The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

"FREON" 502 Refrigerant
2075FR Revised 4-MAY-2004

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"FREON" is a registered trademark of DuPont.

Corporate MSDS Number : DU001047
Formula : CHClF2/CClF2CF3
(AZEOTROPE)

Company Identification

MANUFACTURER/DISTRIBUTOR
DuPont Fluoroproducts
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS
Product Information : 1-800-441-7515 (outside the U.S. 302-774-1000)
Transport Emergency : CHEMTREC 1-800-424-9300(outside U.S. 703-527-3887)
Medical Emergency : 1-800-441-3637 (outside the U.S. 302-774-1000)

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
"FREON" 502	39432-81-0	100
*	76-15-3	
*ETHANE, CHLOROPENTAFLUORO- ("FREON" 115)		51.2
*METHANE, CHLORODIFLUORO- ("FREON" 22)	75-45-6	48.8

* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

HAZARDS IDENTIFICATION

Potential Health Effects

Immediate effects of overexposure by inhalation may include central nervous system depression with dizziness, confusion, incoordination, drowsiness or unconsciousness. Gross overexposure may cause irregular heart beat with a strange sensation in the chest, "heart thumping", apprehension,

(HAZARDS IDENTIFICATION - Continued)

lightheadedness, feeling of fainting, dizziness, weakness, sometimes progressing to loss of consciousness, death and suffocation, if air is displaced by vapors. Other effects include fatality from gross overexposure.

Immediate effects of overexposure by skin contact may include frostbite, if liquid or escaping vapor contacts the skin. Repeated and/or prolonged exposure may cause defatting of the skin with itching, redness or rash. Significant skin permeation, and systemic toxicity, after contact appears unlikely. There are no reports of human sensitization.

Immediate effects of overexposure may include eye irritation with tearing, pain or blurred vision.

Increased susceptibility to the effects of this material may be observed in persons with pre-existing disease of the central nervous system and cardiovascular system.

Carcinogenicity Information

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

SKIN CONTACT
In case of skin contact, flush with water for 15 minutes. Treat for frostbite if necessary by gently warming affected area.

EYE CONTACT
In case of eye contact, immediately flush eyes with plenty of water for 15 minutes. Call a physician.

INGESTION
Ingestion is not considered a potential route of exposure.

(FIRST AID MEASURES - Continued)

Notes to Physicians

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

FIRE FIGHTING MEASURES

Flammable Properties

Flash Point	: Will not burn
Flammable limits in Air, % by Volume	
LEL	: Not applicable
UEL	: Not applicable
Autoignition	: 704 C (1299 F)

Fire and Explosion Hazards:

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

Extinguishing Media

As appropriate for combustibles in area.

Fire Fighting Instructions

Keep containers cool with water spray. Self-contained breathing apparatus (SCBA) is required if cylinders rupture or release 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

Ventilate area - especially low places where heavy vapors might collect. Remove open flames. Use self-contained breathing apparatus (SCBA) for large spills. Comply with Federal, State, and local regulations for reporting releases.

HANDLING AND STORAGE

Handling (Personnel)

Avoid breathing vapors. Avoid liquid contact with skin or eyes. Use with sufficient ventilation to keep employee exposure below recommended limits.

Storage

Clean, dry area. Do not heat above 52 deg C (125 deg F).

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use with sufficient ventilation to keep employee exposure below recommended exposure limits. 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 and chemical splash goggles should be used if contact is possible. Under normal manufacturing conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a spill or release occurs.

Exposure Guidelines

Applicable Exposure Limits

ETHANE, CHLOROPENTAFLUORO- ("FREON" 115)

PEL	(OSHA)	: None Established
TLV	(ACGIH)	: 1,000 ppm, 6,320 mg/m3, 8 Hr. TWA
AEL *	(DuPont)	: None Established

METHANE, CHLORODIFLUORO- ("FREON" 22)

PEL	(OSHA)	: None Established
TLV	(ACGIH)	: 1,000 ppm, 3,540 mg/m3, 8 Hr. TWA, A4
AEL *	(DuPont)	: None Established

* 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	: -45.4 C (-49.7 F)
Vapor Pressure	: 169 psia at 25 deg C (77 deg F)
Vapor Density	: 3.92 at 25 deg C (77 deg F) (Air= 1)
% Volatiles	: 100 WT%
Evaporation Rate	: >1 (CCl4 = 1)
Solubility in Water	: 0.15 WT% @ 25 C (77 F)
pH	: Neutral
Odor	: Slight ethereal
Form	: Liquified gas
Color	: Clear, colorless
Density	: 1.22 g/cc at 25 deg C (77 deg F) - Liquid

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. "FREON" 502 Refrigerant can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrochloric and hydrofluoric acids, and possibly carbonyl halides.

