



**NATIONAL REFRIGERANTS, INC.**

**R-403B**

## *Safety Data Sheet*

**R-403B**

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** R-403B  
**OTHER NAME:** Chlorodifluoromethane, Perfluoropropane, Propane  
**USE:** Refrigerant Gas  
**DISTRIBUTOR:** National Refrigerants, Inc.  
661 Kenyon Avenue  
Bridgeton, New Jersey 08302

**FOR MORE INFORMATION CALL:**  
(Monday-Friday, 8:00am-5:00pm)  
1-800-262-0012

**IN CASE OF EMERGENCY CALL:**  
CHEMTREC: 1-800-424-9300

### 2. HAZARDS IDENTIFICATION

<b>CLASSIFICATION:</b>	Gases under pressure, Liquefied Gas
<b>SIGNAL WORD:</b>	<b>WARNING</b>
<b>HAZARD STATEMENT:</b>	Contains gas under pressure, may explode if heated
<b>SYMBOL:</b>	Gas Cylinder
<b>PRECAUTIONARY STATEMENT:</b>	<b>STORAGE:</b> Protect from sunlight, store in a well-ventilated place



#### POTENTIAL HEALTH HAZARDS

Inhaling high concentrations of vapor is harmful and may cause light-headedness, shortness of breath, heart irregularities, unconsciousness or death. Vapor is heavier than air and may reduce oxygen available for breathing. Skin contact with refrigerant may cause frostbite.

Intentional misuse can be fatal.

Human health effects from overexposure by inhalation, ingestion, or skin or eye contact may initially include: temporary nervous system depression with anaesthetic effects such as dizziness, headache, confusion, incoordination and loss of consciousness. Higher exposures may lead to temporary alteration of the heart's electrical activity with irregular pulse, palpitations or inadequate circulation. Gross overexposure may be fatal. Skin contact with liquid may cause frostbite.

Individuals with preexisting diseases of the central nervous system or cardiovascular system may have increased susceptibility to the toxicity of excessive exposures.

#### **SAFETY PRECAUTIONS**

Avoid breathing vapors and prolonged skin exposure. Use with sufficient ventilation to keep exposure below recommended limits.



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**3. COMPOSITION / INFORMATION ON INGREDIENTS**

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<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
Chlorodifluoromethane	75-45-6	55
Perfluoropropane	76-19-7	39
Propane	74-98-6	6

**COMMON NAME and SYNONYMS**

R-402B; HCFC-402B

There are no impurities or stabilizers that contribute to the classification of the material identified in Section 2

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**4. FIRST AID MEASURES**

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**SKIN:** Promptly flush skin with plenty of water. Get medical attention if symptoms persist.

**EYES:** Immediately flush eyes with large amounts of water. Get medical attention if symptoms persist.

**INHALATION:** Immediately remove to fresh air; keep calm. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get medical attention. Do not give epinephrine (adrenaline).

**INGESTION:** Ingestion is unlikely because of the physical properties and is not expected to be hazardous. Do not induce vomiting. Call a physician.

**ADVICE TO PHYSICIAN:** Because of the possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be used with special caution and only in situations of emergency life support.

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**5. FIRE FIGHTING MEASURES**

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**FLAMMABLE PROPERTIES**

<b>FLASH POINT:</b>	Gas, not applicable per DOT regulations
<b>AUTOIGNITION TEMPERATURE:</b>	Not determined
<b>UPPER FLAME LIMIT (volume % in air):</b>	Not determined
<b>LOWER FLAME LIMIT (volume % in air):</b>	Not determined
<b>AUTODECOMPOSITION TEMPERATURE:</b>	Not determined
<b>OSHA FLAMMABILITY CLASS:</b>	Not applicable

**EXTINGUISHING MEDIA:**

Use extinguishing media as appropriate for combustibles

**UNUSUAL FIRE AND EXPLOSION HAZARDS:**

Use water spray or fog to cool containers. Cylinders may rupture under fire conditions. Decomposition may occur.

**SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:**

Self-contained breathing apparatus (SCBA) is required if cylinders rupture and contents are released under fire conditions.

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**6. ACCIDENTAL RELEASE MEASURES**

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**IN CASE OF SPILL OR OTHER RELEASE:**

(Always wear recommended personal protective equipment.)

Evacuate unprotected personnel. Product dissipates upon release. Protected personnel should remove ignition sources and shut off leak, if without risk, and provide ventilation. Unprotected personnel should not return to the affected area until air has been tested and determined safe, including low-lying areas.

**Spills and releases may have to be reported to Federal and/or local authorities.**

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**7. HANDLING AND STORAGE**

**NORMAL HANDLING:**

(Always wear recommended personal protective equipment.)

