

# SAFETY DATA SHEET

R-134a (1, 1, 1, 2 – TETRAFLUOROETHANE)

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** FLORON 134a

**TRADE NAMES/SYNONYMS:** MTG MSDS 161; ETHANE, 1,1,1,2-TETRAFLUORO-; 1,2,2,2-TETRAFLUOROETHANE; F 134A; R 134A; QUIK-FREEZE; E-SERIES(R) FREEZ-IT(R) 2000; C<sub>2</sub>H<sub>2</sub>F<sub>4</sub>; MAT76816

**Substance:** 1, 1, 1, 2-TETRAFLUOROETHANE

**CHEMICAL FAMILY:** halogenated, aliphatic

**Product Use:** Refrigerant, Foam blowing agent, Aerosol

**Manufacturers:** SRF Ltd. Chemicals Business  
V&PO: JHIWANA, Tehsil. TIJARA, Dist. - ALWAR,  
RAJASTHAN, INDIA  
Pin Code-301018

**EMERGENCY CONTACT:** (24 Hours/Day, 7 Days/Week)  
**M/S. SRF. Limited.**  
**+91 – (01493) 245163, 400**

## 2. HAZARDS IDENTIFICATION

**NFPA RATINGS (SCALE 0-4):** HEALTH=1 FIRE=0 REACTIVITY=3

**EMERGENCY OVERVIEW:**

**COLOR:** colorless

**PHYSICAL FORM:** gas

**ODOR:** sweet odor/slight, ether-like

**MAJOR HEALTH HAZARDS:** No significant target effects reported.

**PHYSICAL HAZARDS:** Containers may rupture or explode if exposed to heat.

**POTENTIAL HEALTH EFFECTS:** No significant target effects reported

**INHALATION:** Acute-Inhalation: very high concentration. May cause CNS depression w/dizziness, incoordination, drowsiness or Unconsciousness, irregular heartbeat, suffocation.

**SHORT TERM EXPOSURE:** frostbite

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**LONG TERM EXPOSURE:** no information is available

**SKIN CONTACT:** Frostbite from contact w/liquid or escaping vapor

**SHORT TERM EXPOSURE:** frostbite

**LONG TERM EXPOSURE:** no information is available

**EYE CONTACT:** Frostbite from contact w/liquid or escaping vapor

**SHORT TERM EXPOSURE:** no information on significant adverse effects

**LONG TERM EXPOSURE:** no information is available

**INGESTION:** not considered a potential Route of exposure.

**SHORT TERM EXPOSURE:** no information on significant adverse effects

**LONG TERM EXPOSURE:** no information is available

### 3. COMPOSITION, INFORMATION ON INGREDIENTS

**COMPONENT:** 1, 1, 1, 2-TETRAFLUOROETHANE

**CAS NUMBER:** 811-97-2

**UN No.** : 3159

**PERCENTAGE:** 100.0

### 4. FIRST AID MEASURES

**INHALATION:** If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.

**SKIN CONTACT:** If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105- 115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

**EYE CONTACT:** Flush eyes with plenty of water.

**INGESTION:** If a large amount is swallowed, get medical attention.

**NOTE TO PHYSICIAN:** For inhalation, consider oxygen.

### 5. FIRE FIGHTING MEASURES

**FIRE AND EXPLOSION HAZARDS:** Negligible fire hazard. Containers may rupture or explode if exposed to heat.

**EXTINGUISHING MEDIA:** Carbon dioxide, regular dry chemical

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. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck, evacuation radius: 800 meters (1/2 mile). Use extinguishing agents appropriate for surrounding fire. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Do not get water directly on

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material. Reduce vapors with water spray. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Consider downwind evacuation if material is leaking.

**AUTOIGNITION:** >1382 F (>750 °C)

## 6. ACCIDENTAL RELEASE MEASURES

### OCCUPATIONAL RELEASE:

Stop leak if possible without personal risk. Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas.

## 7. HANDLING AND STORAGE

**STORAGE:** Store and handle in accordance with all current regulations and standards. Avoid contact with light. Store below 49 C. Do not puncture or burn containers, even when empty. Keep separated from incompatible substances.

### HANDLING :

HFC-134a should not be mixed with air for leak testing or used with air for any other purpose above atmospheric pressure. Contact with chlorine or other strong Oxidizing agents should be avoided

## 8. EXPOSURE CONTROLS, PERSONAL PROTECTION

### EXPOSURE LIMITS:

#### 1,1,1,2-TETRAFLUOROETHANE:

1000 ppm, TWA (8 Hrs.)

