"FREON" 11

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Material Identification</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;FREON&quot; is a registered trademark of DuPont.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Corporate MSDS Number</th>
<th>DU000026</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS Number</td>
<td>75-69-4</td>
</tr>
<tr>
<td>Formula</td>
<td>CCl3F</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>137.36</td>
</tr>
</tbody>
</table>

Tradenames and Synonyms
- F-11
- CC0119

Company Identification
MANUFACTURER/DISTRIBUTOR
Du Pont
1007 Market Street
Wilmington, DE 19898

PHONE NUMBERS
- Product Information: 1-800-441-9442
- Transport Emergency: CHEMTREC: 1-800-424-9300
- Medical Emergency: 1-800-441-3637

COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>Material</th>
<th>CAS Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>*METHANE, TRICHLOROFLUORO- (&quot;FREON&quot; 11)</td>
<td>75-69-4</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

* Regulated as a Toxic Chemical under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

(Continued)
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. Causes skin and eye irritation.

HUMAN HEALTH EFFECTS:

Human health effects of overexposure by eye contact may include eye irritation with discomfort, tearing, or blurring of vision. Skin contact with the liquid may cause drying of the skin with repeated contact resulting in mild skin irritation with discomfort or rash. Overexposure by inhalation 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, or the effects of exclusion of oxygen with grossly excessive exposures. Ingestion may include nonspecific discomfort, such as nausea, headache, or weakness.

Individuals with preexisting diseases of the central nervous 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 person calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT
In case of skin contact, flush skin with plenty of water for 15 minutes. 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.

(Continued)
FIRST AID MEASURES (Continued)

**INGESTION**
If swallowed, no specific intervention is indicated as the compound is not likely to be hazardous by ingestion. However, consult a physician if necessary.

**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.

**FIRE FIGHTING MEASURES**

**Flammable Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash Point Method</td>
<td>Will not burn</td>
</tr>
<tr>
<td>Flammable limits in Air, % by Volume</td>
<td>TOC</td>
</tr>
<tr>
<td>LEL</td>
<td>Not applicable</td>
</tr>
<tr>
<td>UEL</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Autoignition</td>
<td>Not determined</td>
</tr>
<tr>
<td>Autodecomposition</td>
<td>&gt;593 C (&gt;1099 F)</td>
</tr>
</tbody>
</table>

**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 store above 125 deg F (52 deg C).

EXPOSURE CONTROLS/PERSOAL 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
Impervious 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
Exposure Limits
"FREON" 11
PEL (OSHA) 1,000 ppm, 5,600 mg/m3, 8 Hr. TWA
TLV (ACGIH) 1,000 ppm, 5,620 mg/m3, Ceiling
AEL * (Du Pont) None Established

* AEL is Du Pont'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 (CC14 = 1) Greater than 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)

Appearance : Clear

(Continued)
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
Inhalation 4-hour LC50: 26,200 ppm in rats
Oral ALD: 3725 mg/kg in rats

The compound is not a skin irritant but is a mild eye irritant. Toxic effects in rats exposed by inhalation include central nervous system and anesthetic effects at high concentrations. Concentrations of 0.35% and higher caused cardiac sensitization in dogs. Various cardiovascular and circulatory abnormalities have also been reported in other animals. Changes in the lungs, liver, brain and spleen were observed in a study of rats exposed by inhalation to 12 times the TLV. In another study at 25 times the TLV, rats, guinea pigs, and cats exhibited no microscopic evidence of damage to the heart, lungs, kidney, liver or spleen. Exposures by ingestion or skin resulted in no evidence of toxicity in rats, dogs or rabbits.

ECOLOGICAL INFORMATION

Ecotoxicological Information
Aquatic Toxicity

"FREON" 11: 96-hour LC50, rainbow trout: 190 mg/L

(Continued)
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

DOT/IMO
Proper Shipping Name RQ ENVIRONMENTALLY HAZARDOUS SUBSTANCE LIQUID, N.O.S. (TRICHLOROFUOROMETHANE)

Hazard Class 9
UN No. 3082
DOT/IMO Label CLASS 9
Packing Group III

Shipping Containers
Tank Cars.
Tank Trucks.

Drums
Reportable Quantity: 5000 lbs/2270 kg

"FREON" 11 IS NOT REGULATED AS A HAZARDOUS MATERIAL BY DOT, IMO OR ICAO IN CONTAINERS LESS THAN 5000 LBS.

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
Pressure: No

LISTS:

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

(Continued)
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 W. J. Brock
Address Du Pont Chemicals
P. O. Box 80709, Chestnut Run
Wilmington, DE 19880-0709

Telephone 302-999-5072

# Indicates updated section.

End of MSDS