DU PONT

MATERIAL SAFETY DATA SHEET

000107

IDENTIFICATION

Name:
Freon® 22

Chemical Family:
Halogenated Hydrocarbon

Synonyms:
Chlorodifluoromethane
R-22, Refrigerant 22

Formula:
$CHClF_2$

CAS Name:
Methane, Chlorodifluoro

CAS Registry No.:
75-45-6

Manufacturer/Distributor:
E. I. du Pont de Nemours & Co. (Inc.)

Medical Emergency Phone
(800) 441-3637

Address
Freon® Products Division
Wilmington, DE 19898

Transportation Emergency Phone
CHEMTREC (800) 424-9300

PHYSICAL DATA

Boiling Point(F°): -41.4

Percent Volatile by Volume: 100

Density: 1.194 g/cc @ 77°F

Vapor Pressure: 138 psig @ 77°F

Vapor Density (Air = 1): 2.98

Solubility in H_2O: 0.30% by wt. @ 77°F

Form: Liquefied Gas

Appearance: Clear

Color: Colorless

Odor: Slight ethereal odor

HAZARDOUS COMPONENTS

Material(s):
Chlorodifluoromethane

Approximate %:
100

HAZARDOUS REACTIVITY

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

Incompatibility:
Alkali or alkaline earth metals - powdered Al, Zn, Be, etc.

Decomposition:
Freon® 22 can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrochloric and hydrofluoric acids - possible carbonyl halides.

Polymerization: Will not occur

FIRE AND EXPLOSION DATA

Flash Point: None

Method: TOC

Autoignition Temperature:
1170°F

Flammable Limits in Air, % by Vol.
Lower: Nonflammable
Upper: Nonflammable

Autodecomposition Temperature
>800°F

Fire and Explosion: Cylinders are equipped with pressure and temperature relief devices but still may rupture under fire conditions. Decomposition may occur.

Extinguishing Media: Nonflammable

Special Fire Fighting Instructions: Other burning material may cause Freon® 22 to burn weakly. Extinguishant for other burning material in area is sufficient to stop burning. Self-contained breathing apparatus (SCBA) may be required if cylinders rupture or contents are released under fire conditions.

Health Hazard Information

Principal Health Hazards:
Inhalation - Vapor is heavier than air and can cause suffocation by reducing oxygen available for breathing. Breathing high concentration of this product can cause light-headedness, giddiness, shortness of breath, posssible narcosis, possible cardiac irregularities, unconsciousness or death. LC50 Rat 300,000 ppm/2 hr.

Note: In screening studies with experimental animals, exposure at approximately 50,000 ppm (v/v) and above, followed by a large intravenous epinephrine challenge, has induced serious cardiac irregularities.

Skin: Liquid contact can cause frostbite. No other information found.

Eye: Liquid contact can cause frostbite. No other information found.

Exposure Limits

PEL (OSHA): Not established
TLV®-TWA (ACGIH): 1,000 ppm

Safety Precautions: Avoid breathing vapors and liquid contact with the skin or eyes. Use only in well ventilated area.

First Aid:
Inhalation: Remove to fresh air, call a physician. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Do not give epinephrine or similar drugs.

Note to Physicians: Because of a possible increased risk of eliciting cardiac dysrythmias, catecholamine drugs, such as epinephrine, should be considered only as a last resort in life threatening emergencies.

Eye Contact: Flush with water. Call a physician.

Skin Contact: Flush with water. Treat for frostbite if necessary.

Medical Conditions Possibly Aggravated by Exposure:

Cardiovascular disease - See Principal Health Hazards: Inhalation Section.

Other Health Hazards:

Freon® 22 is not listed as a carcinogen by IARC, NTP or OSHA. In chronic inhalation studies, FC-22 has produced a small incidence of tumors in male rats, but not female rats or male or female mice, at a concentration of 50,000 ppm (v/v). In the same studies no effects were seen in any animals at a concentration of 10,000 ppm (v/v). Moreover, based on animal studies and human experiences this product poses no hazard to man relative to systemic toxicity, carcinogenicity, mutagenicity, or teratogenicity when occupational exposures are below its TLV®.

PROTECTION INFORMATION

Generally Applicable Control Measures:

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 places.

Personal Protective Equipment:

Lined butyl 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 release occurs.

DISPOSAL INFORMATION

Spill, Leak or Release:

Ventilate area--especially low places where heavy vapors might collect. Remove open flames.

Waste Disposal:

Reclaim by distillation. Comply with federal, state and local regulations.

SHIPPING INFORMATION

Domestic-Other than Air (DOT)

Proper Shipping Name	Chlorodifluoromethane
Hazard Class	Nonflammable Gas
UN No.	1018
DOT Label(s)	Nonflammable Gas
DOT Placard	Nonflammable Gas

International Water or Air (IMO/ICAO)

Proper Shipping Name	Chlorodifluoromethane
Hazard Class	Nonflammable Gas
UN No.	1018
IMO/ICAO Label	Nonflammable Gas

Other Information

Shipping Containers	Cylinders, tanks trucks, tank cars
Storage Conditions	Clean, dry area. Do not heat above 125°F.

Date Revised: 10/85

Person responsible: T. D. Armstrong, C&P Dept., Freon® Products Lab., Chestnut Run, Bldg. 711, Wilmington, DE 19898 (302) 999-3847 or (302)999-4338