

MATERIAL SAFETY DATA SHEET

Trade Name: Johnsens Refrigerant R22
MSDS NO. 6230
Revision Date: 05/16/2002

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name: Johnsens Refrigerant R22
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 TLV STEL |
|----------------------------------|-------|-----------------|----------------------------|------------------|-------------------|
| Chlorodifluoromethane 75-45-6 | 100 | 1000 ppm | None Established | 1000 ppm | 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): 1170 F
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.

Trade Name: Johnsens Refrigerant R22 **MSDS NO.** 6230

Spill Procedures: Wear protective equipment specified. Avoid all sources of ignition; heat, sparks and open flames. 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.
Increase area ventilation. Do not puncture or incinerate container. Contents under pressure.

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

7. HANDLING AND STORAGE

Handling and Storage: CAUTION: COMPRESSED GAS. Do not puncture, 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. | pH Value: | Not Determined |
| Odor: | MILD ETHER LIKE | Vapor Density (Air=1): | 2.98 @ 1 atm |
| Vapor Pressure: | 136 PSIA @ 21 C | Melting/Freezing Point: | -160 C (Freezing Point) |
| Boiling Point (°F): | -40.8 C | Bulk Density at 20°C: | 1.91 @ 25 C (g/cm3) |
| Solubility in Water: | SLIGHT | Evaporation Rate: | Not Determined |
| Molecular Weight: | 86.47 | Specific Gravity (H2O=1): | 1.91 @ 4 C. |
| Viscosity: | Not determined. | Decomposition Temperature: | Not Determined |
| VOC Content(%): | Not determined. | | |

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 decomposition 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 |
|----------------------------------|-------|------------|---------|-----------------|
| Chlorodifluoromethane 75-45-6 | 100 | Inhalation | Rats | LC50 35 pph/15M |

Carcinogenicity:

| Ingredient/CAS No. | wt. % | IARC | NTP | OSHA |
|----------------------------------|-------|----------------------------|------------|------------|
| Chlorodifluoromethane 75-45-6 | 100 | Group 3 (not classifiable) | Not Listed | Not Listed |

12. ECOLOGICAL INFORMATION

No effects were reported on the growth of aerobic and anaerobic microorganisms over a 24 hour period, including gram-positive and gram-negative species, from exposure to a media containing this material at 5 mg/ml. The octanol/water partition coefficient (log Pow) was reported to be 1.08.

13. DISPOSAL CONSIDERATION

Trade Name: Johnsens Refrigerant R22 **MSDS NO.** 6230

Waste Classification: Not determined.

Waste Management: Not determined.

Disposal should be made in accordance with federal, state and local regulations. Recover, reclaim or recycle when practical.

14. TRANSPORTATION INFORMATION

U.S. DOT:

Proper Shipping Name: Chlorodifluoromethane
Hazard Class: 2.2
UN/NA Number: UN1018
DOT Packing Group: NA

IMDG:

Proper Shipping Name: Chlorodifluoromethane (Refrigerant Gas R22)
Hazard Class: 2.2
Hazard Subclass: Not determined.
UN No.: UN1018
Packing Group: NA
Marine Pollutant: No

15. REGULATORY INFORMATION

US Federal Regulations:

| Ingredient/CAS No. | wt. % | SARA 313 | SARA 302 | RQ | TPQ |
|----------------------------------|-------|----------|------------|------------------|----------------|
| Chlorodifluoromethane 75-45-6 | 100 | Listed | Not Listed | None Established | Not Applicable |

SARA 311/312 Hazard Categories: 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 |
|----------------------------------|-------|------------------------------------|--|--|--|
| Chlorodifluoromethane 75-45-6 | 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:

The information and recommendations contained herein are based upon tests believed to be reliable. However, Technical Chemical Company does not guarantee their accuracy or completeness NOR SHALL ANY OF THIS INFORMATION CONSTITUTE A WARRANTY, WHETHER EXPRESSED OR IMPLIED, AS TO THE SAFETY OF THE GOODS, THE MERCHANTABILITY OF THE GOODS, OR THE FITNESS OF THE GOODS FOR A PARTICULAR PURPOSE. Adjustment to conform to actual conditions of usage may be required. Technical Chemical Company assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied.