

## MATERIAL SAFETY DATA SHEET

Duplicate  
OF ~~000104~~  
Record # 132

### IDENTIFICATION

Name:  
Freon® 12

Chemical Family:  
Halogenated Hydrocarbon

Synonyms:  
R-12, Refrigerant 12,  
Dichlorodifluoromethane

Formula:  
CCl<sub>2</sub>F<sub>2</sub>

CAS Name:  
Methane, Dichlorodifluoro

CAS Registry No.:  
75-71-8

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): -21.6

Percent Volatile by Volume: 100

Density: 1.311 g/cc @ 77°F

Vapor Pressure: 80 psig @ 77°F

Vapor Density (Air = 1): 4.2

Solubility in H<sub>2</sub>O: 0.028% by wt @ 77°F

Form: Liquefied Gas

Appearance: Clear

Color: Colorless

Odor: Slight ethereal odor

### HAZARDOUS COMPONENTS

Material:  
Dichlorodifluoromethane

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® 12 can be decomposed by high temperatures (open flames, glowing 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:  
Not Determined

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

Autodecomposition Temperature:  
>1400°F

Fire and Explosion:  
Cylinders may rupture under fire conditions. Decomposition may occur.

Extinguishing Media:  
Nonflammable

Special Fire Fighting Instructions:  
Self-contained breathing apparatus (SCBA) may be required if cylinders rupture and 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 concentrations of vapor may cause light-headedness, giddiness, shortness of breath, and may lead to narcosis, cardiac irregularities, unconsciousness or death. LC50 Rat 800,000 ppm/30 min.

Note: In screening tests 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.

Eye: Liquid contact can cause frostbite. Tests in rabbit eyes with a 50% solution in mineral oil and with vapors resulted in no observable damage.

Oral: Rats were fed Freon®-12 dissolved in peanut oil. No deaths occurred at highest feasible dose - 1000 mg/kg.

Exposure Limits:

PEL (OSHA) 1000 ppm  
TLV® TWA (ACGIH) 1000 ppm

Safety Precautions: Avoid breathing vapors and liquid contact with 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 dysrhythmias, catecholamine drugs, such as epinephrine, should be considered only as a last resort in life threatening emergencies.

Eye: In case of liquid contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

Skin: 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® 12 is not classified as carcinogenic by IARC, NTP, or OSHA. Based on animal studies and human experiences this fluorocarbon 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: EPA Hazardous Waste No. UO 75  
Comply with federal, state, and local regulations. Reclaim by distillation or remove to a permitted waste disposal facility.

SHIPPING INFORMATION

Domestic--Other than Air (DOT)

Proper Shipping Name	Dichlorodifluoromethane
Hazard Class	Nonflammable Gas
UN No.	1028
DOT Label(s)	Nonflammable Gas
DOT Placard	Nonflammable Gas

International Water or Air (IMO/ICAO)

Proper Shipping Name	Dichlorodifluoromethane
Hazard Class	Nonflammable Gas
UN No.	1028
IMO/ICAO Label	Nonflammable Gas

Other Information

Shipping Containers	Cylinders, ton tanks, 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.

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REF 2/1.15

