N/A
Viscosity	N/A
Surface Tension	N/A
Partition Coefficient	N/A
Decomposition Temp	N/A
Explosion Limits	N/A
Flammability	N/A
Autoignition Temp	530 °C Experimental result, Key study
Refractive Index	N/A
Optical Rotation	N/A
Miscellaneous Data	N/A

N/A= not available

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY

Material is stable. However, avoid open flames and high temperatures.

INCOMPATIBILITY WITH OTHER MATERIALS
Incompatible with active metals, alkali or alkaline earth metals--powdered Al, Zn, Be, etc.

DECOMPOSITION
Decomposition products are hazardous. This material can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrofluoric acid and possibly carbonyl fluoride. These materials are toxic and irritating. Contact should be avoided.

POLYMERIXATION
Polymerization will not occur.

OTHER HAZARDS
Decomposition : Decomposition products are hazardous. This material can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrofluoric acid, and possibly carbonyl halides.

11. TOXICOLOGICAL INFORMATION

ANIMAL DATA
The blend is untested.

HFC-125

Inhalation 4-hour ALC: >709,000 ppm in rats
Single exposure to high doses caused: Lethargy. Laboured breathing. Weak cardiac sensitization, a potentially fatal disturbance of heart rhythm caused by a heightened sensitivity to the action of epinephrine.

Lowest-Observed-Adverse-Effect-Level for cardiac sensitization: 100,000 ppm.
Repeated exposure caused: No significant toxicological effects.
No-Observed-Adverse-Effect-Level(NOAEL): 50,000 ppm

ADDITIONAL TOXICOLOGICAL EFFECTS:
No animal data are available to define the following effects of this material: carcinogenicity, reproductive toxicity. In animal testing this material has not caused developmental toxicity. Tests have shown that this material does not cause genetic damage in bacterial or mammalian cell cultures, or in animals. This material has not been tested for its ability to cause permanent genetic damage in reproductive cells of mammals (not tested for heritable genetic damage).
HFC-32

Inhalation 4 hour-ALC: > 520,000 ppm in rats
Single exposure caused: Lethargy. Spasms. Loss of mobility in the hind limbs. Other effects include weak cardiac sensitization, a potentially fatal disturbance of heart rhythm caused by a heightened sensitivity to the action of epinephrine. 250,000 ppm.
Repeated exposure caused pathological changes of the lungs, liver, spleen, kidneys.
In more recent studies repeated exposure caused: No significant toxicological effects.

No-Observed-Effect-Level (NOEL): 49,100 ppm.

No animal data are available to define the following effects of this material: carcinogenicity, reproductive toxicity. Animal data show slight fetotoxicity but only at exposure levels producing other toxic effects in the adult animal.
Tests have shown that this material does not cause genetic damage in bacterial or mammalian cell cultures, or in animals. This material has not been tested for its ability to cause permanent genetic damage in reproductive cells of mammals (not tested for heritable genetic damage).

Skin Contact: Can cause severe frostbite. Prolonged or repeated exposure to skin causes defeating and dermatitis. May cause skin irritation.
Eye Contact: May cause eye eye irritation.

Inhalation: Material may be irritating to mucous membranes and upper respiratory tract.

Multiple Routes: May be harmful by inhalation, ingestion, or skin absorption.

12. ECOLOGICAL INFORMATION

General Information :
Do not discharge into any place where its accumulation could be dangerous. Consult supplier for specific recommendations. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor.

13. DISPOSAL INFORMATION

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION Observe all federal, state, and local environmental regulations.
APPROPRIATE METHOD OF DISPOSAL OF CONTAMINATED PACKAGING

Caution: No-return cylinder. Do not reuse. Empty cylinder will contain hazardous residue.

Follow proper disposal techniques.

14. TRANSPORTATION INFORMATION

SHIPPING INFORMATION
DOT/IMO
Proper Shipping Name : LIQUEFIED GAS, N.O.S.
(PENTAFLUOROETHANE AND DIFLUOROMETHANE)
Hazard Class : 2.2
UN No. 3163
DOT/IMO Label : NONFLAMMABLE GAS
Shipping Containers
Tank Cars.
Cylinders
Ton Tanks

15. REGULATORY INFORMATION

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EU ADDITIONAL CLASSIFICATION

Symbol of Danger: F

Indication of Danger: Highly Flammable.

R:11

Risk Statements: Highly Flammable.

S:91633

Safety Statements: Keep container in well-ventilated place. Keep away from sources of ignition – no smoking , Take precautionary measures against static discharges.
US CLASSIFICATION AND LABEL TEXT

Indication of Danger: Flammable (USA) Highly Flammable (EU).

Risk Statements: Extremely flammable liquefied gas.

Safety Statements: keep container in a well-ventilated place. Keep away from sources of ignition – no smoking. Take precautionary measures against static discharges.
US Statements: Target organ: Heart

UNITED STATES REGULATORY INFRORMATION SARA LISTED; No
TSCA INVENTORY ITEM: Yes

CANADA REGULATORY INFROMATION

WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: No

NDSL: Yes

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16. OTHER INFORMATON

NFPA, NPCA-HMIS
NPCA-HMIS Rating

Health	1
Flammability	0
Reactivity	1

Personal Protection rating to be supplied by user depending on use conditions.
The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

End of MSDS