



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

2090FR "FREON" 11
Revised 27-JUN-2005

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

"FREON" is a registered trademark of DuPont.

Formula : CC13F

Tradenames and Synonyms

F-11
CFC-11
Trichlorofluoromethane
CC0119

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	%
*METHANE, TRICHLOROFLUORO- ("FREON" 11)	75-69-4	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

Skin contact may include frostbite from exposure to the cold liquid. Significant skin permeation, and systemic toxicity, after contact appears unlikely. There are no reports of human sensitization.

Eye contact may include eye irritation with discomfort, tearing, or blurring of vision.

Inhalation may include temporary nervous system depression with anaesthetic 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.

Ingestion may include nonspecific discomfort, such as nausea, headache, or weakness. Accidental ingestion resulted in necrosis and ulceration of the stomach.

Higher exposures may lead to fatality from gross overexposure.

Individuals with preexisting diseases of the 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 inhaled, immediately remove to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT

Flush area with lukewarm water. Do not use hot water. If frostbite has occurred, call a physician.

EYE CONTACT

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

(FIRST AID MEASURES - Continued)

INGESTION

If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

Notes to Physicians

Activated charcoal mixture may be beneficial. Suspend 50 g activated charcoal in 400 mL water and mix well. Administer 5 mL/kg, or 350 mL for an average adult.

Because of possible disturbances 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
Method : TOC
Flammable limits in Air, % by Volume
LEL : Not applicable
UEL : Not applicable
Autoignition : Not determined
Autodecomposition : >593 C (>1099 F)

Fire and Explosion Hazards:

Drums 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 containers rupture and contents are spilled 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. Do not flush into sewers. Dike spill. Collect on absorbent material and transfer to steel drums for recovery or disposal. Use self-contained breathing apparatus (SCBA) for large spills. Comply with Federal, State and local regulations on reporting releases.

HANDLING AND STORAGE

Handling (Personnel)

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

Storage

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

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 or enclosed places.

Personal Protective Equipment

Impervius gloves should be used to avoid prolonged or repeated exposure. Chemical splash goggles should be available for use as needed to prevent eye contact. 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, TRICHLOROFLUORO- ("FREON" 11)
PEL (OSHA) : 1,000 ppm, 5,600 mg/m3, 8 Hr. TWA
TLV (ACGIH) : Ceiling 1,000 ppm, 5,620 mg/m3, 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 : 23.9 C (75 F)
Vapor Pressure : 14.7 psia at 25 deg C (77 deg F)
Vapor Density : 4.9 (Air = 1)
% Volatiles : 100 WT%
Evaporation Rate : >1 (CCl4 = 1)
Solubility in Water : 0.1 WT% @ 25 C (77 F)
pH : Neutral
Odor : Slight ethereal
Form : Liquid
Color : Colorless
Density : 1.48 g/cc at 25 deg C (77 deg F) - Liquid

Appearance : Clear

STABILITY AND REACTIVITY

Chemical Stability

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" 11 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

"Freon" 11:

Inhalation 4 hour LC50: 26,200 ppm in rats
Skin absorption ALD: > 9300 mg/kg in rabbits
Oral ALD: > 11,000 mg/kg in rats

The compound is not a skin irritant, is a mild eye irritant, but is untested for animal sensitization.

Toxicity described in animals exposed by inhalation to single doses at high concentrations include central nervous system depression, rapid or labored breathing, anaesthesia, weight loss and nonspecific effects. Concentrations of 0.35% (3500 ppm) and greater caused cardiac sensitization in dogs. Various cardiovascular and circulatory abnormalities have also been reported in other animals. Repeated exposures to 12,000 ppm in one study resulted in changes in the lungs, liver, brain, and spleen. In a different study at 25,000 ppm rats, guinea pigs, and cats exhibited no microscopic evidence of damage to the heart, lungs, kidneys, liver or spleen. Long-term exposures in rats and mice produced no compound-related differences in body weights or survival.

Although repeated skin exposures retarded healing of wounds and growth of hair, no significant effects were seen in young rats and only slight inflammatory reaction in old rats.

Repeated exposures by ingestion produced no evidence of toxicity in dogs and only a questionable slight transient urinary fluoride effect in rats.

Tests in animals demonstrate no carcinogenic activity. No tests in animals for developmental toxicity on this compound alone are available; however, tests using this compound in combination with FC-12 (10:90) demonstrate no developmental toxicity. Tests in animals for reproductive effects have not been performed.

The compound does not produce genetic damage in bacterial and mammalian cell cultures but has not been tested in animals.

ECOLOGICAL INFORMATION

Ecotoxicological Information

Aquatic Toxicity:

"Freon" 11:

96-hour LC50, rainbow trout: 190 mg/L
-----DISPOSAL CONSIDERATIONS

Waste Disposal

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

-----TRANSPORTATION INFORMATION

Shipping Information

DOT:

.. Not regulated by DOT unless
a single package contains 5,000 or
more pounds Trichlorofluoromethane
(see shipping description below).

Proper Shipping Name: Environmentally Hazardous Substance,
Liquid, N.O.S.
(Trichlorofluoromethane)

Hazard Class : 9
UN/NA Number : UN 3082
Packing Group : III
Marine Pollutant : No
Reportable Quantity : 5,000 lbs. Trichlorofluoromethane
Note : Add letters RQ before or after basic
.. description.

IMO/ICAO:

Not regulated.
-----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 : No

LISTS:

Extremely Hazardous Substance -No
CERCLA Hazard 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.

Additional Information

"FREON" 11 contains very low levels of carbon tetrachloride and chloroform, chemicals known to the State of California to cause cancer.

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