

PRODUCT NAME: FLUGENE R410A

FRANCE BRAND

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME : FLUGENE R410A

Distributor : AL SHAMLY TRADING FZE

JEBEL ALI – DUBAI U.A.E.

Emergency Phone No: 00971-4-2286643

Subject to member state regulation, applicable uses are: refrigerant

2. COMPOSITION/INFORMATION INGREDIENTS

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
Difluoromethane	75-10-5	50
Pentafluoroethane	354-33-6	50

Trace impurities and additional material names not listed above may also appear in section 15 toward the end of MSDS. These materials may be listed for local "Right-To-Know" compliance and for other reasons.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Colorless, volatile liquid with ethereal and faint sweetish odor. Non-Flammable material. Overexposure may cause dizziness and loss concentration. At higher levels, CNS depression and Cardiac arrhythmia may result from exposure. Vapors displace air can cause asphyxiation in confined spaces. At higher temperatures, (< 250°C), decomposition products may include Hydrofluoric Acid (HF) and carbonyl halides.

POTENTIAL HEALTH HAZARDS

SKIN: Irritation would result from defatting action on tissue. Liquid contact could cause frostbite.

EYES: Liquid contact can cause severe irritation and frostbite. Mist may irritate.

INHALATION: R-410A is low in acute toxicity in animals. When oxygen levels in air reduced to 12-14% by displacement, symptoms of asphyxiation, loss of coordination, increased pulse rate and deeper respiration will occur. At high levels, cardiac arrhythmia may occur.

INGESTION: Ingestion is unlikely because of the low boiling point of the material. Should it occur, discomfort in the gastrointestinal tract from rapid evaporation of the material and consequent evolution of gas would result. Some effects of inhalation and skin exposure would be expected.

DELAYS EFFECTS: None known

Ingredients found on one of the OSHA designated carcinogen list are listed below.

INGREDIENTS NAME	NTP STATUS	IARC STATUS	OSHA LIST
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No ingredients listed in this section

4. FIRST AIDE MEASURES

SKIN: Promptly flush skin with water until all chemical is removed. If there is evidence of frostbite, bathe (do not rub) with lukewarm (not hot) water. If water is not available, cover with a clean soft cloth or similar covering. Get medical attention if symptoms persist.

EYES: Immediately flush eyes with large amounts of water for at least 15 minutes (in case of frostbite water should be lukewarm not hot) lifting eyelids occasionally to facilitate irrigation. Get medical attention if symptoms persist.

INHALATION: Immediately remove to fresh air .If breathing has stopped, give artificial respiration. Use oxygen as required, provided a qualified operator is available. Get medical attention. Do not give epinephrine (adrenaline).

INGESTION: Ingestion is unlikely because of the physical properties and is not expected to be hazardous. Do not induce vomiting unless instructed to do so by physician.

ADVICE TO PHYSICIAN: Because of the possible disturbance of cardiac rhythm, catecholamine drugs such as epinephrine, should be used with special caution and only in situation of emergency life support. Treatment of overexposure should be directed at the control of symptoms and clinical conditions.

5.FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASHPOINT : Gas not applicable per DOT regulation.

FLASHPOINT METHOD: Not applicable

AUTOIGNITION TEMPERATURE: >750°C

UPPER FLAME LIMIT(Volume % in air): None by ASTM D-56-82**LOWER FLAME LIMIT (Volume % in air):** None by ASTM E-681

FLAME PROPAGATION RATE(SOLIDS) : Not applicable

OSHA FLAMABILITY CLASS: Not applicable

UNUSUAL FIRE AND EXPLOSION HAZARDS:

R410A is not flammable at ambient temperatures and atmospheric pressure. However, this material will become combustible when mixed with air under pressure and exposed to strong ignition sources. Contact with certain reactive metals may result in formation of explosive or exothermic reaction under specific condition (e.g very high temperatures and or appropriate pressures).

SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:

Firefighters should wear self-contained, NIOSH approved breathing apparatus for protection against possible toxic decomposition products. Proper eye and skin protection should be provided. Use water spray to keep fire exposed containers cool.

6.ACCIDENTAL RELEASE MEASURES

IN CASE OF SPILL OR OTHER RELEASE: (Always recommend personal protective equipment)

Evacuate unprotected personnel. Protected personnel should remove ignition sources and shut off leak, if without risk and provide ventilation. Unprotected personnel should not return until air has been tested and determined safe, including low-lying areas.

7. HANDLING AND STORAGE

NORMAL HANDLING: Avoid breathing vapors and liquid contact with eyes, skin or clothing. Do not puncture or drop cylinders, expose them to open flame or excessive heat. Use authorized cylinders only. Follow standard safety for handling and use compressed gas cylinders.

R410A should not be mixed with air above atmospheric pressure for leak testing or any other purpose.

STORAGE RECOMMENDATION: Store in cool well ventilated area of low fire risk and out of direct sunlight. Protect cylinder and its fittings from physical damage. Storage in subsurface locations should be avoided. Close valve tightly after use and when empty.

8.EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:

Provide local ventilation at filling zones and areas where leakage is probable. Mechanical ventilation maybe adequate for other operating and storage areas.

