

Revised date 21.12.2023

# MATERIAL SAFETY DATA SHEET

## HFC 410A

### CHEMICAL PRODUCT

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Corporate MSDS Number : TAB-003012  
Composition : HFC 410A (100%)  
Chemical Formula : CH<sub>2</sub>F<sub>2</sub> / CHF<sub>2</sub>CF<sub>3</sub>  
Chemical Name : Difluoromethane + Pentafluoroethane  
Composition : HFC 32 (50.0%) + HFC 125 (50.0%)  
CAS# : 75-10-5 + 354-33-6  
UN# : 3163  
HS Code : 382763  
Hazard : 2.2

### COMPANY IDENTIFICATION

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TABRIGAS Egypt  
Port Said Free Zone area - Egypt  
Sunday - Thursday (9:00 - 17:00)  
00 202 2734 22 77 / 78 / 79  
[info@tabrigas.com](mailto:info@tabrigas.com)  
[www.tabrigas.com](http://www.tabrigas.com)

### PRODUCT USE

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Refrigerant

### TRADE NAMES & SYNONYMS

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R 410A  
HFC 410A

### HAZARDS IDENTIFICATION

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#### Emergency Overview

Misuse or intentional inhalation abuse may lead to death without warning. Vapors are heavier than air and can cause suffocation by reducing oxygen available for breathing. Rapid evaporation of the liquid may cause frostbite

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## Potential Health Effects

### Skin

Contact with liquid or refrigerated gas can cause cold burns and frostbite.

### Eyes

Contact with liquid or refrigerated gas can cause cold burns and frostbite.

### Inhalation

Misuse or intentional inhalation abuse may cause death without warning symptoms, due to cardiac effects. Other symptoms potentially related to misuse or inhalation abuse are:

Anesthetic effects include light-headedness, dizziness, confusion, coordination, drowsiness, or unconsciousness, irregular heartbeat with a strange sensation in the chest, heart thumping, apprehension, fainting, dizziness, or weakness. Vapors are heavier than air and can cause suffocation by reducing oxygen Available for breathing.

### Carcinogenicity

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

## FIRST AID MEASURES

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### Skin contact

In case of contact, immediately flush skin with plenty of water for at least 15 minutes. Take off all contaminated clothing immediately. Consult a physician. Wash contaminated clothing before re-use. Treat for frostbite, if necessary, by gently warming affected area.

### Eye contact

In case of contact, immediately flush your eyes with plenty of water for at least 15 minutes. Consult a physician if necessary.

### Inhalation

Remove from exposure, lie down. Move to fresh air. Keep the patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Consult a physician.

### Ingestion

Is not considered a potential route of exposure

### Notes to physician

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

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**FIRE FIGHTING MEASURES**

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## Flammable Properties

|                       |                              |
|-----------------------|------------------------------|
| Flash Point           | : does not flash             |
| Lower explosion limit | : Method: None per ASTM E681 |
| Upper explosion limit | : Method: None per ASTM E681 |

## Fire and Explosion Hazard

: Cylinders are equipped with pressure and temperature relief devices, but may still rupture under fire conditions. Decomposition may occur. Contact with welding or soldering torch flame with high concentrations of refrigerant can result in visible changes in the size and color 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 (212 deg. F) 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.

## Firefighting Instructions

: Cool containers/tanks with water spray. A self-contained breathing apparatus (SCBA) is required if containers rupture and contents are released under fire conditions. Water runoff should be contained and neutralized before release.

**ACCIDENTAL RELEASE MEASURES**

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

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#### Safeguards (Personnel)

Ventilate areas, especially low or enclosed places where heavy vapors might collect.

#### Accidental Release Measures

Avoid open flames and high temperatures. A self-contained breathing apparatus (SCBA) is required if a large release occurs.

### HANDLING AND STORAGE

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#### Handling (Personnel)

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

#### Storage

Store in a clean, dry place. Do not heat above 52° C (125° F).

### EXPOSURE CONTROLS/PERSONAL PROTECTION

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#### Engineering Controls

Use sufficient ventilation to keep employee exposure below recommended limits. Local exhaust should be used when large amounts are released.

Mechanical ventilation should be used in low or enclosed places.

#### Personal Protective Equipment

##### Respiratory protection

Under normal manufacturing conditions, no respiratory protection is required when using this Product.

##### Hand protection

Additional protection: Impervious gloves

##### Eye protection

Wear safety glasses or coverall chemical splash goggles. Additionally, wear a face shield where the possibility exists of face contact due to splashing, spraying, or airborne contact with this material.

#### Protective measures

A self-contained breathing apparatus (SCBA) is required if a large release occurs.

#### Exposure Guidelines

#### Exposure Limit Values

Pentafluoro ethane

AEL \* (DUPONT) 1,000 ppm 8 & 12 hr. TWA

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Difluoromethane  
AEL \* (DUPONT) 1,000 ppm 8 & 12 hr. TWA

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

## PHYSICAL AND CHEMICAL PROPERTIES

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Form : Liquefied gas  
Color : Colorless  
Odor : Slight, ether-like  
pH : Neutral  
Boiling point : -51.4 °C (-60.5 °F)  
% Volatile : 100 %  
Vapor Pressure : 16,574 hPa at 25 °C (77 °F)  
Specific gravity : 1.06 at 25 °C (77 °F)  
Water solubility : not determined  
Vapor density : 2.5 at 25°C (77°F) and 1013 hPa (Air=1.0)  
Evaporation rate : > 1 - (CCL4=1.0)

## STABILITY AND REACTIVITY

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### Conditions to Avoid

Stable at normal temperatures and storage conditions. Avoid open flames and high temperatures.

