MATERIAL SAFETY DATA SHEET

Trade Name: Johnsens 134a Refrigerant
MSDS NO. 6330
Revision Date: 05/16/2002

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name: Johnsens 134a Refrigerant
Chemical Family: Refrigerant Gas
Synonyms: None
Emergency Telephone (24 hr.): CHEMTREC 1-800-424-9300
Supplier:
Technical Chemical Company, P.O. Box 139, Cleburne, Texas 76033

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient/CAS No.	wt. %	OSHA PEL TWA	OSHA PEL Ceiling Limits	ACGIH TLV TWA	ACGIH TLW STEL
1,1,1,2-Tetrafluoroethane 811-97-2	100	Not Known (Recommended <1000 ppm TWA)	Not Known	Not Known	Not Known

Contains no other ingredients in concentrations >.1% that are now known to be hazardous as defined by OSHA.

3. HAZARDS IDENTIFICATION

Emergency Overview: Content under pressure. "Frostbite-like" effects may occur if the liquid or escaping vapors contact the eyes or skin. May decompose on contact with flames or extremely hot metal surfaces to produce toxic and corrosive products. Gross inhalation overexposure may cause heart irregularities, unconsciousness or death. Vapor reduces oxygen available for breathing and is heavier than air. Workers with heart disease or compromised heart function should limit exposure to this material. Keep away from heat, sparks and flame.

4. FIRST AID MEASURES

Eye Contact: In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Ingestion: Not applicable - product is a gas at ambient temperatures.
Inhalation: If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention. Do not give adrenaline, epinephrin or similar drugs following exposure to this product.
Skin Contact: For exposure to liquid, immediately warm frostbite area with warm water (not to exceed 105'f). In case of massive exposure, remove clothing while showering with warm water. Get medical attention.

5. FIRE FIGHTING MEASURES

Flammable Properties
Flash Point °F(°C): NA - Gas
Flash Point Method: Not Applicable
Flammable Limits in Air - Lower (%): Not Applicable
Flammable Limits in Air - Upper (%): Not Applicable
Autoignition Temperature °F(°C): 743 C
Extinguishing Media: Use water spray to keep containers cool that are exposed to heat or flames. Use extinguishing media appropriate for surrounding fire.

Protection Of Fire-Fighters:
Special Fire-Fighting Procedures: Warning!! Contents under pressure. Container may rupture under fire conditions. Decomposition may occur. Wear approved positive-pressure self-contained breathing apparatus and protective clothing.
Hazardous Combustion Products: May decompose on contact with flames or extremely hot metal surfaces to produce toxic and corrosive products. Liquid and gas under pressure, overheating or overpressurizing may cause gas release and/or violent cylinder bursting. Container may explode if heated due to resulting pressure rise. Some mixtures of HFCDs and/or HFCs, and air or oxygen may be combustible if pressurized and exposed to extreme heat or flame.
Aerosol Comments: NFPA Level 1 Aerosol

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective clothing and equipment to prevent skin and eye contact. Avoid breathing gas. When airborne exposure limits are exceeded use NIOSH approved respiratory protection equipment appropriate to the

material and/or its components.

Spill Procedures: Wear protective equipment specified. Avoid all sources of ignition; heat, sparks and open flames. Use Halogen leak detector or other suitable meanss 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 combustoin engines.
Increase area ventilation. Do not puncture or incinerate container. Contents under pressure.

Environmental Precautions: Do not allow entry to the atmosphere. Recover, reclain or recycle when practical.

7. HANDLING AND STORAGE

Handling and Storage: CAUTION: COMPRESSED GAS. Do not puncutre, incinerate or store above 120 F. Do not store in passenger compartment of automobile. Avoid breathing vapors, if exposed to high vapor concentration, leave area at once. Avoid contact with skin and eyes. Should not be mixed with air for leak testing or used for any other purpose above atmospheric pressure. Use only in a well ventilated area. Do not reuse this container. Keep away from heat and open flame. Protect from light and heat

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Showers. Eyewash stations.

Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.

Skin Protection: Avoid skin contact. Wear protective clothing and gloves.

Respiratory Protection: An approved respirator (i.e. NIOSH, etc.) should be worn when exposures are expected to exceed the applicable limits. Use in a well ventilated area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear, colorless liquified gas.		
Odor:	MILD ETHER LIKE	**pH Value:**	Not Determined
Vapor Pressure:	.665 MPa (6.66 bar) (25C)	**Vapor Density (Air=1):**	3.25
Boiling Point (°F):	-26.4 C	**Melting/Freezing Point:**	-160 C (Freezing Point)
Solubility in Water:	.9 g/l @ 25 C.	**Bulk Density at 20°C:**	1.21 @ 25 C (g/cm3)
Molecular Weight:	102.03	**Evaporation Rate:**	Not Determined
Viscosity:	Not determined.	**Specific Gravity (H20=1):**	1.21 @ 4 C.
VOC Content(%):	Not determined.	**Decomposition Temperature:**	>370 C

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal temperatures and pressures.

Conditions to Avoid: Do not expose to heat or store at temperatures above 120'f. Keep away from heat,sparks and flame.

Materials to Avoid: Avoid contact with alkali or alkaline earth metals. Avoid finely powdered metals such as aluminum, magnesium or zinc. Strong oxidizers

Hazardous Decomposition Products: Thermal decompositoin products include hydrogen fluoride, hydrogen chloride, carbon monoxide, carbon dioxide and chlorine.

Hazardous Polymerization: WILL NOT OCCUR

11. TOXICOLOGICAL INFORMATION

Toxicological Data:

Ingredient/CAS No.	wt. %	Route	Species	Dose
1,1,1,2-Tetrafluoroethane 811-97-2	100	Inhalation	Rats	LC50 1500 gm/m3/4H

Carcinogenicity:

Ingredient/CAS No.	wt. %	IARC	NTP	OSHA
1,1,1,2-Tetrafluoroethane 811-97-2	100	Not Listed	Not Listed	Not Listed

12. ECOLOGICAL INFORMATION

Aquatic Toxicity: 48 hour EC50 - Daphnia magna: 980 mg/L, 96 hour LC50 - Rainbow trout: 450 mg/L

14. TRANSPORTATION INFORMATION

U.S. DOT:

Proper Shipping Name: 1,1,1,2-tetrafluoroethane

Hazard Class: 2.2
UN/NA Number: UN3159
DOT Packing Group: NA

IMDG:

Proper Shipping Name: 1,1,1,2-tetrafluoroethane
Hazard Class: 2.2
Hazard Subclass: Not determined.
UN No.: UN3159
Packing Group: NA
Marine Pollutant: No

15. REGULATORY INFORMATION

US Federal Regulations:

Ingredient/CAS No.	wt. %	SARA 313	SARA 302	RQ	TPQ
1,1,1,2-Tetrafluoroethane 811-97-2	100	Not Listed	Not Listed	NA	NA

SARA 311/312 Hazard Catagories: Accute, Chronic, Pressure

State Regulations:

Ingredient/CAS No.	wt. %	California Prop. 65 Cancer list	California Prop. 65 Developmental Toxicity	California Prop. 65 Reproductive Female	California Prop. 65 Reproductive Male
1,1,1,2-Tetrafluoroethane 811-97-2	100	Not Listed	Not Listed	Not Listed	Not Listed

U.S. TSCA: The components of this product are listed on the TSCA Inventory.

16. OTHER INFORMATION

General Notes: Do not allow undiluted material or large quantities to reach groundwater, bodies of water or sewer system.

Disclaimer:

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