



**Chemical Name:** FD Cleaner

**Manufacturer:** Freon TF

**Container size:** 16oz.

**Location:** SOC

**Disposal:** Place empty container in trash.



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**MATERIAL SAFETY DATA SHEET**

No. 124

PRODUCT NAME FREON® TF	CAS # 76-13-1
TRADE NAME AND SYNONYMS Flalocarbon 113	DOT I.D. No.: None
CHEMICAL NAME AND SYNONYMS 1,1,2-Trichloro-1,2,2-trifluoroethane	DOT Hazard Class: None
	Formula CCl <sub>2</sub> FCCIF <sub>2</sub>
ISSUE DATES AND REVISIONS Revised April 1998	Chemical Family: Halogenated Hydrocarbon

**HEALTH HAZARD DATA**

<p><b>TIME WEIGHTED AVERAGE EXPOSURE LIMIT</b>                  TWA for Freon® TF = 1,000 Molar PPM with an A4 (Not Classifiable as a Human Carcinogen)                  carcinogen rating. STEL = 1,250 Molar PPM with an A4 (Continued on Page 4)</p>
<p><b>SYMPTOMS OF EXPOSURE</b>                  Inhalation of high concentrations of vapor may cause dizziness, disorientation, incoordination, narcosis, nausea or vomiting leading to unconsciousness.</p>
<p><b>TOXICOLOGICAL PROPERTIES</b>                  Relatively nontoxic; however, it may act as a narcotic at high concentrations.                   No irreversible effects are known once an adequate supply of oxygen is returned (oxygen deficiency corrected).                   FREON® TF is not listed in the IARC, NTP or by OSHA as a carcinogen or potential carcinogen.                   (Continued on Page 4)</p>
<p><b>RECOMMENDED FIRST AID TREATMENT</b>                  PROMPT MEDICAL ATTENTION IS MANDATORY IN ALL CASES OF OVER EXPOSURE TO FREON® TF. RESCUE PERSONNEL SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS.   <u>Inhalation:</u> Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Unconscious persons should be moved to an uncontaminated area, given assisted respiration and supplemental oxygen. Further treatment should be symptomatic and supportive.</p>

Information contained in this material safety data sheet is offered without charge for use by technically qualified personnel at their discretion and risk. All statements, technical information and recommendations contained herein are based on tests and data which we believe to be reliable, but the accuracy or completeness thereof is not guaranteed and no warranty of any kind is made with respect thereto. This information is not intended as a license to operate under or a recommendation to practice or infringe any patent of this Company or others covering any process, composition of matter or use. Since the Company shall have no control of the use of the product described herein, the Company assumes no liability for loss or damage incurred from the proper or improper use of such product.

**HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES**

FREON® TF is a relatively inert nonreactive liquid.

**PHYSICAL DATA**

BOILING POINT 117.7°F (47.6°C)	LIQUID DENSITY AT BOILING POINT 94.3 lb/ft <sup>3</sup> (1510 kg/m <sup>3</sup> )
VAPOR PRESSURE @ 70°F (21.1°C) = 5.6 psia (38.6 kPa)	GAS DENSITY AT 70°F, 1 atm N/A (Liquid)
SOLUBILITY IN WATER Negligible	FREEZING POINT -31°F (-35°C)
EVAPORATION RATE Unknown	SPECIFIC GRAVITY (AIR=1) @ 77°F (25°C) = 2.9
APPEARANCE AND ODOR Water white liquid with little or no odor. High vapor concentrations have slight ethereal odor.	

**FIRE AND EXPLOSION HAZARD DATA**

FLASH POINT (Method used) N/A	AUTO IGNITION TEMPERATURE N/A	FLAMMABLE LIMITS % BY VOLUME (See Page 4) LE N/A UEL N/A
EXTINGUISHING MEDIA Nonflammable	ELECTRICAL CLASSIFICATION Nonhazardous	
SPECIAL FIRE FIGHTING PROCEDURES If containers are involved in a fire, safely relocate or keep cool with water spray.		
UNUSUAL FIRE AND EXPLOSION HAZARDS If FREON® TF is involved in a fire, it may decompose yielding toxic products.		