### Incompatibility

Alkali metals Alkaline earth metals, powdered metals, powdered metal salts

### Hazardous decomposition products

Decomposition products are hazardous. High temperatures (open flames, glowing metal surfaces, etc.) can decompose this material, forming hydrofluoric acid and possibly carbonyl fluoride. These materials are toxic and irritating. Avoid contact with decomposition products

### Hazardous reactions

Polymerization will not occur.

## TOXICOLOGICAL INFORMATION

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### Pentafluoroethane (HFC-125)

#### Dermal:

Not applicable

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Oral:

Not applicable

Inhalation 4 h LC50:

> 800000 ppm, rat

Inhalation:

Dog Cardiac sensitization

Skin irritation:

No skin irritation, not tested on animals Not expected to cause skin irritation based on an expert review of the properties of the substance.

Eye irritation:

No eye irritation, not tested on animals Not expected to cause eye irritation based on an expert review of the properties of the substance.

Skin sensitization:

Does not cause skin sensitization. Not tested on animals Not expected to cause sensitization based on an expert review of the properties of the substance. There are no reports of human respiratory sensitization.

Repeated dose toxicity:

Inhalation rat No toxicologically significant effects were found.

Carcinogenicity:

Overall weight of evidence indicates that the substance is not carcinogenic.

Mutagenicity:

Did not cause genetic damage in animals.

Did not cause genetic damage in cultured mammalian cells.

Did not cause genetic damage in cultured bacterial cells.

Reproductive toxicity:

Evidence suggests the substance is not a reproductive toxin in animals. The information given is based on data obtained from similar substances.

Teratogenicity:

Animal testing showed no developmental toxicity.

Further information:

Cardiac sensitization threshold limit: 490000 mg/m<sup>3</sup>

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Difluoromethane (R-32)

Dermal:

Not applicable

Oral:

Not applicable

Inhalation 4 h LC50:

> 520000 ppm, rat

Inhalation:

Dog Not a cardiac sensitizer.

Skin irritation:

No skin irritation, not tested on animals Not expected to cause skin irritation based on expert review of the properties of the substance.

Eye irritation:

No eye irritation, not tested on animals Not expected to cause eye irritation based on expert review of the properties of the substance.

Skin sensitization:

Not tested on animals Not expected to cause sensitization based on an expert review of the properties of the substance. There are no reports of human respiratory sensitization.

Repeated dose toxicity:

Inhalation

Rat No toxicologically significant effects were found.

Carcinogenicity:

Overall weight of evidence indicates that the substance is not carcinogenic.

Mutagenicity:

Did not cause genetic damage in animals.

Did not cause genetic damage in cultured mammalian cells.

Did not cause genetic damage in cultured bacterial cells.

Reproductive toxicity:

Animal testing showed no reproductive toxicity. The information given is based on data obtained from similar substances.

Teratogenicity:

Animal testing showed no developmental toxicity.

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**ECOLOGICAL INFORMATION**

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## Aquatic Toxicity

## Pentafluoroethane (HFC-125)

## 96 h LC50:

Oncorhynchus mykiss (rainbow trout) > 81.8 mg/l the information given is based on data obtained from similar substances.

## 96 h LC50:

Danio rerio (zebra fish) > 200 mg/l The information given is based on data obtained from similar substances.

## 96 h LC50:

Oncorhynchus mykiss (rainbow trout) 450 mg/l the information given is based on data obtained from similar substances.

## 72 h EC50:

Pseudokirchneriella subcapitata (green algae) > 118 mg/l the information given is based on data obtained from similar substances.

## 72 h EC50:

Pseudokirchneriella subcapitata (green algae) > 114 mg/l the information given is based on data obtained from similar substances.

## 96 h EC50:

Algae 142 mg/l the information given is based on data obtained from similar substances.

## 48 h EC50:

Daphnia magna (Water flea) > 200 mg/l the information given is based on data obtained from similar substances.

## 48 h EC50:

Daphnia magna (Water flea) > 97.9 mg/l the information given is based on data obtained from similar substances.

## Difluoromethane (R-32)

## 96 h LC50:

Fish 1,507 mg/l

## 96 h EC50:

Algae 142 mg/l

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48 h EC50:

Daphnia 652 mg/l

**DISPOSAL CONSIDERATIONS**

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Waste Disposal:

Can be used after re-conditioning. Recover by distillation or remove to a permitted waste disposal facility.  
Comply with applicable Federal, State/Provincial, and Local Regulations.

Environmental Hazards:

Empty pressure vessels should be returned to the supplier.

**TRANSPORTATION INFORMATION**

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TDG\_ROAD

UN number : 3163  
Proper shipping name : Refrigerant gas, n.o.s. (Pentafluoro ethane, Difluoromethane)  
Class : 2.2  
Labeling No. : 2.2

TDG\_RAIL

UN number : 3163  
Proper shipping name : Refrigerant gas, n.o.s. (Pentafluoro ethane, Difluoromethane)  
Class : 2.2  
Labeling No. : 2.2

IATA\_C

UN number : 3163  
Proper shipping name : Refrigerant gas, n.o.s. (Pentafluoro ethane, Difluoromethane)  
Class : 2.2  
Labeling No. : 2.2

IMDG

UN number : 3163  
Proper shipping name : Refrigerant gas, n.o.s. (Pentafluoro ethane, Difluoromethane)  
Class : 2.2  
Labeling No. : 2.2



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**REGULATORY INFORMATION**

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DSL Status:

On the inventory, or in compliance with the inventory

WHMIS Classification:

A - Compressed Gas

Remarks:

One or more components of this product are subject to a Significant New Activity (SNAC) restriction under the Canadian Environmental Protection Act (CEPA).

End of MSDS  
(Version August 2024)

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HEC  
MARKA