

SAFETY DATA SHEET

Refrigerant R410A

Henan Fengzhimao Environmental Refrigeration Technology Co., Ltd

SDS

- According to GHS (Eighth Revised Edition)

Section 1 Product and Company Identification

> Product Identifier

Product Name Refrigerant R410A

Synonyms -

> Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Relevant Identified Uses Please consult manufacturer.

Uses Advised Against Please consult manufacturer.

> Details of the Supplier of the Safety Data Sheet

Applicant Name Henan Fengzhimao Environmental Refrigeration Technology Co., Ltd

Application Address The west side of connection line of express way and the north side of wangye road, the high and new industrial cluster of Minquan County, Shangqiu, CHINA

Applicant Post Code ——

Applicant Telephone +86-370-8839999

Applicant Fax ——

Applicant E-mail 1647527617@qq.com

Supplier Name Henan Fengzhimao Environmental Refrigeration Technology Co., Ltd

Supplier Address The west side of connection line of express way and the north side of wangye road, the high and new industrial cluster of Minquan County, Shangqiu, CHINA

Supplier Post Code ——

Supplier Telephone +86-370-8839999

Supplier Fax ——

Supplier E-mail 1647527617@qq.com

> Emergency Phone Number

Emergency Phone Number +86-370-8839999

Section 2 Hazards Identification

Hazard class and label elements of the product according to GHS (the eighth revised edition):

> GHS Hazard Class

Gases Under Pressure Liquefied gas

> GHS Label Elements

Pictogram



Signal Word

Warning

> Hazard Statements

H280 Contains gas under pressure; may explode if heated

> Precautionary Statements

Prevention

Not applicable

Response

Not applicable

Storage

P410+P403

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

Disposal

Not applicable

Section 3 Composition/Information on Ingredients

Component	Concentration (weight percent, %)	CAS No.	EC No.
Difluoromethane	50	75-10-5	200-839-4
Pentafluoroethane	50	354-33-6	206-557-8

Section 4 First Aid Measures

> Description of First Aid Measures

General Advice

Immediate medical attention is required. Show this safety data sheet (SDS) to the doctor in attendance.

Eye Contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.

Skin Contact

Take off contaminated clothing and shoes immediately. Wash off with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.

Ingestion

Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.

Inhalation

Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.

Protecting of First-aiders

Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

> Most Important Symptoms and Effects, both Acute and Delayed

- 1 Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

> Indication of Any Immediate Medical Attention and Special Treatment Needed

- 1 Treat symptomatically.
- 2 Symptoms may be delayed.

Section 5 Fire Fighting Measures

> Extinguishing Media

Suitable Extinguishing Media Dry chemical or carbon dioxide.

Unsuitable Extinguishing Media Do not use a solid water stream as it may scatter or spread fire.

> Specific Hazards Arising from the Substance or Mixture

- 1 High concentrations of gas may cause asphyxiation without warning.
- 2 Contact with gas may cause burns, severe injury and/ or frostbite.
- 3 Containers may explode when heated.
- 4 Fire exposed containers may vent contents through pressure relief valves.
- 5 May expansion or decompose explosively when heated or involved in fire.

> Advice for Firefighters

- 1 As in any fire, wear self-contained breathing apparatus (MSHA/NIOSH approved or equivalent) and full protective gear.
- 2 Fight fire from a safe distance, with adequate cover.
- 3 Prevent fire extinguishing water from contaminating surface water or the ground water system.

Section 6 Accidental Release Measure

> Personal Precautions, Protective Equipment and Emergency Procedures

- 1 Ensure adequate ventilation. Remove all sources of ignition.
- 2 Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
- 3 Use personal protective equipment. Avoid breathing vapours, mist, gas or dust.

> Environmental Precautions

- 1 Prevent further leakage or spillage if safe to do so.
- 2 Discharge into the environment must be avoided.

> Methods and Materials for Containment and Cleaning Up

- 1 Absorb spilled material in dry sand or inert absorbent. In case of large amount of spillage, contain a spill by bunding.
- 2 Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.
- 3 Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

Section 7 Handling and Storage

> Precautions for Handling

- 1 Handling is performed in a well ventilated place.
- 2 Wear suitable protective equipment.
- 3 Avoid contact with skin and eyes.
- 4 Keep away from heat/sparks/open flames/ hot surfaces.
- 5 Take precautionary measures against static discharges.

> Precautions for Storage

- 1 Keep containers tightly closed.
- 2 Keep containers in a dry, cool and well-ventilated place.
- 3 Keep away from heat/sparks/open flames/ hot surfaces.
- 4 Store away from incompatible materials and foodstuff containers.

Section 8 Exposure Controls/Personal Protection

> Control Parameters

Occupational Exposure Limit Values

Component	Country/Region	Limit Value - Eight Hours		Limit Value - Short Term	
		ppm	mg/m ³	ppm	mg/m ³
Pentafluoroethane 354-33-6	Sweden	500	2500	750	3750 (1

Biological Limit Values

No information available

Monitoring Methods

- 1 EN 14042 Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents.
- 2 GBZ/T 160 Determination of toxic substances in workplace air(Series effective standard)and GBZ/T 300 Determination of toxic substances in workplace air(Series standard).