**VENTILATION:** Provide local exhaust ventilation system. Ventilation equipment should be explosion resistant if explosive concentrations of material are present. Ensure compliance with applicable exposure limits.

**EYE PROTECTION:** For the gas: Eye protection not required, but recommended.

For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**CLOTHING:** Wear appropriate chemical resistant clothing.

**GLOVES:** Wear insulated gloves.

**RESPIRATOR:** Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive pressure mode.

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Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

**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:** Gas

**APPEARANCE:** Clear

**COLOR:** Colorless

**ODOR:** Sweet odor/slight, ether-like

**MOLECULAR WEIGHT:** 102.03

**MOLECULAR FORMULA:** F-C-H<sub>2</sub>-C-F<sub>3</sub>

**BOILING POINT:** -17 F (-27 C)

**FREEZING POINT:** -158 C

**VAPOR PRESSURE:** 4963 mmHg @ 25 C

**VAPOR DENSITY (air=1):** 3.18

**SPECIFIC GRAVITY:** < 1.22

**DENSITY:** 1.21 g/mL @ 25 C

**WATER SOLUBILITY:** 0.15% @ 25 C by weight

**PH:** Neutral

**VOLATILITY:** 100%

**ODOR THRESHOLD:** Not available

**EVAPORATION RATE:** > 1 as compare to CCl<sub>4</sub> =1

**COEFFICIENT OF WATER/OIL DISTRIBUTION:** Not applicable

## 10. STABILITY AND REACTIVITY

**REACTIVITY:** Stable at normal temperatures and pressure.

**CONDITIONS TO AVOID:** Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.

**INCOMPATIBILITIES:** metals, oxidizing materials

**HAZARDOUS DECOMPOSITION:**

Thermal decomposition products: halogenated compounds, oxides of carbon

**POLYMERIZATION:** Will not polymerize.

## 11. TOXICOLOGICAL INFORMATION

**1,1,1,2-TETRAFLUOROETHANE:**

**IMMEDIATE (ACUTE EFFECTS)**

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**LC 50 : 4 Hr. (rat) > 5000, 000 ppm**

**DELAYED (CHRONIC EFFECT)**

**Not mutagenic in four tests.**

**Teratogenic NOEL (Rat and Rabbit) : 40,000 ppm**

**Subchronic inhalation (rat) NOEL –50000 ppm**

**Chronic NOEL –10000 ppm**

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

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

## **12. ECOLOGICAL INFORMATION**

Degradability (BOD): F-134a is a gas at room temperature, therefore, it is unlikely to remain in water.

## **13. DISPOSAL CONSIDERATIONS**

Dispose in accordance with all applicable regulations. Not a hazardous waste.

## **14. TRANSPORT INFORMATION**

**PROPER SHIPPING NAME:** Compressed gas, no's. (1,1,1,2-tetrafluoroethane)

**ID NUMBER:** UN3159

**HAZARD CLASS OR DIVISION:** 2.2

**LABELING REQUIREMENTS:** 2.2

**CANADIAN TRANSPORTATION OF DANGEROUS GOODS:**

**SHIPPING NAME:** Compressed gas, no's. (1,1,1,2-TETRAFLUOROETHANE)

**UN NUMBER:** UN3159

**CLASS:** 2.2

## **15. REGULATORY INFORMATION**

**U.S. REGULATIONS:**

**CERCLA SECTIONS 102a/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):** Not regulated.

**SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30):** Not regulated.

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**SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40):** Not regulated.

**SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):**

ACUTE: No

CHRONIC: No

FIRE: No

REACTIVE: No

SUDDEN RELEASE: Yes

**SARA TITLE III SECTION 313 (40 CFR 372.65):** Not regulated.

**OSHA PROCESS SAFETY (29CFR1910.119):** Not regulated.

**STATE REGULATIONS:**

**California Proposition 65:** Not regulated.

**CANADIAN REGULATIONS:**

**WHMIS CLASSIFICATION:** Not determined.

**NATIONAL INVENTORY STATUS:**

**U.S. INVENTORY (TSCA):** Listed on inventory.

**TSCA 12(b) EXPORT NOTIFICATION:** Not listed.

**CANADA INVENTORY (DSL/NDSL):** Not determined.

## 16. OTHER INFORMATION

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

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