TOXICOLOGICAL INFORMATION

Animal Data

This material has not been tested for eye irritation.

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

Single exposure to high doses caused altered respiratory rate, lung noise, incoordination, cardiac sensitization, a potentially fatal disturbance of heart rhythm associated

(TOXICOLOGICAL INFORMATION - Continued)

with a heightened sensitivity to the action of epinephrine.

No animal data are available to define the carcinogenicity, developmental, reproductive or mutagenic hazards of this material.

Chloropentafluoroethane (CFC-115):

Ingestion ALD, dog: >1,200 mg/kg Inhalation 4 hour, LC50, rat: > 800,000 ppm

Repeated exposure by ingestion caused diarrhea and excessive activity.

This material has not produced genetic damage in bacterial cultures.

Chlorodifluoromethane (HCFC-22):

Inhalation 4 hour, LC50, rat: 220,000 ppm

Animal testing indicates this material is a slight eye irritant.

Animal testing indicates this material is a skin irritant, but not a skin sensitizer.

Long-term exposure by ingestion caused no significant toxicological effects.

Long-term exposure by inhalation caused reduced weight gain, increased adrenals, kidney, liver, and pituitary weight.

In chronic inhalation studies, HCFC-22, at a concentration of 50,000 ppm (v/v), produced a small, but statistically significant increase of late-occurring tumors involving salivary glands in male rats, but not female rats or male or female mice. In the same studies, no increased incidence of tumors was seen in either species at concentrations of 10,000 ppm or 1000 ppm (v/v). Animal data show developmental effects only at exposure levels producing other toxic effects in the adult animal. This material is not considered a unique developmental hazard to the conceptus. Reproductive data on male animals show: No change in reproductive performance. Specific studies to evaluate the effect on female reproductive performance have not been conducted; however, limited information obtained from studies on developmental toxicity do not indicate adverse effects on female reproductive performance. This material produces genetic damage in bacterial cell cultures. In mammalian cell cultures and animals, this material has not produced genetic toxicity. In animal testing, this material has not caused permanent genetic damage in reproductive cells of mammals (has not produced heritable genetic

(TOXICOLOGICAL INFORMATION - Continued)

damage).

ECOLOGICAL INFORMATION

Ecotoxicological Information

Aquatic Toxicity:

"Freon" 22:

48 hour EC50 - Daphnia magna: 433 mg/L

Chloropentafluoroethane (CFC-115):

96 hour LC50 - Rainbow trout: > 2.3 mg/L

DISPOSAL CONSIDERATIONS

Waste Disposal

Comply with Federal, State, and local regulations. Remove to a permitted waste disposal facility or reclaim by distillation.

TRANSPORTATION INFORMATION

Shipping Information

DOT/IMO

Proper Shipping Name	:	CHLORODIFLUOROMETHANE AND CHLOROPENTAFLUOROETHANE MIXTURE
Hazard Class	:	2.2
UN No.	:	1973
DOT/IMO Label	:	NONFLAMMABLE 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

(REGULATORY INFORMATION - Continued)

Fire : No
Reactivity : No
Pressure : Yes

HAZARDOUS CHEMICAL LISTS

SARA Extremely Hazardous Substance: No
CERCLA Hazardous Substance : No
SARA Toxic Chemical - See Components Section

OTHER INFORMATION

NFPA, NPCA-HMIS

NPCA-HMIS Rating
Health : 1
Flammability : 0
Reactivity : 1

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

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS : MSDS Coordinator
> : DuPont Fluoroproducts
Address : Wilmington, DE 19898
Telephone : (800) 441-7515

# Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS