



Material Safety Data Sheet

R -32

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

Corporate MSDS Number : TAB-00112

Product Use

Refrigerant

Trade names and Synonyms

Difluoromethane
R-32
HFC-32

Company Identification

TABRIGAS EGYPT – PACKAGER / DISTRIBUTOR

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
Difluoromethane – (HFC-32)	75-10-5	100 %

HAZARDS IDENTIFICATION

Potential Health Effects

Inhalation

Gross overexposure may cause: Central nervous system depression with dizziness, confusion, in coordination, drowsiness or unconsciousness. Irregular heart beat with a strange sensation in the chest, "heart is thumping", apprehension, lightheadedness, feeling of fainting, dizziness, weakness, sometimes progressing to loss of consciousness and death. Suffocation, if air is displaced by vapors.

Skin Contact

Immediate effects of overexposure may include: Frostbite, if liquid or escaping vapor contacts the skin. Significant skin permeation, and systemic toxicity, after contact appears unlikely. There are no reports of human sensitization.

Carcinogenicity

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

FIRST AID MEASURES

First Aid



Inhalation

If inhaled, immediately remove to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

Skin contact

Flush area with lukewarm water. Do not use hot water. If frostbite has occurred, call a physician.

Eye contact

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call 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, should only be used with special caution in situations of emergency life support.

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point	: Not determined
Flammable limits in Air, % by Volume	
LEL	: 14
UEL	: 31
Auto ignition	: 648 C (1198 F)

Fire and Explosion Hazard

Flammable. Cylinders are equipped with temperature and pressure relief devices but still may rupture under fire conditions. Use water spray to cool cylinders and tanks.

Extinguishing Media

Water Spray, Water Fog, Dry Chemical.
"Alcohol" Foam. Carbon Dioxide (CO₂).

Firefighting Instructions

Keep container cool with water spray. If gas exiting container ignites, stop flow of gas. Do not put out the fire unless leak can be stopped immediately. Self-contained breathing apparatus (SCBA) is required if containers rupture and contents are released under fire conditions.

ACCIDENTAL RELEASE MEASURES

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

If a spill can cause a concentration in excess of 1,000 ppm, turn off valves and ignition sources. Evacuate area. Ventilate area, especially low or enclosed places where heavy vapors might collect. Wear self-contained breathing apparatus (SCBA).

If this product is released and not recovered, or is recovered as a waste for treatment or disposal, the CERCLA Reportable Quantity is 100 lbs. (release of an unlisted Hazardous Waste characteristic of ignitability).

HANDLING AND STORAGE

Handling (Personnel)

Avoid breathing high concentrations of vapors. Avoid liquid contact with skin or eyes. Use with sufficient ventilation to keep employee exposure below recommended limits. Lines and equipment which will contain HFC-32 should be pretested with nitrogen using soapy water to detect leaks.

Storage

Valve protection caps and valve outlet threaded plugs must remain in place unless container is secured with valve outlet piped to use point. Do NOT drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Never attempt to lift cylinder by its cap. Use a pressure reducing regulator when connecting cylinder to lower pressure (>3000 psig) piping or systems. Do NOT heat cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder.

Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Separate full containers from empty containers. Storage area temperatures should not exceed 125 deg F (52 deg C) and should be free of combustible materials. Avoid area where salt or other corrosive materials are present. Avoid excessive inventory and storage time. Use a first-in first-out system. Keep accurate inventory records.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Normal ventilation for standard manufacturing procedures is generally adequate. Local exhaust should be used when large amounts are released. Mechanical exhaust should be used in low or enclosed places. Ground all equipment and cylinders before use. Use explosion-proof electrical equipment rated Class I, Group D in Division 1 locations. In Division 2 locations, all spark-producing electrical equipment must be explosion-proof and rated Class I, Group D. Non-sparking motors need not be explosion-proof.

Personal Protective Equipment

Impervious gloves and chemical splash goggles should be worn when handling the liquid. Under normal manufacturing conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a large release occurs.

Exposure Guidelines

Exposure Limit

HFC-32			
AEL *	(DUPONT)	1,000 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.

PHYSICAL AND CHEMICAL PROPERTIES

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Boiling Point	: -51.7 C (-61.1 F)
Vapor Pressure	: 248 psia at 25 deg C (77 deg F)
Vapor Density	: 1.85 (Air = 1.0) at 25 deg C (77 deg F)
Freezing Point	: -136 C (-213 F)
% Volatiles	: 100 WT%
Solubility in Water	: 0.44 WT% @ 25 C (77 F) (248 psia)
Odor	: Slight ethereal
Form	: Gas
Color	: Clear, colorless
Liquid Density	: 0.958 g/cc at 25 deg C (77 deg F)

STABILITY AND REACTIVITY

Chemical Stability

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

Incompatibility with Other Materials

Incompatible with alkali or alkaline earth metals- powdered Al, Zn, Be, etc.

Polymerization

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 fluoride.

TOXICOLOGICAL INFORMATION

Animal Data

Eye

This material has not been tested for eye irritation.

Skin

LD50: No information found.

This material has not been tested for skin irritation or sensitization.

Ingestion

LD50: No information found.



Inhalation

4 hour, ALC, rat: > 520,000 ppm (Very low toxicity).

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.

Carcinogenic, Developmental, Reproductive, Mutagenic effects

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).

DISPOSAL CONSIDERATIONS

Waste Disposal

Reclaim by distillation, incinerate or remove to a permitted waste facility. Comply with Federal, State, and local regulations.

This product may be an RCRA Hazardous Waste on disposal due to the ignitability characteristic.

TRANSPORTATION INFORMATION

Shipping Information

DOT/IMO/IATA
Proper Shipping Name : Difluoromethane
Hazard Class : 2.1
UN No. : 3252
DOT/IMO Label : Flammable Gas

Shipping Containers
Cylinders
Ton Tanks

REGULATORY INFORMATION

U.S. Federal Regulations

TSCA Inventory Status : Reported/Included.
TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312
Acute : Yes
Chronic : No
Fire : Yes
Reactivity : No
Pressure : Yes

LISTS



Extremely Hazardous Substance -No
CERCLA Hazardous Material -(*)
Toxic Chemicals -No

OTHER INFORMATION

NFPA, NPCA-HMIS

NPCA-HMIS Rating

Health	: 1
Flammability	: 4
Reactivity	: 1

Personal Protection rating to be supplied by user depending on use conditions.

End of MSDS