



1 PRODUCT AND COMPANY IDENTIFICATION

DFO
2000 Market Street

Philadelphia, PA 19103

Information Telephone Numbers

Product Information

Product Name Forane (R) 113
Product Synonym(s)

Chemical Family Chlorofluorocarbons

Chemical Formula CCl₃CF₃

Chemical Name Trichlorotrifluoroethane (CFC - 113)

EPA Reg Num

Product Use Refrigerant, foam blowing agent, aerosol propellant

EMERGENCY PHONE NUMBERS:

Chemtrec: (800) 424-9300 (24hrs) or (703) 527-3887

Medical: Rocky Mountain Poison Control Center
(866) 767-5089 (24Hrs)

Phone Number

800-245-5858

Available Hrs

8:00 am - 5:30 pm (Eastern)

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS RegistryNumber	Typical Wt. %	OSHA
Ethane, 1,1,2-trichloro-1,2,2-trifluoro-	76-13-1	100%	Y

The substance(s) marked with a "Y" in the OSHA column, are identified as hazardous chemicals according to the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200)

This material is classified as hazardous under Federal OSHA regulation.

The components of this product are all on the TSCA Inventory list.

3 HAZARDS IDENTIFICATION

Emergency Overview

Clear, colorless liquid and vapor with faint ether odor

WARNING!

VAPOR REDUCES OXYGEN AVAILABLE FOR BREATHING.

HARMFUL IF INHALED AND MAY CAUSE HEART IRREGULARITIES, UNCONSCIOUSNESS OR DEATH. NON-FLAMMABLE VOLATILE LIQUID WHICH MAY CAUSE EYE IRRITATION OR DRYING OF THE SKIN. MAY DECOMPOSE ON CONTACT WITH FLAMES OR EXTREMELY HOT METAL SURFACES TO PRODUCE TOXIC AND CORROSIVE PRODUCTS.

Potential Health Effects

Skin contact and inhalation are expected to be the primary routes of occupational exposure to this material. Prolonged or repeated contact removes oils from the skin and may dry skin causing irritation, redness and rash. High vapor concentrations are irritating to the eyes and respiratory tract and may result in central nervous system (CNS) effects such as headache, dizziness, drowsiness and, in severe exposure, loss of consciousness and death. The dense vapor of this material may reduce the available oxygen for breathing. Prolonged exposure to an oxygen-deficient atmosphere may be fatal. Inhalation may cause an increase in the sensitivity of the heart to adrenaline, which could result in irregular or rapid heartbeats. Medical conditions aggravated by exposure to this material include heart disease or compromised heart function.

4 FIRST AID MEASURES

IF IN EYES, immediately flush with plenty of water for at least 15 minutes. Get medical attention.

IF ON SKIN, flush the area with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Get medical attention if irritation develops and persists. immediately flush with plenty of water for 5 minutes while removing contaminated clothing and shoes. Follow directly with application of 2.5% calcium gluconate gel by liberally rubbing into exposed area. Continue applying and rubbing in calcium gluconate gel until 30 minutes after pain has stopped and medical attention is obtained. Destroy contaminated clothing and shoes.

IF SWALLOWED, do NOT induce vomiting. Give water to drink. Get medical attention immediately. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

IF INHALED, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. Do not give adrenaline, epinephrin or similar drugs following exposure to this product.

5 FIRE FIGHTING MEASURES

Fire and Explosive Properties

Auto-Ignition Temperature	NA	
Flash Point	none	Flash Point Method
Flammable Limits- Upper	NA	
Lower	NA	

Extinguishing Media

Use water spray, water fog, carbon dioxide, or dry chemical

Fire Fighting Instructions

Cool fire exposed containers well after the fire is out to prevent possible explosions. Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent). Fire fighting equipment should be thoroughly decontaminated after use.

Fire and Explosion Hazards

May decompose on contact with flames or extremely hot metal surfaces to produce toxic and corrosive products. Some mixtures of HCFCs and/or HFCs, and air or oxygen may be combustible if pressurized and exposed to extreme heat or flame. Container may explode if heated due to resulting pressure rise.

6 ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Use Halogen leak detector or other suitable means to locate leaks or check atmosphere. Keep upwind. Evacuate enclosed spaces and disperse gas with floor-level forced-air ventilation. Exhaust vapors outdoors. Do not smoke or operate internal combustion engines. Remove flames and heating elements.

7 HANDLING AND STORAGE

Handling

Do not get in eyes, on skin or clothing. Avoid breathing vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Keep away from heat, sparks and flame. Emptied



7 HANDLING AND STORAGE

container retains vapor and product residue. Observe all labeled safeguards until container is destroyed. Do not reuse this container. Do not cut or weld on or near this container.