PERSONAL PROTECTIVE EQUIPMENT

SKIN PROTECTION: Skin contact with refrigerant may cause frostbite. General work clothing and gloves (leather) should provide adequate protection. If prolonged contact with the liquid or gas is anticipated, insulated gloves constructed of PVA, neoprene or butyl rubber should be used. Any contaminated clothing should be promptly moved and washed before reuse.

EYE PROTECTION: For normal condition, wear safety glasses. Where there is reasonable probability of liquid contact, wear chemical safety goggles.

RESPIRATORY PROTECTION: None generally required for adequately ventilated work situations. For accidental release or non-ventilated situations or release into confined space, where the concentration maybe above the PEL of 1,000 ppm use a self-contained, NIOSH approved breathing apparatus or supplied air respirator. For Escape: use the former or a NIOSH approved gas mask with organic vapor canister.

ADDITIONAL RECCOMENDATIONS:

Where contact with liquid is likely, such as in a a spill or leak , impervious boots and clothing should be worn.High dose level warning signs are recommended for aread of principle exposure. Provide eyewash stations and quick drench shower facilities at convenient locations. For tank cleaning operation, see OSHA regulation.

EXPOSURE GUIDELINES

INGREDIENT NAME	ACHIH TLV	OSHA PEL	OTHER LIMIT
Diflouromethane	None	None	None
Pentafluoroethane	None	None	*1000 ppm TWA (8hr)

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear colorless liquid vapor

PHYSICAL STATE: Gas at ambient temperatures

MOLECULAR WEIGHT: 72.6

CHEMICAL FORMULA: CH₂F₂CHF₂CF₃

ODOR: Faint ethereal odor

SPECIFIC GRAVITY(WATER=1.0): [1.08@21.1°C\(70°F\)](#)

SOLUBILITY IN WATER(weight %): Unknown

pH: Neutral

BOILING POINT: -48.5°C(-55°F)

FREEZING POINT: Not determined

VAPOR PRESSURE: 215.3 PSIA @ 70 °F

490.2 PSIA @130°F

Vapor density (air=1.0): 3.0

EVAPORATION RATE: >1

FLASH POINT : Not applicable

NORMALLY STABLE : (CONDITIONS TO AVOID)

This product is stable. Do not mix with oxygen or air above atmospheric pressure. Any source of high temperature, such as lighted cigarettes, flames, hotspots or welding may yield toxic and or corrosive decomposition products.

INCOMPATIBILITIES:

Under specific condition: e.g very high temperature and or appropriate pressures – Freshly abraded aluminum surfaces may cause strong exothermic reactions. Chemically active metals: Potassium, Calcium, Powdered Aluminum, Magnesium and Zinc.

HAZARDOUS DECOMPOSITION PRODUCTS:

Halogens, halogen acids and possibly carbonyl halides.

HAZARDOUS POLYMERIZATION:

Will not occur

11. TOXICOLOGICAL INFORMATION

IMMEDIATE (ACUTE) EFFECTS:

Difluoromethane LC₅₀: 4 HR(rat) ≥ 520,000 ppm

Pentafluoroethane Cardiac Sensitization threshold(dog)) ≥ 100,000 ppm

DELAYED(SUBCHRONIC AND CHRONIC) EFFECTS:

Teratology – negative

Subchronic inhalation (rat) NOEL-50,000 ppm

OTHER DATA:

Not active in four genetic studies

12. ECOLOGICAL INFORMATION

Degradability (BOD): R410a is a gas at room temperature; therefore it is unlikely to remain in water.

Octanol Water Partition Coefficient: Log P_{ow}=1.48(PENTAFLUOROETHANE),0.21 (difluoromethane).

13. DISPOSAL CONSIDERATION

RCRA

Is the unused product a RCRA hazardous waste if discarded? Not a hazardous waste

If yes, the RCRA ID number is: Not applicable

OTHER DISPOSABLE CONSIDERATIONS:

Disposal must comply with federal, state and local disposal or discharge laws. R410A is subject to US Environmental Protection Agency Clear Air Act regulation Section 608 in 40 CFR part 82 regarding refrigerant recycling.

14. TRANSPORT INFORMATION

US DOT PROPER SHIPPING NAME: Liquefied gas, n.o.s (Pentafluoroethane, Difluoromethane)

US DOT HAZARD CLASS: 2.2

US DOT PACKING GROUP: Not applicable

US DOT ID NUMBER: UN3163

Packing Group: Not applicable

Composition Name: CAS NO.

Pentafluoroethane (HFC-125) 354-33-6

Difluoroemethane:(R32) 75-10-5

15. REGULATORY INFORMATION

TOXIC SUBSTANCES CONTROL ACT (TSCA)

TSCA INVENTORY STATUS: Components listed on the TSCA inventory

OTHER TSCA ISSUES: None

SRA TITLE III/CERCLA

“Reportable Quantities”(RQs) and /or “Threshold Planning Quantities” TPQs exist for the following ingredients.

<u>INGREDIENTS NAME</u>	<u>SARA/CERCLA RQ(lb)</u>	<u>SARA EHS TPQ(lb.)</u>
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No ingredients listed in this section

Spill or release resulting in the loss of any ingredient at or above its RQ requires immediate notification to the national Response Center and to your local Emergency Planning Committee.
