

DU PONT

MASTER B D 11A

MATERIAL SAFETY DATA SHEET

IDENTIFICATION

NAME
FREON* 502 Refrigerant

CHEMICAL FAMILY
Halogenated Hydrocarbon
(Chlorofluoro)

FORMULA
CHClF₂/CClF₂CF₃
(Azeotrope)

TSCA INVENTORY STATUS
Reported/Included

MANUFACTURER/DISTRIBUTOR
E. I. du Pont de Nemours & Co. (Inc.)

SARA/TITLE III STATUS
See ADDITIONAL INFORMATION Section

ADDRESS
Wilmington, DE 19898

PRODUCT INFORMATION PHONE
(800) 441-9450

MEDICAL EMERGENCY PHONE
(800) 441-3637

TRANSPORTATION EMERGENCY PHONE
CHEMTREC (800) 424-9300

PHYSICAL DATA

BOILING POINT
-45.4°C (-49.8°F)

PERCENT VOLATILE BY VOLUME
100

LIQUID DENSITY
1.22 g/cc at 25°C (77°F)

VAPOR PRESSURE
169 psia at 25°C (77°F)

VAPOR DENSITY (Air = 1)
3.92 at 25°C (77°F)

SOLUBILITY IN WATER
0.15% by wt. at 25°C (77°F)

EVAPORATION RATE (CCl₄ = 1)
>1

pH INFORMATION
Neutral

FORM
Liquefied gas

APPEARANCE
Clear

COLOR
Colorless

ODOR
Slight ethereal

*Registered U.S. Pat. & Tm. Office, Du Pont Company. FREON[®] 502 Refrigerant is made only by Du Pont.

E-94886-1

Date: 5/89

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.

HAZARDOUS COMPONENTS

<u>MATERIAL(S)</u>	<u>CAS NO.</u>	<u>APPROXIMATE %</u>
Ethane, Chloropentafluoro (FREON ^R 115)	76-15-3	51.2
Methane, Chlorodifluoro (FREON ^R 22)	75-45-6	48.8

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

POLYMERIZATION

Will not occur.

FIRE AND EXPLOSION DATA

FLASH POINT

Will not burn.

FLAMMABLE LIMITS IN AIR, % BY VOL.

LOWER Not applicable.

UPPER Not applicable.

AUTOIGNITION TEMPERATURE

Not determined.

AUTODECOMPOSITION TEMPERATURE

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.

SPECIAL FIREFIGHTING INSTRUCTIONS

Self-contained breathing apparatus (SCBA) is required if cylinders rupture or release under fire conditions.

HEALTH HAZARD INFORMATION

PRINCIPAL HEALTH HAZARDS (Including Significant Routes, Effects, Symptoms of Overexposure, and Medical Conditions Aggravated by Exposure)

Inhalation of high concentrations of vapor is harmful and may cause heart irregularities, unconsciousness, or death. Intentional misuse can be fatal. Vapor reduces oxygen available for breathing and is heavier than air. Liquid contact can cause frostbite.

FREON^R 115

Inhalation 4-hour LC₅₀: >800,000 ppm in rats
Oral ALD: >1200 mg/kg in dogs

The compound is untested for skin irritancy, is untested for eye irritancy, and is untested for animal sensitization. No adverse effects were observed in animals exposed by inhalation to very high concentrations (~80%). Cardiac sensitization was observed in beagle dogs exposed to concentrations of 15% to 25% FREON^R 115. No animal test reports are available to define carcinogenic, embryotoxic, or reproductive hazards. Tests in bacterial or mammalian cell cultures demonstrate no mutagenic activity.

Human health effects of overexposure by inhalation may include nonspecific discomfort, such as nausea, headache, or weakness; temporary nervous system depression with anaesthetic effects such as dizziness, headache, confusion, incoordination, and loss of consciousness; or with gross overexposure (>20%), possibly temporary alteration of the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation. Individuals with preexisting diseases of the central nervous or cardiovascular system may have increased susceptibility to the toxicity of excessive exposures.

