1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Matheson Tri-Gas, Inc.

The telephone numbers listed below are emergency numbers, please contact your local branch for routine inquiries.

USA
959 Route 46 East
Parsippany, New Jersey
07054-0624 USA
Phone: 973-257-1100

CANADA
530 Watson Street
Whitby, Ontario
L1N 5R9 Canada
Phone: 905-668-3570

SUBSTANCE: HALOCARBON 113
**SYMBOL:** \( \text{C}_2\text{Cl}_3\text{F}_3 \)

**TRADE NAMES/SYNONYMS:**
TRICHLOROTRIFLUOROETHANE; 1,1,2-TRIFLUORO-1,2,2-TRICHLOROETHANE; 1,1,2-TRICHLOROTRIFLUOROETHANE; 1,2,2-TRICHLOROTRIFLUOROETHANE; 1,1,2-TRICHLOROTRIFLUOROETHANE; ETHANE, 1,1,2-TRICHLORO-1,2,2-TRIFLUORO--; ARCTON 63; FRIGEN 113TR; GENETRON 113; UCON 113; FREON 113; FREON 113TR; FLUOROCARBON 113; REFRIGERANT 113; C2CL3F3; MAT26370; RTECS KJ4000000

**CHEMICAL FAMILY:** halogenated, aliphatic

**CREATION DATE:** Jan 24 1989  
**REVISION DATE:** Mar 16 1999

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### 2. COMPOSITION, INFORMATION ON INGREDIENTS

**COMPONENT:** 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE

**CAS NUMBER:** 76-13-1

**EC NUMBER (EINECS):** 200-936-1

**PERCENTAGE:** 100.0

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### 3. HAZARDS IDENTIFICATION

**NFPA RATINGS (SCALE 0-4):**  
HEALTH=0  FIRE=1  REACTIVITY=0

**EC CLASSIFICATION (ASSIGNED):**  
No classification assigned.

**EMERGENCY OVERVIEW:**

**Color:** colorless  
**Physical Form:** volatile liquid  
**Odor:** sweet odor  

**Major Health Hazards:** central nervous system depression, difficulty breathing

**POTENTIAL HEALTH EFFECTS:**

**INHALATION:**

- **Short Term Exposure:** mild irritation, vomiting, irregular heartbeat, drowsiness, symptoms of drunkenness, suffocation, lung congestion  
- **Long Term Exposure:** no information on significant adverse effects

**SKIN CONTACT:**
Short Term Exposure: irritation
Long Term Exposure: same as effects reported in short term exposure

EYE CONTACT:
  Short Term Exposure: irritation
  Long Term Exposure: no information is available

INGESTION:
  Short Term Exposure: same as effects reported in short term inhalation, diarrhea, irregular heartbeat, symptoms of drunkenness, bluish skin color
  Long Term Exposure: no information on significant adverse effects

CARCINOGEN STATUS:
OSHA: N
NTP: N
IARC: N

4. FIRST AID MEASURES

INHALATION:
Remove from exposure immediately. Use a bag valve mask or similar device to perform artificial respiration (rescue breathing) if needed. Get medical attention.

SKIN CONTACT:
Remove contaminated clothing, jewelry, and shoes immediately. Wash with soap or mild detergent and large amounts of water until no evidence of chemical remains (at least 15-20 minutes). Get medical attention, if needed.

EYE CONTACT:
Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. Get medical attention immediately.

INGESTION:
If vomiting occurs, keep head lower than hips to help prevent aspiration. Get medical attention, if needed.

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS:
Slight fire hazard.

EXTINGUISHING MEDIA:
regular dry chemical, carbon dioxide, water, regular foam

Large fires: Use regular foam or flood with fine water spray.

FIRE FIGHTING:
Move container from fire area if it can be done without risk. Do not scatter spilled material with high-pressure water streams. Dike for later disposal. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

FLASH POINT:
AUTOIGNITION:
1256 F (680 C)

6. ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE:
Stop leak if possible without personal risk. Small spills: Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for disposal. Keep unnecessary people away, isolate hazard area and deny entry.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances. Store in a tightly closed container. Store in a cool, dry place. Store in a well-ventilated area.