> Engineering Controls

- 1 Ensure adequate ventilation, especially in confined areas.
- 2 Ensure that eyewash stations and safety showers are close to the workstation location.
- 3 Use explosion-proof electrical/ventilating/lighting/equipment.
- 4 Set up emergency exit and necessary risk-elimination area.

> Personal Protection Equipment

Eye Protection	Tightly fitting safety goggles (approved by EN 166(EU) or NIOSH (US).
Hand Protection	Wear protective gloves (such as butyl rubber) , passing the tests according to EN 374(EU),US F739 or AS/NZS 2161.1 standard.
Respiratory protection	If exposure limits are exceeded or if irritation or other symptoms are experienced, use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges.
Skin and Body Protection	Wear fire/flame resistant/retardant clothing and antistatic boots.

Section 9 Physical and Chemical Properties

Appearance: Colorless liquefied gas, 22LB 10kg gas containers	Odor: No information available
Odor Threshold: No information available	pH: Not applicable
Melting Point/Freezing Point (°C): No information available	Initial Boiling Point and Boiling Range (°C): No information available
Flash Point (°C)(Closed Cup): Not applicable	Evaporation Rate: Not applicable
Flammability: No information available	Upper/lower explosive limits[%(v/v)]: Upper limit: No information available; Lower limit: No information available
Vapor Pressure (KPa): Not applicable	Relative Vapour Density(Air = 1): Not applicable
Relative Density(Water=1): Not applicable	Solubility: No information available

n-Octanol/Water Partition Coefficient: Not applicable

Auto-Ignition Temperature(°C): No information available

Decomposition Temperature (°C): No information available

Kinematic Viscosity (mm²/s): Not applicable

Particle characteristics: Not applicable

Section 10 Stability and Reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical Stability	Stable under proper operation and storage conditions.
Possibility of Hazardous Reactions	No information available
Conditions to Avoid	Incompatible materials, heat, flame and spark.
Incompatible Materials	No information available
Hazardous Decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11 Toxicological Information

> Acute Toxicity

Component	CAS No.	LD ₅₀ (Oral)	LD ₅₀ (Dermal)	LC ₅₀ (Inhalation, 4h)
Difluoromethane	75-10-5	No information available	No information available	1890mg/L(Rat)
Pentafluoroethane	354-33-6	No information available	No information available	2910mg/L(Rat)

> Skin Corrosion/Irritation

No information available

> Serious Eye Damage/Irritation

No information available

> Skin Sensitization

No information available

> Respiratory Sensitization

No information available

> Germ Cell Mutagenicity

No information available

> Carcinogenicity

ID	CAS No.	Component	IARC	NTP
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1	75-10-5	Difluoromethane	Not Listed	Not Listed
2	354-33-6	Pentafluoroethane	Not Listed	Not Listed

> **Reproductive Toxicity**

No information available

> **Reproductive Toxicity (Additional)**

No information available

> **STOT-Single Exposure**

No information available

> **STOT-Repeated Exposure**

No information available

> **Aspiration Hazard**

No information available

Section 12 Ecological Information

> **Acute Aquatic Toxicity**

No information available

> **Chronic Aquatic Toxicity**

No information available

> **Others**

**Persistence and Degradability
Bioaccumulative Potential**

No information available

No information available

Mobility in Soil

No information available

Results of PBT and vPvB Assessment

Difluoromethane does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.

Pentafluoroethane does not meet the criteria for PBT and vPvB according to Regulation (EC) No 1907/2006, annex XIII.

Section 13 Disposal Considerations

Waste Chemicals

Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.

Contaminated Packaging Disposal Recommendations

Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible. Refer to section 13.1 and 13.2.

Section 14 Transport Information

Transporting Label



Marine pollutant	None
UN Number	3163
UN Proper Shipping Name	LIQUEFIED GAS, N.O.S.
Transport Hazard Class	2.2
Transport Subsidiary Hazard Class	NONE
Packing Group	The packagings must conform to package instructions of UN number

Section 15 Regulatory Information

> International Chemical Inventory

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AICS	ENCS
Difluoromethane	✓	✓	✓	✓	✓	✓	✓	✓	✗
Pentafluoroethane	✓	✓	✓	✓	✓	✓	✓	✓	✗

【EINECS】 European Inventory of Existing Commercial Chemical Substances.

【TSCA】 United States Toxic Substances Control Act Inventory.

【DSL】 Canadian Domestic Substances List.

【IECSC】 China Inventory of Existing Chemical Substances.

【NZIoC】 New Zealand Inventory of Chemicals.

【PICCS】 Philippines Inventory of Chemicals and Chemical Substances.

【KECI】 Existing and Evaluated Chemical Substances.

【AICS】 Australia Inventory of Chemical Substances.

【ENCS】 Existing And New Chemical Substances.

Note

“√” Indicates that the substance included in the regulations

“✗” That no data or included in the regulations

Section 16 Additional Information

Creation Date	2020/10/22
Revision Date	2020/10/22
Reason for Revision	-

> Disclaimer

This Safety Data Sheet (SDS) was prepared according to UN GHS (the 8th revised edition). The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.