Revised date 01.08.2024

Material Safety Data Sheet
HFC 23

CHEMICAL PRODUCT

Corporate MSDS Number	: TAB-003001
Composition	: HFC 23 (100%)
Chemical Formula	: CHF3
Chemical Name	: Trifluoroethane
CAS#	: 75-46-7
UN#	: 1984
HS Code	: 290341
Hazard	: 2.2

COMPANY IDENTIFICATION

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

PRODUCT USE

Refrigerant
Fire extinguishing agent

TRADE NAMES & SYNONYMS

R 23
HFC 23
Trifluoroethane

HAZARDS IDENTIFICATION

Potential Health Effects

Inhalation

Inhalation of high concentrations of vapor is harmful and may cause heart irregularities, unconsciousness, or death.
Intentional misuse or deliberate inhalation may cause death without warning. Vapor reduces oxygen available for breathing and is heavier than air. Liquid contact can cause frostbite.

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

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	: No flash point
Flammable Limits in Air, % by Volume:	
LEL	: None per ASTM E681
UEL	: None per ASTM E681
Auto ignition	: Not determined

Fire and Explosion Hazard

Containers may rupture under fire conditions. Decomposition may occur.
Contact of welding or soldering torch flame with high concentrations of refrigerant can result in visible changes in the size and color of torch flames. This flame effect will only occur in concentrations of product well above the recommended exposure limits, therefore, stop all work and ventilate to disperse refrigerant vapors from the work area before using any open flames.

HFC-23 is not flammable in air at temperatures up to 100 deg. C (212 deg. F) at atmospheric pressure. However, mixtures of HFC-23 with high concentrations of air at elevated pressure and/or combustible in an oxygen-enriched environment (oxygen concentrations greater than that in air). Whether a mixture containing HFC-23 and air, or HFC-23 in an oxygen-enriched atmosphere becomes combustible depends on the inter-relationship of
1) the temperature
2) the pressure
3) the proportion of oxygen in the mixture. In general, HFC-23 should not be allowed to exist with air

above atmospheric pressure or at high temperatures; or in an oxygen enriched environment. For example, HFC-23 should NOT be mixed with air under pressure for leak testing or other purposes

Firefighting Instructions

Use water spray or fog to cool containers. Self-contained breathing apparatus (SCBA) is required if cylinders rupture or release under fire conditions. Water runoff should be contained and neutralized prior to release.

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 vapor. Avoid contact with liquid with eyes and prolonged skin exposure. Use sufficient ventilation to keep employee exposure below recommended limits.

Storage

Valve protection caps and valve outlet threaded plugs must remain in place unless the container is secured with a valve outlet piped to the use point. Do NOT drag, slide, or roll cylinders. Use a suitable hand truck for cylinder movement.
Never attempt to lift the cylinder by its cap. Use a pressure-reducing regulator when connecting the cylinder to lower-pressure piping or systems. Do NOT heat the cylinder. Use a check valve or trap in the discharge line to prevent hazardous backflow 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 ^{0}F (52 ^{0}C) and should be free of combustible materials. Avoid areas 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 ventilation should be used in low or enclosed places.

Personal Protective Equipment

Impervious gloves should be used when handling liquid.
Chemical splash goggles should be worn when handling liquid.

Under normal manufacturing conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a large spill or release occurs.

Exposure Guidelines

Exposure Limits

"R-23

PEL (OSHA)	: None Established
TLV (ACGIH)	: None Established
AEL * (DuPont)	: 1000 ppm, 8 & 12 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

Physical Data

Boiling Point	: -82.1 C (-115.8 F)
Vapor Pressure	: 686 psig at 25 deg C (77 deg F)
Vapor Density	: 2.4 (Air = 1)
% Volatiles	: 100 WT%
Solubility in Water	: 0.1 WT% @ 25 C (77 F)
Odor	: Slight ethereal
Form	: Compressed gas or liquefied gas
Color	: Clear, colorless
Density	: 1.44 g/cc at -82 deg C (-115.7 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.

Decomposition

Decomposition products are hazardous. This material can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming HF, COF2, or CO. These materials are toxic and irritating. Contact should be avoided.

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

INHALATION:

4-hour LC50: >663,000 ppm in rats

HFC-23 is untested for skin and eye irritancy, and for animal sensitization.

Effects from single high inhalation exposure to HFC-23 include anesthetic effects, and nonspecific effects such as weight loss were observed at concentrations >22%. No cardiac sensitization was observed in dogs after breathing 800,000 ppm for periods of 5-10 minutes following epinephrine challenge. In another test, dogs exposed to up to 30% or up to 50% (with additional oxygen), had no positive responses. No cardiac sensitization occurred in baboons exposed by inhalation to 10%, 30%, 50%, or 70% HFC-23 before or after an epinephrine challenge; there was a dose-related decrease in heart rates and differences in respiratory rates during exposure.

No animal tests are available to define the carcinogenic hazards of HFC-23. The maternal and developmental NOAEL was 50,000 ppm. HFC-23 is not considered a unique developmental hazard to the concepts. There were no developmental or reproductive effects.

Tests have shown that HFC-23 does not produce genetic damage in bacterial or mammalian cell cultures. It has not produced genetic damage in tests on animals.

DISPOSAL CONSIDERATIONS

Reclaim by distillation, incineration 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	: Trifluoroethane
Hazard Class	: 2.2
UN No.	: 1984
DOT/IMO Label	: Nonflammable Gas

Shipping Containers
Cylinders
Ton Tanks
Tank Trucks.

Shipping Information – Canada
TDG

Proper Shipping Name	: Trifluoroethane
TDG Class	: 2.2
UN #	: 1984

REGULATORY INFORMATION

U.S. Federal Regulations
TSCA Inventory Status: Reported/Included.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312
Acute : Yes

Chronic	: No
Fire	: No
Reactivity	: No
Pressure	: Yes

HAZARDOUS CHEMICAL LISTS

SARA Extremely Hazardous Substance	: No
CERCLA Hazardous Substance	: No
SARA Toxic Chemical	: No

Canadian Regulations

WHMIS Classification	: CLASS A Compressed Gas

OTHER INFORMATION

NFPA, NPCA-HMIS

NPCA-HMIS Rating

Health	: 1
Flammability	: 0
Reactivity	: 1

End of MSDS
(Version August 2024)


150th anniversary
PHARAON GROUP
since 1868
TABRIGAS®
ISO 9001 2015 CERTIFIED
Chemours™
ARKEMA
ASHRAE
NFPA®
WORLD REFRIGERATION DAY
June 26th every year
HFC 23