



# Safety Data Sheet

## R-142b

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** R-142b  
**OTHER NAME:** 1,Chloro-1,1difluoroethane  
**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

**EMERGENCY OVERVIEW:**  
Flammable gas. Liquid under high pressure.

### 2. HAZARDS IDENTIFICATION

**CLASSIFICATION:** Flammable Gas, Gas under pressure, Compressed Gas  
**SIGNAL WORD:** DANGER  
**HAZARD STATEMENT(S):** Extremely flammable gas, Contain gas under pressure, may explode if heated  
**SYMBOL(S):** Flames, Gas Cylinder



#### PRECAUTIONARY STATEMENT(S):

**Prevention:** Keep away from heat, sparks, open flame, and hot surfaces. No Smoking

**Response:** Leaking gas fire: Do not extinguish unless leak can be stopped immediately. Eliminate all ignition sources if safe to do so.

**Storage:** Protect from sunlight, store in a well-ventilated place.

#### POTENTIAL HEALTH EFFECTS

##### Effects of Overexposure:

###### Eye Contact

Eye contact with the rapidly evaporation liquid may cause frostbite.

###### Skin Contact

Skin contact with the rapidly evaporation liquid may cause frostbite. Frostbite effects are a change in color of the skin to gray or white, followed by blistering.



**Inhalation**

Vapor is heavier than air and can cause suffocation by reducing oxygen available for breathing. Inhalation of high vapor concentration may cause dizziness, disorientation, incoordination, narcosis, nausea or vomiting, leading to unconsciousness, cardiac irregularities, or death.

**Ingestion**

Not an expected route of exposure.

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**3. COMPOSITION / INFORMATION ON INGREDIENTS**

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<b>INGREDIENT NAME</b>	<b>CAS NUMBER</b>	<b>WEIGHT %</b>
1-Chloro-1,1 difluoroethane	75-68-3	100

**COMMON NAME AND SYNONYMS**

R-142b; HCFC-142b

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:**

Remove contaminated clothing and flush affected areas with lukewarm water. **DO NOT USE HOT WATER.** Consult a physician immediately to determine if the cryogenic burn has resulted in blistering of the dermal surface or deep tissue freezing.

**EYES:**

Flush eyes with copious amounts of water for at least 15 minutes, retracting eyelids often. Seek medical attention.

**INHALATION:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. 142b acts as a simple asphyxiant. Do not give epinephrine or similar drugs.

**INGESTION:**

If conscious, drink three to four 8 ounce glasses of water. Call a physician. If unconscious, immediately take affected person to a hospital. Do not give anything by mouth to an unconscious person.

**ADVICE TO PHYSICIAN:**

Severe exposure requiring medical attention should not be treated with stimulants or adrenaline, since high concentrations of fluorocarbons may result in a sensitization of the heart to adrenaline, causing it to stop upon sudden physical exertion. Those with a known history of heart disease or heartbeat irregularities should be particularly careful to avoid overexposure.

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**5. FIRE FIGHTING MEASURES**

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**FLAMMABLE PROPERTIES**

<b>FLASH POINT:</b>	None to complete evaporation (will burn in air)
<b>AUTOIGNITION TEMPERATURE:</b>	1169 F
<b>UPPER EXPLOSIVE LIMIT :</b>	18 %
<b>LOWER EXPLOSIVE LIMIT:</b>	6.2%
<b>EXTINGUISHING MEDIA:</b>	Water spray or fog, alcohol foam, dry chemical, carbon dioxide.



**UNUSUAL FIRE HAZARDS:**

May form explosive mixtures with air. Vapors may travel considerable distance to source of ignition and flash back. Emits toxic fumes – carbon monoxide, carbon dioxide, hydrogen chloride, hydrogen fluoride – under fire conditions.

**FIRE FIGHTING INSTRUCTIONS:**

Allow fire to burn unless leak can be stopped. Use self-contained breathing apparatus (SCBA) and skin protection to prevent contact with skin and eyes. Do not enter fire area without proper protection. Fight fire from safe distance. Use water spray or fog to keep cylinders cool.

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**6. ACCIDENTAL RELEASE MEASURES**

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**SPILL AND LEAK PROCEDURES:**

Evacuate all personnel from affected area. Keep personnel upwind. Shut off all sources of ignition. Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves. Shut off leak if there is no risk. Ventilate area, especially low places where heavy vapors may collect.

CERCLA Reportable Quantity = 5,000 lbs.

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**7. HANDLING AND STORAGE**

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**NORMAL HANDLING:** Use only in well ventilated areas. Ground all equipment and cylinders before use. Use explosion-proof electrical equipment rated Class 1, group D in Division 1 locations. In Division 2 locations, all spark-producing electrical equipment must be explosion-proof and rated Class 1, Group D. Valve protection caps must remain in place unless container is secured with valve outlet pipe to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Do not heat cylinder by any means to increase the discharge rate of product from the cylinder. Use a check valve in the discharge line to prevent hazardous back flow into the cylinder. Close valve after each use and when empty. Protect cylinders from physical damage.

**STORAGE RECOMMENDATIONS:**

Store in a cool, dry, well ventilated area away from heavy traffic and emergency exits. Do not allow cylinder storage area temperatures to exceed 125 deg. F (52C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a first in – first out inventory system to prevent full cylinders from being stored for excessive periods of time.

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**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

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**ENGINEERING CONTROLS:**

Use local exhaust ventilation designed for flammable gas atmospheres. Check for air contamination and oxygen deficiency.

