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

"FREON" 12 Refrigerant with "DYTEL" Conc. Leak Detective
2004FR Revised 7-OCT-1996

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"FREON", and "DYTEL" are registered trademarks of DuPont.

Corporate MSDS Number : DU001070
Formula : CCl2F2

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	%
*	75-71-8	
*METHANE, DICHLORODIFLUORO- ("FREON" 12)		100

* 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

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.

HUMAN HEALTH EFFECTS:

(HAZARDS IDENTIFICATION - Continued)

Liquid contact can cause frostbite and mild skin irritation with discomfort. The material has infrequently been associated with skin sensitization in humans. Eye contact with the liquid or high vapor concentrations may cause eye irritation with discomfort, tearing or blurring of vision. Higher inhalation exposures may cause temporary nervous system depression with anesthetic effects such as dizziness, headache, confusion, incoordination and loss of consciousness; temporary alteration of the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation.

Individuals with preexisting diseases of the central nervous system or cardiovascular system may have increased susceptibility to the toxicity of excessive exposures.

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 high concentrations 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.

IF SWALLOWED
Ingestion is not considered a potential route of exposure.

Notes to Physicians

Because of a possible disturbance of cardiac rhythm, catecholamine drugs, such as epinephrine, should be used with special caution 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	: >750 C (>1382 F)

Fire and Explosion Hazards:

Use water spray or fog to cool containers. Cylinders may rupture under fire conditions. Decomposition may occur.

Extinguishing Media

As appropriate for combustibles in area.

Fire Fighting Instructions

Self-contained breathing apparatus (SCBA) is required if cylinders rupture and contents are released 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

Ventilate area-especially low places where heavy vapors might collect. Remove open flames. Use SCBA for large spills.

HANDLING AND STORAGE

Handling (Personnel)

Avoid breathing vapors and 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 125 deg F.

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 places.

Personal Protective Equipment

Impervious gloves and chemical splash goggles should be used 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.

Exposure Guidelines

Applicable Exposure Limits
METHANE, DICHLORODIFLUORO- ("FREON" 12)

PEL	(OSHA)	: 1,000 ppm, 4,950 mg/m3, 8 Hr. TWA
TLV	(ACGIH)	: 1,000 ppm, 4,950 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	: -29.8 C (-21.6 F)
Vapor Pressure	: 94.5 psia at 25 deg C (77 deg F)
Vapor Density	: 4.26 (Air = 1.0) at 25 deg C (77 deg F)
% Volatiles	: 100 WT%
Solubility in Water	: 0.028 WT% @ 25 C (77 F) at 1 atm
pH	: Neutral
Odor	: Slight ethereal
Form	: Liquified gas
Color	: Red
Density	: 1.315 g/cc at 25 deg C (77 deg F) - Liquid

Appearance : Clear

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. Freon 12 refrigerant can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrochloric and hydrofluoric acids, and possibly carbonyl halides. These materials are toxic and irritating. Contact should be avoided.

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

Inhalation 30-minute LC50	:	800,000 ppm in rats
Oral ALD	:	>1000 mg/kg in rats

Effects in animals from single high exposure by inhalation include anesthesia and irregular heartbeat (cardiac arrythmias). Repeated inhalation exposures produced altered respiratory function. Long term studies showed no significant clinical, blood chemistry, or pathological effects following repeat exposures. The effects in animals from long term ingestion of this material include slight alterations in blood chemistry and body weight gain. No other clinical, biochemical or pathological signs of toxicity. The compound does not produce heritable genetic damage in animals or genetic damage in bacterial and mammalian cell cultures.

ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:

"FREON" 12: 48 hour EC50 - Daphnia magna: 95 mg/L.

DISPOSAL CONSIDERATIONS

Waste Disposal

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

TRANSPORTATION INFORMATION

Shipping Information

DOT

Proper Shipping Name	: DICHLORODIFLUOROMETHANE
Hazard Class	: NONFLAMMABLE GAS
I.D. No. (UN/NA)	: UN 1028
DOT Label(s)	: NONFLAMMABLE GAS
DOT Placard	: NONFLAMMABLE GAS

DOT/IMO

Proper Shipping Name	: DICHLORODIFLUOROMETHANE
Hazard Class	: NONFLAMMABLE GAS, 2.2
UN No.	: 1028
Special Information	: IMO/ICAO LABEL: NONFLAMMABLE GAS

Shipping Containers

Tank Cars.

Cylinders
Ton Tanks
Reportable Quantity : 5000 lbs/2270 kg

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

(REGULATORY INFORMATION - Continued)

Pressure : Yes

LISTS:

Extremely Hazardous Substance	-No
CERCLA Hazardous Substance	-Yes
Toxic Chemicals	-Yes

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