MATERIAL
SAFETY
DATA SHEET

PRODUCT NAME	CAS#
Trifluoromethane	75-46-7
TRADE NAME AND SYNONYMS	**DOT I.D. NO.**
Freon 23, R-23, Fluoroform	UN 1984
CHEMICAL NAME AND SYNONYMS	**DOT HAZARD CLASS**
Trifluoromethane, Fluoroform	Division 2.2
ISSUE DATE AND REVISIONS	**FORMULA**
Revised March 2007	CHF_3

HEALTH HAZARD DATA

EMERGENCY OVERVIEW

Trifluoromethane is a colorless, nonflammable, nontoxic gas at temperatures above 298.89°K (25.75°C) at atomospheric pressure. It is shipped in steel cylinders as a liquefied gas under its own vapor pressure of 4 380 kPa (635 psig) at 21.1°C.

SYMPTOMS OF OVER-EXPOSURE

Inhalation: High concentrations of Trifluoromethane so as to exclude an adequate supply of oxygen to the lungs causes dizziness, deeper breathing due to air hunger, possible nausea and eventual unconsciousness. Contact with rapidly evaporating liquid can cause “bums” or frostbite.

TOXICOLOGICAL PROPERTIES

Trifluoromethane is inactive biologically and essentially nontoxic; therefore, the major property is the exclusion of an adequate supply of oxygen to the lungs. Frostbite effects are a change in color of the skin to gray or white, possibly followed by blistering. Trifluoromethane is not listed in the IARC, NTP or By OSHA as a carcinogen or potential carcinogen. Persons in ill health where such illness would be aggravated by exposure to Trifluoromethane should not be allowed to work with or handle these products.

RECOMMENDED FIRST AID TREATMENT

PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVEREXPOSURE TO TRIFLUOROMETHANE. RESCUERS SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.

Inhalation: Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area, given assisted respiration and supplemental oxygen. Further treatment should be symptomatic and supportive.

Skin Contact or Frostbite: Remove contaminated clothing and flush affected areas with lukewarm water. DO NOT USE HOT WATER. A physician should see the patient promptly if the cryogenic “burn” has resulted in blistering of the skin surface or deep tissue freezing.

HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES

Trifluoromethane is a relatively inert nonreactive gas.

PHYSICAL DATA

BOILING POINT	CRITICAL TEMPERATURE
-82.2°C	25.7°C
MOLAR SPECIFIC HEAT (25 oC, 1 bar abs, constant volume)	**CRITICAL PRESSURE**
51.557J/mol°K	48.1 bar abs
SOLUBILITY IN WATER	**SPECIFIC VOLUME(21.1 oC, 1 bar abs)**
0.10%(by weight)	343.3 dm^3/kg
EVAPORATION RATE	**SPECIFIC GRAVITY (AIR=1)**
N/A	2.43 at 70°F(21.2 °C)
APPEARANCE AND ODOR	
Clear and practically odorless gas.	

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (Method used)	AUTO IGNITION TEMPERATURE	FLAMMABLE LIMITS % BY VOLUME
N/A	N/A	LEL N/A UEL N/A

EXTINGUISHING MEDIA

Nonflammable gas.

SPECIAL FIRE FIGHTING PROCEDURES

If cylinders are involved in a fire, safely relocated or keep cool with water spray.

UNUSUAL FIRE AND EXPLOSION HAZARDS

If Trifluoromethane is involved in a fire, it may decompose yielding toxic products.

REACTIVITY DATA

STABILITY		CONDITIONS TO AVOID
Unstable		N/A
Stable	X	

INCOMPATIBILITY (Materials to avoid)

None

HAZARDOUS DECOMPOSITION PRODUCTS

Hydrogen fluoride and other toxic fluorides.

HAZARDOUS POLYMERIZATION		CONDITIONS TO AVOID
May Occur		N/A
Will Not Occur	X	

SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is in container or container valve, contact your closest supplier location or call HSG.

WASTE DISPOSAL METHOD

Do not attempt to dispose of waste or unused quantities. Return in the shipping container properly labeled, With any valve outlet plugs or caps secured and valve protection cap in place to your supplier. For emergency disposal assistance, contact your closest supplier locations or call HSG.

SPECIAL PROTECTION INFORMATION

RESPIRTORY PROTECTION (Specify type) Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.

VENTILATION	**SPECIAL**
To Prevent accumulation of high concentrations so as to reduce the oxygen level in the air to less than 18 molar percent	N/A

PROTECTIVE GLOVES Any , but natural rubber
EYE PROTECTION Safety goggles or glasses
OTHER PROTECTIVE EQUIPMENT Safety shoes

SPECIAL PRECAUTIONS*

SPECIAL LABELING INFORMATION	
DOT Shipping Name: Trifluoromethane DOT Shipping Label: Nonflammable Gas	DOT Hazard Class: Division 2.2 I.D. No.: UN 1984

SPECIAL WORK AND HYGIENE RECOMMENDATIONS

As with all chemicals, avoid getting this product in you. Do not eat or drink while handling this product. Be aware of any signs of dizziness or fatigue, exposures to fatal concentrations of this product could occur without any significant warning symptoms.

SPECIAL HANDLING AND STORAGE RECOMMENDATIONS

Use only in well-ventilated areas. Valve protection caps 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. Use a pressure reducing regulator when connecting cylinder to lower pressure (<750 psig) piping or systems. Do not heat cylinder by a means to increase the discharge rate of product from the cylinder. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder.

SPECIAL STORAGE RECOMMENDATIONS

Protect cylinders from physical damage. Sore in cool, dry , well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125°F(52°C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in –first out" inventory system to prevent full cylinders from being stored for excessive periods of time.

OTHER RECOMMENDATIONS OR PRECAUTIONS

Compressed gas cylinders should not be refilled except by qualified producers of compressed gases. Shipment of compressed gas cylinder which has not been filled by the owner or with his (written) consent is a violation. Always secure cylinders in an upright position before transporting them. NEVER transport cylinders in trunks of vehicles, enclosed vans, truck cabs or in passenger compartments. Transport cylinders secured in open pick-up type vehicles.

Since the Company shall have no control of the use of the product described herein, the Company assumes no liability for loss or damage incurred from the proper or improper use of such product.