8. EXPOSURE CONTROLS, PERSONAL PROTECTION

EXPOSURE LIMITS:

1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE:
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE (FREON TF):
1000 ppm (7670 mg/m3) OSHA TWA
1250 ppm (9590 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993)
1000 ppm (7670 mg/m3) ACGIH TWA
1250 ppm (9590 mg/m3) ACGIH STEL
1000 ppm (7670 mg/m3) NIOSH recommended TWA
1250 ppm (9590 mg/m3) NIOSH recommended STEL

VENTILATION: Based on available information, additional ventilation is not required. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant gloves.

RESPIRATOR: The following respirators and maximum use concentrations are drawn from NIOSH and/or OSHA.

2000 ppm
Any supplied-air respirator.
Any self-contained breathing apparatus with a full facepiece.

Escape -
Any air-purifying respirator with a full facepiece and an organic vapor canister.
Any appropriate escape-type, self-contained breathing apparatus.

For Unknown Concentrations or Immediately Dangerous to Life or Health -
Any supplied-air respirator with full facepiece and operated in a pressure-demand or other
positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: liquid
APPEARANCE: clear
COLOR: colorless
PHYSICAL FORM: volatile liquid
ODOR: sweet odor
MOLECULAR WEIGHT: 187.38
MOLECULAR FORMULA: C-F2-CL-C-CL2-F
BOILING POINT: 118 F (48 C)
FREEZING POINT: -33 F (-36 C)
VAPOR PRESSURE: 284 mmHg @ 20 C
VAPOR DENSITY (air=1): 6.47
SPECIFIC GRAVITY (water=1): 1.5635 @ 25 C
WATER SOLUBILITY: 0.017% @ 25 C
PH: Not available
VOLATILITY: 100%
ODOR THRESHOLD: 135 ppm

EVAPORATION RATE: 0.45 (acetone=1)
VISCOITY: 0.497 cP @ 49 C
COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available
SOLVENT SOLUBILITY:
Soluble: alcohol, ether, benzene

10. STABILITY AND REACTIVITY

REACTION:
Stable at normal temperatures and pressure.
CONDITIONS TO AVOID:
Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

INCOMPATIBILITIES:
metals, combustible materials

HAZARDOUS DECOMPOSITION:
Thermal decomposition products: halogenated compounds, oxides of carbon

POLYMERIZATION:
Will not polymerize.

11. TOXICOLOGICAL INFORMATION

1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE:

IRRITATION DATA:
500 mg open skin-rabbit mild; 500 mg/24 hour(s) skin-rabbit mild

TOXICITY DATA:
38500 ppm/4 hour(s) inhalation-rat LC50; 43 gm/kg oral-rat LD50

CARCINOGEN STATUS:
ACGIH: A4 -Not Classifiable as a Human Carcinogen

ACUTE TOXICITY LEVEL:
Slightly Toxic: inhalation
Relatively Non-toxic: ingestion

TARGET ORGANS:
central nervous system

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:
heart or cardiovascular disorders, heart problems, respiratory disorders, skin disorders and allergies

ADDITIONAL DATA:
Stimulants such as epinephrine may induce ventricular fibrillation.

12. ECOLOGICAL INFORMATION

Not available

13. DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations.

14. TRANSPORT INFORMATION

No classification assigned.
15. REGULATORY INFORMATION

U.S. REGULATIONS:
TSCA INVENTORY STATUS: Y

TSCA 12(b) EXPORT NOTIFICATION: Not listed.

CERCLA SECTION 103 (40CFR302.4): N
SARA SECTION 302 (40CFR355.30): N
SARA SECTION 304 (40CFR355.40): N
SARA SECTION 313 (40CFR372.65): N

SARA HAZARD CATEGORIES, SARA SECTIONS 311/312 (40CFR370.21):
   ACUTE: Y
   CHRONIC: N
   FIRE: N
   REACTIVE: N
   SUDDEN RELEASE: N


STATE REGULATIONS:
   California Proposition 65: N

EUROPEAN REGULATIONS:

EC NUMBER (EINECS): 200-936-1

16. OTHER INFORMATION

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