FREON^R 22

Inhalation 4-hour LC₅₀: 220,000 ppm in rats

The compound is untested for skin and eye irritancy, and is untested for animal sensitization. Toxicity described in animals exposed by inhalation to concentrations ranging from 5% to 70% include effects on the central nervous system, liver, lungs, kidneys, spleen; cardiac sensitization; decreased body weight gain; and partial anaesthesia. In chronic inhalation studies, FC-22 produced a small, but statistically significant, increase 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 carcinogenic effects were seen in either species at concentrations of 10,000 ppm or 1000 ppm (v/v). FC-22 was mutagenic in bacterial cell cultures but not mammalian cell cultures, and was not mutagenic in whole animal assays. A slight, but significant, increase in developmental toxicity (eye malformations, decreased fetal weights) has been observed in the offspring of rats exposed to high concentrations (50,000 ppm) of FC-22, a concentration which was also maternally toxic; no effects on the fetus or the maternal rats were seen at 1000 or 100 ppm. Developmental toxicity studies in rabbits at 50,000, 1000 and 100 ppm FC-22 were negative. Studies of the effects of FC-22 on male reproductive performance have been negative. 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 at concentrations up to 50,000 ppm (v/v).

HEALTH HAZARD INFORMATION (cont'd)

Human health effects of overexposure to the vapors by inhalation may include temporary nervous system depression with anaesthetic effects such as dizziness, headache, confusion, incoordination, and loss of consciousness. Higher exposures to the vapors may cause temporary alteration of the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation; or fatality from gross overexposure. Skin contact with the liquid may cause frostbite.

CARCINOGENICITY

None of the components of this product is listed as a carcinogen by IARC, NTP, OSHA, or ACGIH.

EXPOSURE LIMITS

FREON^R 115

PEL (OSHA): 1000 ppm, 6320 mg/m³

TLV* (ACGIH): 1000 ppm, 6320 mg/m³

FREON^R 22

PEL (OSHA): 1000 ppm, 3500 mg/m³

TLV* (ACGIH): 1000 ppm, 3500 mg/m³

AEL (Du Pont): 1000 ppm

SAFETY PRECAUTIONS

Use with sufficient ventilation to keep employee exposure below recommended limits.

FIRST AID

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.

IN CASE OF SKIN CONTACT: The compound is not likely to be hazardous by skin contact, but cleansing the skin after use is advisable.

IN CASE OF EYE CONTACT: In case of contact, immediately flush eyes with plenty of water. Call a physician.

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

NOTE 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.

*TLV is a registered trademark of the American Conference of Governmental Industrial Hygienists.

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 neoprene rubber 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.

DISPOSAL INFORMATION

SPILL, LEAK OR RELEASE

Ventilate area—especially low places where heavy vapors might collect. Remove open flames. Use self-contained breathing apparatus (SCBA) for large spills.

WASTE DISPOSAL

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

SHIPPING INFORMATION

DOT (172.101)

PROPER SHIPPING NAME
Refrigerant gas, N.O.S.

HAZARD CLASS
Nonflammable gas

UN NO.
1078

DOT LABEL(S)
Nonflammable gas

DOT PLACARD
Nonflammable gas

SHIPPING CONTAINERS

25-pound cylinders to ton tanks.

DOT/IMO (172.102)

PROPER SHIPPING NAME
Chlorodifluoromethane and
Chloropentafluoroethane mixture

HAZARD CLASS
Nonflammable gas

UN NO.
1973

IMO/ICAO LABEL
Nonflammable gas

ADDITIONAL INFORMATION

STORAGE CONDITIONS

Clean, dry area. Do not heat above 125°F.

NPCA-HMIS RATINGS

Health	1
Flammability	0
Reactivity	1
Personal Protection	-

Personal Protection rating to be supplied by user depending

SARA/TITLE III HAZARD CATEGORIES AND LISTS

Product Hazard Categories:

Chronic Health	- No
Acute Health	- Yes
Fire Hazard	- No
Pressure Hazard	- Yes
Reactivity Hazard	- No

Lists:

Extremely Hazardous
CERCLA Hazardous
Toxic Chemicals

DATE OF LATEST REVISION/REVIEW:

PERSON RESPONSIBLE FOR MSDS:

5/89

K. P. BROWN

Du Pont Company

Chemicals & Pigments

Chestnut Run Plaza

P.O. Box 80709

Wilmington, DE 19880

(302) 999-5072