**REACTIVITY DATA**

STABILITY Unstable		CONDITIONS TO AVOID Open flames and high temperatures
Stable	X	
INCOMPATIBILITY (Materials to avoid) Certain metals (silver, brass, bronze, and copper) may act as catalysts for its decomposition at high temperatures.		
HAZARDOUS DECOMPOSITION PRODUCTS Hydrogen fluoride, hydrogen chloride and possibly phosgene.		
HAZARDOUS POLYMERIZATION May Occur		CONDITIONS TO AVOID
Will Not Occur	X	None

**SPILL OR LEAK PROCEDURES**

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Evacuate all personnel from affected area. Use appropriate protective equipment. If leak is in user's equipment, be certain to purge piping with an inert gas prior to attempting repairs. If leak is in container, contact your closest supplier location or call the emergency telephone number listed herein.
WASTE DISPOSAL METHOD Do not attempt to dispose of waste or unused quantities. Return in the shipping container to your supplier for proper disposal. For emergency disposal assistance, contact your closest supplier location or call the emergency telephone number listed herein.

**SPECIAL PROTECTION INFORMATION**

<b>RESPIRATORY PROTECTION</b> (Specify type)		Positive pressure air line with mask or self-contained breathing apparatus should be available for emergency use.	
<b>VENTILATION</b>  Hood with forced ventilation	<b>LOCAL EXHAUST</b> To prevent accumulation above the TWA	<b>SPECIAL</b>	N/A
	<b>MECHANICAL (Gen.)</b> N/A	<b>OTHER</b>	N/A
<b>PROTECTIVE GLOVES</b> Plastic or rubber			
<b>EYE PROTECTION</b> Safety goggles or glasses			
<b>OTHER PROTECTIVE EQUIPMENT</b> Safety shoes			

**SPECIAL PRECAUTIONS\***

<b>SPECIAL LABELING INFORMATION</b> None required
<b>SPECIAL HANDLING RECOMMENDATIONS</b> Use only in well-ventilated areas. Do not drag, slide or roll containers. Use a suitable hand truck for container movement. Do not heat container by any means to increase the discharge rate of product from the container. Use a check valve or trap in the discharge line to prevent hazardous back flow into the container.
<b>SPECIAL STORAGE RECOMMENDATIONS</b> Protect containers from physical damage. Store in cool, dry, well-ventilated area away from heavily trafficked areas and emergency exits. Do not allow the temperature where containers are stored to exceed 125F (52C). Containers should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty containers should be segregated. Use a "first in - first out" inventory system to prevent full containers being stored for excessive periods of time.
<b>SPECIAL PACKAGING RECOMMENDATIONS</b> FREON® TF is noncorrosive and may be used with any common structural material. Silver and copper bearing alloys can act as catalysts for the decomposition of FREON® TF at high temperatures. Alloys containing more than 2% magnesium should not be used if water is present.
<b>OTHER RECOMMENDATIONS OR PRECAUTIONS</b> FREON® TF containers should not be refilled.  See Compressed Gas Association's Safety Bulletin SB-5.  (Continued on Page 4)

\*Various Government Agencies (i.e. Department of Transportation, Occupational Safety and Health Administration, Food and Drug Administration and others) may have specific regulations concerning the transportation, handling, storage or use of this product which will not be reflected in this data sheet. The customer should review these regulations to ensure that he is in full compliance.

HEALTH HAZARD DATATIME WEIGHTED AVERAGE EXPOSURE LIMIT: (Continued)

(Not Classifiable as a Human Carcinogen) carcinogen rating (ACGIH 1997). OSHA 1995 PEL (8 Hr. TWA) = 1,000 Molar PPM.

TOXICOLOGICAL PROPERTIES: (Continued)

Persons in ill health where such illness would be aggravated by exposure to FREON® TF should not be allowed to work with or handle this product.

SPECIAL PRECAUTIONSOTHER RECOMMENDATIONS OR PRECAUTIONS: (Continued)

Always secure containers in an upright position before transporting them. NEVER transport containers in trunks of vehicles, enclosed vans, truck cabs or in passenger compartments. Transport containers secured in open flatbed or in open pick-up type vehicles.

FREON® TF is considered a toxic chemical and is subject to the reporting requirements of SARA, Title III, Section 313.

NFPA 704 No. for FREON® TF = 1 0 0 None