Avoid breathing vapors and liquid contact with eyes, skin or clothing. Do not puncture or drop cylinders, expose them to open flame or excessive heat. Use authorized cylinders only. Follow standard safety precautions for handling and use of compressed gas cylinders.

R-403B should not be mixed with air above atmospheric pressure for leak testing or any other purpose.

**STORAGE RECOMMENDATIONS:**

Store in a cool, well-ventilated area of low fire risk and out of direct sunlight. Protect cylinder and its fittings from physical damage. Storage in subsurface locations should be avoided. Close valve tightly after use and when empty.

**INCOMPATIBILITIES:**

Freshly abraded aluminum surfaces at specific temperatures and pressures may cause a strong exothermic reaction. Chemically reactive metals: potassium, calcium, powdered aluminum, magnesium, and zinc.

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**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**ENGINEERING CONTROLS:**

Provide local ventilation at filling zones and areas where leakage is probable. Mechanical (general) ventilation may be adequate for other operating and storage areas.

**PERSONAL PROTECTIVE EQUIPMENT**

**SKIN PROTECTION:**

Skin contact with refrigerant may cause frostbite. General work clothing and gloves (leather) should provide adequate protection. If prolonged contact with the liquid or gas is anticipated, insulated gloves constructed of PVA, neoprene or butyl rubber should be used. Any contaminated clothing should be promptly removed and washed before reuse.

**EYE PROTECTION:**

For normal conditions, wear safety glasses. Where there is reasonable probability of liquid contact, wear chemical safety goggles.

**RESPIRATORY PROTECTION:**

None generally required for adequately ventilated work situations. For accidental release or non-ventilated situations, or release into confined space, where the concentration may be above the PEL of 1,000 ppm, use a self-contained, NIOSH-approved breathing apparatus or supplied air respirator. For escape: use the former or a NIOSH-approved gas mask with organic vapor canister.

**ADDITIONAL RECOMMENDATIONS:**



Where contact with liquid is likely, such as in a spill or leak, impervious boots and clothing should be worn. High dose-level warning signs are recommended for areas of principle exposure. Provide eyewash stations and quick-drench shower facilities at convenient locations. For tank cleaning operations, see OSHA regulations, 29 CFR 1910.132 and 29 CFR 1910.133.

**EXPOSURE GUIDELINES**

<u>INGREDIENT NAME</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>OTHER LIMIT</u>
Pentafluoroethane	None	None	*1000 ppm TWA (8hr)
Chlorodifluoromethane	1000 ppm TWA (8hr)	1000 ppm TWA (8hr)	None
Propane	2500 ppm TWA (8hr)	1000 ppm TWA (8hr)	None

\* = Workplace Environmental Exposure Level (AIHA)

**OTHER EXPOSURE LIMITS FOR POTENTIAL DECOMPOSITION PRODUCTS:**

Hydrogen Fluoride: ACGIH TLV: 2 ppm ceiling, 0.5 ppm TLV-TWA

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>APPEARANCE:</b>	Clear, colorless liquid and vapor	
<b>PHYSICAL STATE:</b>	Gas at ambient temperatures	
<b>CHEMICAL FORMULA:</b>	CHClF <sub>2</sub> , C <sub>3</sub> F <sub>8</sub> , C <sub>3</sub> H <sub>8</sub>	
<b>ODOR:</b>	Slight ethereal	
<b>SOLUBILITY IN WATER (weight %):</b>	0.3% wt. @ 77°F (25°C)	
<b>pH:</b>	Neutral	
<b>BOILING POINT:</b>	-57.1°F (-46.5°C)	
<b>VAPOR PRESSURE:</b>	191.2 psia @ 77°F (25°C)	
<b>VAPOR DENSITY (air = 1.0):</b>	2.7593 lb/ft <sup>3</sup> @ 77°F (25°C)	
<b>INCOMPATIBILITIES:</b>		
<b>EVAPORATION RATE:</b>	>1	<b>COMPARED TO:</b> CCl <sub>4</sub> = 1
<b>% VOLATILES:</b>	100	
<b>ODOR THRESHHOLD:</b>	Not established	
<b>FLAMMABILITY:</b>	Not applicable	
<b>LEL/UEL:</b>	None/None	
<b>RELATIVE DENSITY:</b>	1.2	
<b>PARTITION COEFF (n-octanol/water)</b>	Not applicable	
<b>AUTO IGNITION TEMP:</b>	Not Determined	
<b>DECOMPOSITION TEMPERATURE:</b>	>250°C	
<b>VISCOSITY:</b>	Not applicable	
<b>LIQUID DENSITY:</b>	71.79 lb/ft <sup>3</sup> @ 77°F (25°C)	
<b>FLASH POINT:</b>	Not applicable	

**10. STABILITY AND REACTIVITY**

**NORMALLY STABLE? (CONDITIONS TO AVOID):**

The material is stable.  
Avoid open flames and high temperatures.

**DECOMPOSITION**



This material may decompose if exposed to high temperatures (open flames, glowing metal surfaces, etc.) forming hydrochloric and hydrofluoric acids, and possible carbonyl halides.

Alkali or alkaline earth metals (powdered Al, Zn, Be, etc)

**POLYMERIZATION:**

Will not occur.

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**11. TOXOLOGICAL INFORMATION**

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**IMMEDIATE (ACUTE) EFFECTS (Chlorodifluoromethane):**

LC<sub>50</sub> : Inhalation 4 hr. (rat) -  $\geq$  300,000 ppm / Cardiac Sensitization threshold (dog) - 50,000 ppm

**DELAYED (SUBCHRONIC AND CHRONIC) EFFECTS (Chlorodifluoromethane):**

Subchronic inhalation (rat) NOEL – 10,000 ppm  
Not mutagenic in *in-vitro* or *in-vivo* tests  
Not teratogenic

**REPEATED DOSE TOXICITY Chlorodifluoromethane):**

Lifetime inhalation exposure of male rats was associated with a small increase in salivary gland fibrosarcomas.

**POTENTIAL HEALTH HAZARDS**

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Human health effects from overexposure by inhalation, ingestion, or skin or eye contact may initially include: temporary nervous system depression with anaesthetic effects such as dizziness, headache, confusion, incoordination and loss of consciousness. Higher exposures may lead to temporary alteration of the heart's electrical activity with irregular pulse, palpitations or inadequate circulation. Gross overexposure may be fatal. Skin contact with liquid may cause frostbite.

Individuals with preexisting diseases of the central nervous system or cardiovascular system may have increased susceptibility

to the toxicity of excessive exposures.

Inhalation 4 hr. LC50: Not established for mixture

Oral LD50: Not established for mixture

**CARCINOGENICITY**

Not listed as a carcinogen by IARC, NTP, OSHA or ACGIH.

**SAFETY PRECAUTIONS**

Avoid breathing vapors and prolonged skin exposure. Use with sufficient ventilation to keep exposure below recommended limits.

**FURTHER INFORMATION:**

Acute effects of rapid evaporation of the liquid may cause frostbite. Vapors are heavier than air and can displace oxygen causing difficulty breathing or suffocation. May cause cardiac arrhythmia.



**12. ECOLOGICAL INFORMATION**

**PRODUCT WARNING LABEL**

WARNING: Contains HCFC 22, a substance which harms public health and environment by destroying ozone in the upper atmosphere.

**OZONE DEPLETING POTENTIAL**

0.05

**13. DISPOSAL CONSIDERATIONS**

**WASTE DISPOSAL:** Comply with Federal, State and local regulations. Do not vent to atmosphere.

**14. TRANSPORT INFORMATION**

**US DOT ID NUMBER:** UN1078  
**US DOT PROPER SHIPPING NAME:** Refrigerant Gases, N.O.S. (Chlorodifluoromethane, Perfluoropropane, and Propane)  
**US DOT HAZARD CLASS:** 2.2  
**US DOT PACKING GROUP:** Not applicable  
**DOT PLACARD:** NON-FLAMMABLE GAS

For additional information on shipping regulations affecting this material, contact the information number found in Section 1.

**15. REGULATORY INFORMATION**

**TOXIC SUBSTANCES CONTROL ACT (TSCA)**

**TSCA INVENTORY STATUS:** Reported/Included  
**OTHER TSCA ISSUES:** None

**SARA TITLE III / CERCLA**

“Reportable Quantities” (RQs) and/or “Threshold Planning Quantities” (TPQs) exist for the following ingredients.

<u>INGREDIENT NAME</u>	<u>SARA / CERCLA RQ (lb.)</u>	<u>SARA EHS TPQ (lb.)</u>
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No ingredients listed in this section

**Spills or releases resulting in the loss of any ingredient at or above its RQ requires immediate notification to the National Response Center [(800) 424-8802] and to your Local Emergency Planning Committee.**

**SECTION 311 HAZARD CLASS:** IMMEDIATE  
 PRESSURE

**SARA 313 TOXIC CHEMICALS:**

The following ingredients are SARA 313 “Toxic Chemicals”. CAS numbers and weight percents are found in Section 2.

<u>INGREDIENT NAME</u>	<u>CAS. NO.</u>	<u>WT%</u>
Chlorodifluoromethane	75-45-6	55%



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**16. OTHER INFORMATION**

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**CURRENT ISSUE DATE:** January, 2024  
**PREVIOUS ISSUE DATE:** May, 2018

**OTHER INFORMATION:** HMIS Classification: Health – 1, Flammability – 0, Reactivity – 1  
NFPA Classification: Health – 1, Flammability – 0, Reactivity – 1

**DISCLAIMER:**

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