



This product safety summary is intended to provide a general overview of the chemical substance in the context of ICCA global product strategy. It is not intended to provide emergency response, medical or treatment information nor to provide an overview of all safety and health information. This summary is not intended to replace the Safety Data Sheet. For detailed guidance on the use or regulatory status of this substance, please consult the Safety Data Sheet.

Company Name	M/s GUJARAT FLUORO CHEMICALS LIMITED
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Business Phone	+91 – 2678 – 248107, 248152
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Web Site	www.gfl.co.in

A. CHEMICAL PRODUCT IDENTIFICATION:

Product Name	R-410A
Synonyms	HFC-410A, (Difluoromethane, Pentafluoroethane)
IUPAC Name	Difluoromethane Pentafluoroethane
CAS NO	75-10-5 354-33-6
E C No	200-839-4 206-557-8
Molecular Formula	C ₁ H ₂ F ₂ C ₂ H ₁ F ₅

B. USES AND APPLICATIONS:

- ✓ It is used in commercial and residential air conditioning systems.

C. PHYSICAL / CHEMICAL PROPERTIES:

Properties	Value
Physical state and appearance	Liquefied gas, Clear, colorless liquid and vapor
Odor	No Available
Molecular Weight	No Available
Color:	Clear, colorless liquid
PH (1% soln /water)	Neutral
Boiling Point	-48.5°C (-55.4°F)
Melting Point	No Available
Flash Point	No Available
Critical Temperature	Not available
Relative Density	1.08 g/cm ³ at 21.1°C
Vapor Pressure	215.3 psia @ 70°F 490.2 psia @ 130°F
Vapor Density	Not available.
Volatility	Not available.
Odor Threshold	Not available.
Water/Oil Dist. Coefficient	Not available
Ionicity (in Water)	Not available
Dispersion Properties	Not available

D. HEALTH EFFECTS:

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Effect	Value
Acute toxicity	Inhalation LC50- >>800 000 ppm
Skin corrosion/irritation	May cause frostbite.

Serious eye damage/eye irritation	May cause frostbite.
Respiratory or skin sensitization	Not Available
Germ cell mutagenicity	Not Available
Carcinogenicity	Not Available
Reproductive toxicity	Not Available
Specific target organ toxicity – single exposure	Not Available
Specific target organ toxicity repeated exposure	Not Available
Acute inhalation toxicity	Not Available
Aspiration hazard	Not Available
Additional Information	Not Available

E. ENVIRONMENTAL EFFECTS:

Effect	Value
Toxicity	Toxicity to Fish LC50 96 HR-1731 mg/L, 100 mg/L Toxicity to Daphnia and other aquatic invertebrate EC50 HR-833 mg/L, 100 mg/L Toxicity to Algae ErC50 72HR-313 mg/L, 114 mg/L
Persistence and degradability	Not Available
Bioaccumulative potential	Difluoromethane Log Pow = 0.21 Pentafluoroethane Log Pow = 0.48 Low partition coefficient (octanol-water) indicates the absence of bioaccumulation.
Mobility in soil	No available
Results of PBT and vPvB assessment	Not Available
Other adverse effects	Not Available

F. EXPOSURE:

Effect	Value
Precautions for safe handling	Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Avoid release to the environment. Refer to special instructions/safety data sheet. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.
Protection against fire and explosion	Not available
Conditions for safe storage, including any incompatibilities	Keep away from open flames, hot surfaces and sources of ignition. Keep in a cool, well-ventilated place. Protect full containers from sources of heat to avoid over pressurization. Keep away from direct sunlight. Containers should not be stored in conditions likely to encourage corrosion. Stored containers should be periodically checked for general conditions and leakage. Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over.
Further information on storage conditions	Keep container tightly closed and dry; store in a cool place. Keep container in a well-ventilated place.

G. RISK MANAGEMENT MEASURES:

Effect	Value

Eye/face protection	Tightly fitting safety goggles. Face shield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection	Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Body Protection	Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory Protection	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

H. PERSONAL PROTECTIVE EQUIPMENT AND EMERGENCY MEASURES:

- ✓ Control parameters
- ✓ Components with workplace control parameters
- ✓ Exposure controls
- ✓ Appropriate engineering controls
- ✓ Ensure that eyewash stations and safety showers are close to the workstation location.
Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating /lighting/equipments.

I. ACCIDENTAL RELEASE MEASURES:

- ✓ **Personal Precaution, protective equipment and emergency procedure:**
Avoid contact with skin and eyes. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. In enclosed areas: ventilate or wear a self-contained breathing apparatus

(risk of anoxia). Remove all sources of ignition. Do not smoke. Evacuate personnel to safe areas.

✓ **Environment Precautions:**

Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). May be harmful to the environment if released in large quantities.


✓ **Methods and materials for containment and cleaning up:**

Stop leak if easy to do so. Immediately contact emergency personal. Use spark-proof tools and explosion-proof equipment.

J. FIRE FIGHTING MEASURES:

Suitable Extinguishing Media	CO ₂ , powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
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K. CLASSIFICATION AND LABELLING:

Pictogram	
Hazard Statement	
H280	Contains gas under pressure; may explode if heated
Precautionary Statement	
Prevention	No precautionary statement assigned.
P410+P403	Protect from sunlight. Store in a well-ventilated place.
Hazard signal	Warning

L. BASIC TRANSPORT INFORMATION:

UN Number	UN 3163
1 UN Proper Shipping Name	LIQUEFIED GAS, N.O.S. (Pentafluoroethane, Difluoromethane)
Transport hazard class (es)	2.2
Packaging Group	-
Environmental hazards	No

M. REGULATORY INFORMATION:

International Inventories	Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture
TSCA	Complies
EINECS/ ELINCS	Complies
DSL/NDSL	Complies
PICCS	Complies
ENCS	Complies
IECSC	Complies
AICS KECL	Complies
Legend	
TSCA	United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL	Canadian Domestic Substances List/ Non-Domestic Substances List
EINECS/ELINCS	European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
PICCS	Philippines Inventory of Chemicals and Chemical Substances
ENCS	Japan Existing and New Chemical Substances
IECSC	China Inventory of Existing Chemical Substances
AICS	Australian Inventory of Chemical Substances



KECL

Korean Existing and Evaluated Chemical Substances

N. CONCLUSIONS:

- ✓ R410A is a zeotropic HFC blend of R125 and R32, R-410A is used for the vast majority of residential air conditioners
- ✓ It does not deplete or damage the ozone layer

O. CONTACT INFORMATION:

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P. DISCLAIMER:

- ✓ The above information and recommendations provided in GPS safety summary only concern to the specific product as described above and may not apply for the same material if used in combination with any other material or any process.
- ✓ They are in good faith as recommendations only and based on data which is available globally. GFL (Gujarat Fluorochemicals Ltd not imply any guarantee concerning the accuracy and validity and accepts no responsibility for any damage or loss that might arise in connection with then use of this material.