Storage

Store out of direct sunlight in a cool, well-ventilated place. Store at temperatures below 120 C

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Investigate engineering techniques to reduce exposures below airborne exposure limits. Provide ventilation if necessary to control exposure levels below airborne exposure limits (see below). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment.

Eye / Face Protection

Where there is potential for eye contact, wear chemical goggles and have eye flushing equipment available.

Skin Protection

Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type glove material for given application. Wear face shield and chemical resistant clothing such as a rubber apron when splashing may occur. Rinse contaminated skin promptly. Wash contaminated clothing and clean protective equipment before reuse. Wash skin thoroughly after handling.

Respiratory Protection

Avoid breathing vapor or mist. When airborne exposure limits are exceeded (see below), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Airborne Exposure Guidelines for Ingredients

Exposure Limit		Value
Ethane, 1,1,2-trichloro-1,2,2-trifluoro-		
ACGIH STEL	-	1250 ppm (9590 mg/m ³)
ACGIH TWA	-	1000 ppm (7670 mg/m ³)
OSHA TWA PEL	-	1000 ppm (7600 mg/m ³)

-Only those components with exposure limits are printed in this section.

-Skin contact limits designated with a "Y" above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required.

-ACGIH Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic reactions.

-WEEL-AIHA Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic skin reactions.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance/Odor	Clear, colorless liquid and vapor with faint ether odor
pH	NA
Specific Gravity	1.59
Vapor Pressure	5.5 psia @ 70 F / 21 C
Vapor Density	6.47
Melting Point	NA
Freezing Point	-31 F / -35 C
Boiling Point	117.6 F / 47.6 C
Solubility In Water	Slight
Percent Volatile	100
Molecular Weight	137.38

10 STABILITY AND REACTIVITY

Stability

This material is chemically stable under specified conditions or storage, shipment and/or use. See HANDLING AND STORAGE section of this MSDS for specified conditions.

Incompatibility

Avoid contact with hydrochloric acid, alkali or alkaline earth metals, finely powdered metals (aluminum, magnesium, zinc) and strong oxidizers since they may react or accelerate decomposition.

Hazardous Decomposition Products

Thermal decomposition products include hydrogen fluoride, hydrogen chloride, carbon monoxide, carbon dioxide, chlorine and carbonyl halides (phosgene).

11 TOXICOLOGICAL INFORMATION

Toxicological Information

Cardiac sensitization has been demonstrated in dogs exposed to many chlorofluorocarbons. Studies have shown that mixtures of chlorofluorocarbons may produce greater heart effects than caused by the individual compounds.

12 ECOLOGICAL INFORMATION

Ecotoxicological Information

No data are available.

Chemical Fate Information

No data are available.

13 DISPOSAL CONSIDERATIONS

Waste Disposal

Recover, reclaim or recycle when practical. Dispose of in accordance with federal, state and local regulations. Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.



14 TRANSPORT INFORMATION

DOT Name Chemicals, NOIBN
DOT Technical Name
DOT Hazard Class
UN Number
DOT Packing Group PG
RQ
DOT Special Information Not regulated when shipped by ground.

15 REGULATORY INFORMATION

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370)

Immediate (Acute) Health	Y	Fire	N
Delayed (Chronic) Health	N	Reactive	N
		Sudden Release of Pressure	N

The components of this product are all on the TSCA Inventory list.

Ingredient Related Regulatory Information:

SARA Reportable Quantities

Ethane, 1,1,2-trichloro-1,2,2-trifluoro-

CERCLA RQ

NE

SARA TPQ

NE

SARA Title III, Section 313

This product does contain chemical(s) which are defined as toxic chemicals under and subject to the reporting requirements of, Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. See Section 2

Ethane, 1,1,2-trichloro-1,2,2-trifluoro-

Massachusetts Right to Know

This product does contain the following chemical(s), as indicated below, currently on the Massachusetts Right to Know Substance List.

Ethane, 1,1,2-trichloro-1,2,2-trifluoro-

New Jersey Right to Know

This product does contain the following chemical(s), as indicated below, currently on the New Jersey Right-to-Know Substances List.

Ethane, 1,1,2-trichloro-1,2,2-trifluoro-

Pennsylvania Environmental Hazard

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Environmental Hazard List.

Ethane, 1,1,2-trichloro-1,2,2-trifluoro-

Pennsylvania Right to Know

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Hazardous Substance List.

Ethane, 1,1,2-trichloro-1,2,2-trifluoro-

16 OTHER INFORMATION



Revision Information

Revision Date 11 OCT 2004 Revision Number 6
Supercedes Revision Dated 27-SEP-2001

Revision Summary

A TOFINA Chemicals, Inc. has changed its name to Arkema Inc.

Key

NE= Not Established NA= Not Applicable (R) = Registered Trademark

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