



# Scott Specialty Gases

## Material Safety Data Sheets

**MSDS No: 811-97-2****Date: 12/21/2005****SUPPLIER  
ADDRESS:**6141 Easton Road, Bldg. 1  
PO Box 310  
Plumsteadville, PA 18949-0310**EMERGENCY PHONE  
NUMBER:**

(215) 766-8861

**1. CHEMICAL PRODUCT****PRODUCT NAME:** 1,1,1,2-TETRAFLUOROETHANE      **SYNONYMS:** Freon 134A, "SUVA" Tran A/C**2. COMPOSITION, INFORMATION ON INGREDIENTS**

Ingredient Name	Formula	CAS #	Concentration	Exposure Limits (PPM)			
				ACGIH TLV	OSHA PEL	MAC	Other STEL
1,1,1,2-TETRAFLUOROETHANE	CF <sub>3</sub> CH <sub>2</sub> F	811-97-2	100%	NE	NE	NE	NE

Note: NE = NONE ESTABLISHED

S/A = SIMPLE ASPHYXIAN

**3. HAZARD IDENTIFICATION****\* \* \* EMERGENCY OVERVIEW \* \* \***Liquid and gas under pressure.  
Can cause rapid suffocation.  
May cause frostbite.**POTENTIAL HEALTH EFFECTS****ROUTES OF ENTRY:** Inhalation**ACUTE EFFECTS:** Inhalation of high concentrations of vapors is harmful and may cause heart irregularities, unconsciousness or death. Vapors reduce oxygen available for breathing. Liquid may cause frostbite.**CHRONIC EFFECTS:** None known**MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:** None known**OTHER EFFECTS OF OVEREXPOSURE:** None**CARCINOGENICITY (US ONLY):**NTP - No  
IARC MONOGRAPHS - No  
OSHA REGULATED - No**4. FIRST AID MEASURES****INHALATION:** Immediately remove victim to fresh air. If breathing has stopped, give artificial respiration. If

breathing is difficult, give oxygen.

EYE CONTACT: Immediately flush with copious amounts of water for at least 15 minutes.

SKIN CONTACT: If frostbite occurs, flush affected areas with lukewarm water.

INGESTION: None

IN EVENT OF EXPOSURE, CONSULT A PHYSICIAN

NOTE TO PHYSICIAN: None

## 5. FIRE FIGHTING MEASURES

FLASH POINT: Nonflammable

AUTOIGNITION TEMPERATURE: N/Ap

FLAMMABLE LIMITS: Nonflammable

LOWER:

UPPER:

EXTINGUISHING MEDIA: Use what is appropriate for surrounding fire.

SPECIAL FIRE FIGHTING INSTRUCTION AND EQUIPMENT: Wear self-contained breathing apparatus and full protective clothing. Stay upwind.

HAZARDOUS COMBUSTION PRODUCTS: None

UNUSUAL FIRE AND EXPLOSION HAZARDS: Cylinder rupture may occur under fire conditions. Emits toxic fumes under fire conditions.

## 6. ACCIDENTAL RELEASE MEASURES

CLEAN UP PROCEDURES: Evacuate and ventilate area. Shut off source if possible and remove source of heat.

SPECIALIZED EQUIPMENT: None

## 7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING: Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders.

PRECAUTIONS TO BE TAKEN IN STORAGE: Store in well ventilated areas. Keep valve protection cap on cylinders when not in use.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide adequate general and local exhaust ventilation.

EYE / FACE PROTECTION: Safety glasses

SKIN PROTECTION: Protective gloves to prevent contact with cold equipment.

RESPIRATORY PROTECTION: In case of leakage, use self-contained breathing apparatus.

OTHER PROTECTIVE EQUIPMENT: Safety shoes when handling cylinders.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless

ODOR: Slight ethereal odor.

PHYSICAL PRESSURE: Liquefied gas.

VAPOR PRESSURE: @ 25 deg.C: 96 psig

VAPOR DENSITY (AIR=1): 3.18

BOILING POINT (C): -26.5

SOLUBILITY IN WATER: @25 deg.C: 0.15 wt. %

SPECIFIC GRAVITY (H<sub>2</sub>O=1): Gas

EVAPORATION RATE: Gas

ODOR THRESHOLD: N/A

## 10. STABILITY AND REACTIVITY

STABILITY: Stable under normal storage conditions.

CONDITIONS TO AVOID: Storage in poorly ventilated areas. Storage near a heat source.

MATERIALS TO AVOID: Alkali, alkaline earth metals, and molten salts.

HAZARDOUS POLYMERIZATION: Will not occur.

HAZARDOUS DECOMPOSITION: Decomposition products are hazardous. Can be decomposed by temperatures (open flame or glowing metal surface) forming hydrofluoric acid and possibly carbonyl fluoride.

## 11. TOXICOLOGICAL INFORMATION

LETHAL CONCENTRATION (LC<sub>50</sub>): NONE ESTABLISHED

LETHAL DOSE 50 (LD<sub>50</sub>): N/A

TERATOGENICITY: N/A

REPRODUCTIVE EFFECTS: N/A

MUTAGENICITY: N/A

**12. ECOLOGICAL INFORMATION**

No adverse ecological effects are expected.

**13. DISPOSAL CONSIDERATIONS**

WASTE DISPOSAL METHOD: Dispose of non-refillable cylinders in accordance with federal, state and local regulations. Allow gas to vent slowly to atmosphere in an unconfined area or exhaust hood. If the cylinders are the refillable type, return cylinders to supplier with any valve outlet plugs or caps secured and valve protection caps in place.

**14. TRANSPORT INFORMATION**

CONCENTRATION: 99+%

DOT DESCRIPTION (US ONLY):

PROPER SHIPPING NAME: 1,1,1,2-Tetrafluoroethane  
HAZARD CLASS: 2.2 (nonflammable)  
IDENTIFICATION NUMBER: UN3159  
REPORTABLE QUANTITIES: None  
LABELING: NONFLAMMABLE GAS

ADR / RID (EU Only): Class 2, 2A

SPECIAL PRECAUTIONS: Cylinders should be transported in a secure upright position in a well ventilated truck.

**15. REGULATORY INFORMATION**

OSHA: Process Safety Management: Material is not listed in appendix A of 29 CFR 1910.119 as highly hazardous chemical.

TSCA: Material is listed in TSCA inventory.

SARA: The threshold planning quantity for material is 10,000 lbs.

EU NUMBER: N/Av

NUMBER IN ANNEX 1 OF DIR 67/548: Not listed in annex 1.

EU CLASSIFICATION: N/Av

R: N/Av

S: N/Av

**16. OTHER INFORMATION**

OTHER PRECAUTIONS: Protect containers from physical damage. Do not deface cylinders or labels. Cylinders should be refilled by qualified producers of compressed gas. Shipment of a compressed gas cylinder which has not been filled by the owner or with his written consent is a violation of federal law (49 CFR).

ABBREVIATIONS: N/Ap - Not Applicable N/Av - Not Available SA - Simple Asphyxiant NE - None Established

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