



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

DuPont  
Material Safety Data Sheet

Page 1

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2012FR "FREON" 500 Refrigerant  
Revised 3-MAY-2004  
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CHEMICAL PRODUCT/COMPANY IDENTIFICATION  
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Material Identification

"FREON" is a registered trademark of DuPont.

Corporate MSDS Number : DU001075  
CAS Number : 56275-41-3  
Formula : CCl2F2/CH3CHF2 (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)

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COMPOSITION/INFORMATION ON INGREDIENTS  
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Components

Material	CAS Number	%
Freon 500	56275-41-3	100
*	75-71-8	
*METHANE, DICHLORODIFLUORO- ("FREON" 12)		73.8
ETHANE, 1,1-DIFLUORO- (FC-152a)	75-37-6	26.2

\* 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.

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HAZARDS IDENTIFICATION  
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# Potential Health Effects

Skin contact may include frostbite from exposure to the liquid.

Inhalation may include nonspecific discomfort, such as nausea, headache, or weakness; or temporary nervous system

## (HAZARDS IDENTIFICATION - Continued)

depression with anaesthetic effects such as dizziness, headache, confusion, incoordination, and loss of consciousness.

Higher exposures (> 20%) may lead to temporary alteration of the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation. Data to evaluate the skin permeation hazard of this compound are insufficient. There are no reports of human sensitization. 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.

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FIRST AID MEASURES  
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## 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 areas. Get medical attention if irritation is present.

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

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FIRE FIGHTING MEASURES  
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## Flammable Properties

Flash Point : Will not burn  
Flammable limits in Air, % by Volume  
LEL : Not applicable  
UEL : Not applicable  
Autoignition : Not determined

## Autodecomposition Temperature:

Dichlorodifluoromethane: <760 deg C (<1400 deg F)  
Difluoroethane : <445 deg C (<836 deg F)

## Fire and Explosion Hazards:

Use water spray or fog to cool containers. Cylinders are equipped with temperature and pressure relief devices but may still 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 or release under fire conditions.

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ACCIDENTAL RELEASE MEASURES  
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## 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. Wear self-contained breathing apparatus (SCBA) for large spills. Remove open flames.

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HANDLING AND STORAGE  
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## 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 125 deg F.

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EXPOSURE CONTROLS/PERSONAL PROTECTION  
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## 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 if contact with liquid 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 occurs.

## Exposure Guidelines

## Applicable Exposure Limits

## METHANE, DICHLORODIFLUORO- ("FREON" 12)

PEL (OSHA)	: 1,000 ppm, 4,950 mg/m <sup>3</sup> , 8 Hr. TWA
TLV (ACGIH)	: 1,000 ppm, 4,950 mg/m <sup>3</sup> , 8 Hr. TWA, A4
AEL * (DuPont)	: None Established

## ETHANE, 1,1-DIFLUORO- (FC-152a)

PEL (OSHA)	: None Established
TLV (ACGIH)	: None Established
AEL * (DuPont)	: 1000 ppm, 8 Hr. TWA
WEEL (AIHA)	: 1000 ppm, 8 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.

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PHYSICAL AND CHEMICAL PROPERTIES  
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## Physical Data

Boiling Point : -33 C (-27 F)  
Vapor Pressure : 232 psia at 54 deg C (130 deg F)  
Vapor Density : 3.7 (Air = 1)  
% Volatiles : 100 WT%  
Evaporation Rate : (CCl4 = 1)  
                  Less than 1  
Odor : Slight ethereal  
Form : Liquified gas  
Color : Colorless  
Density : 1.16 g/cc at 25 deg C (77 deg F) - Liquid  
  
Appearance : Clear

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STABILITY AND REACTIVITY  
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## 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" 500 Refrigerant can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrochloric and hydrofluoric acids, and possibly carbonyl halides.

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TOXICOLOGICAL INFORMATION  
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## # Animal Data

The compound is untested for skin irritancy, contains a mild eye irritant, and is untested for animal sensitization.

No information found for FREON 500, but acute inhalation toxicity information on FREON 152a include anaesthetic effects, and cardiac sensitization. Freon 12 inhalation include effects by exclusion of oxygen, and nonspecific

## (TOXICOLOGICAL INFORMATION - Continued)

effects.

Animal testing indicates that FREON 12, and FREON 152a do not have carcinogenic, mutagenic, or embryotoxic effects. Animal testing indicates that FREON 12 does not have reproductive effects. Otherwise no animal test reports are available to define carcinogenic, mutagenic, embryotoxic, or reproductive hazards.

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ECOLOGICAL INFORMATION  
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## Ecotoxicological Information

## AQUATIC TOXICITY:

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

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DISPOSAL CONSIDERATIONS  
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## Waste Disposal

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

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TRANSPORTATION INFORMATION  
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## Shipping Information

## DOT

## DOT/IMO

Proper Shipping Name : DICHLORODIFLUOROMETHANE AND  
DIFLUOROETHANE AZEOTROPIC  
MIXTURE  
Hazard Class : 2.2  
UN No. : 2602  
DOT/IMO Label : NONFLAMMABLE GAS

## Shipping Containers

## Cylinders

## Ton Tanks

Reportable Quantity : "FREON" 12: 5000 lbs/2270 kg

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REGULATORY INFORMATION  
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## 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-----  
OTHER INFORMATION  
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## NFPA, NPCA-HMIS

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

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

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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