**PERSONAL PROTECTIVE EQUIPMENT:**

**SKIN PROTECTION:**

Plastic or rubber gloves. Lined neoprene gloves should be used when handling liquid.

**EYE PROTECTION:**

ANSI Z87.1 approved safety glasses with side shields or equivalent. Chemical splash goggles should be worn when handling liquid.

**RESPIRATORY PROTECTION:**

Under normal manufacturing conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a large spill or release occurs.



**EXPOSURE GUIDELINES**

(Exposure Limits)

<u>INGREDIENT NAME</u>	<u>ACGIH TLV</u>	<u>OSHA PEL</u>	<u>OTHER LIMIT</u>
1-Chloro-1,1difluoroethane	1000 ppm TWA (8hr)	1000 ppm TWA (8hr)	

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>APPEARANCE:</b>	Clear, colorless liquid and vapor
<b>PHYSICAL STATE:</b>	Gas at ambient temperatures
<b>ODOR:</b>	Faint ethereal odor
<b>SOLUBILITY IN WATER:</b>	Slightly soluble
<b>BOILING POINT:</b>	14 F/-10 C
<b>VAPOR PRESSURE:</b>	44.7 psia @ 21 deg. C /70 F
<b>FLASH POINT:</b>	None to complete evaporation (will burn in air)
<b>EVAPORATION RATE:</b>	No data available
<b>FLAMMABILITY:</b>	Flammable
<b>LEL/UEL:</b>	6.2% - 18%
<b>PARTITION COEFFICIENT</b>	
<b>n-OCTANOL/WATER:</b>	Log Pow 1.6 2.05
<b>AUTO IGNITION TEMPERATURE:</b>	1169°F / 625°C
<b>DECOMPOSITION TEMPERATURE:</b>	No data available
<b>VISCOSITY:</b>	Not applicable
<b>VAPOR DENSITY (air = 1.0):</b>	3.71 @ 21°C/70°F
<b>% VOLATILES BY VOLUME:</b>	100
<b>DENSITY</b>	Vapor @ 70°F/21.1°C = 0.278 lb/ft <sup>3</sup> (4.45 kg/m <sup>3</sup> )
<b>pH:</b>	Unknown
<b>MELTING POINT:</b>	-130.8°C/-203.4°F
<b>SPECIFIC GRAVITY (Water=1):</b>	1.11 @ 25C/77°F
<b>MOLECULAR FORMULA:</b>	C <sub>2</sub> H <sub>3</sub> C <sub>1</sub> F <sub>2</sub>
<b>MOLECULAR WEIGHT:</b>	100.5

**10. STABILITY AND REACTIVITY**

**CHEMICAL STABILITY:**

1-Chloro-1,1difluoroethane is stable.

**REACTIVITY:**

1-Chloro-1,1difluoroethane is not reactive. Avoid open flames and high temperatures.

**INCOMPATIBILITY WITH OTHER MATERIALS:**

Strong oxidizing agents. Alkali or alkaline earth metals. Powdered aluminum, magnesium, zinc, beryllium and their alloys.

**CONDITIONS TO AVOID:**

Heat, sparks, flames, and other ignition sources.



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## 11. TOXICOLOGICAL INFORMATION

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Rat inhalation LC50 (4 hr.): 2050 gm/m<sup>3</sup>; 128,000 ppm

Mouse inhalation LC50 (2 hr.): 1750 gm/m<sup>3</sup>

In screening studies with experimental animals, exposure above 25,000 ppm followed by a large epinephrine challenge has induced serious cardiac irregularities. Preliminary screening tests indicated that 1-Chloro-1,1-difluoroethane may be weakly mutagenic. In vivo cytogenicity and dominant lethal assays for mutagenicity were negative. In a two year rat inhalation study, 1-Chloro-1,1-difluoroethane produced no chronic or carcinogenic effects at levels as high as 2% in air.

### POTENTIAL HEALTH EFFECTS

#### Effects of Overexposure:

##### Eye Contact

Eye contact with the rapidly evaporation liquid may cause frostbite.

##### Skin Contact

Skin contact with the rapidly evaporation liquid may cause frostbite. Frostbite effects are a change in color of the skin to gray or white, followed by blistering.

##### Inhalation

Vapor is heavier than air and can cause suffocation by reducing oxygen available for breathing. Inhalation of high vapor concentration may cause dizziness, disorientation, incoordination, narcosis, nausea or vomiting, leading to unconsciousness, cardiac irregularities, or death.

##### Ingestion

Not an expected route of exposure.

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## 12. ECOLOGICAL INFORMATION

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#### DEGRADABILITY (BOD):

1-Chloro 1,1-difluoroethane is a gas at room temperature; therefore, it is unlikely to remain in water.

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## 13. DISPOSAL CONSIDERATIONS

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#### WASTE DISPOSAL:

Material, as supplied, is a hazardous waste according to RCRA. Material is subject to RCRA Land Disposal Prohibitions – Halogenated Organic Compounds (HOCs, 40 CFR 268, Appendix III) and Scheduled Third Wastes (40 CFR 268.11). Incinerate in a high-temperature incinerator designed to burn fluorine-containing materials, in accordance with current federal, state and local regulations. Processing, use or contamination may make this information inaccurate or incomplete. RCRA Hazardous Waste Number = D001

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## 14. TRANSPORT INFORMATION

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**US DOT ID NUMBER:** UN2517  
**US DOT HAZARD CLASS:** US DOT PROPER SHIPPING NAME: 1-Chloro 1,1-difluoroethane or Refrigerant gas R-142b  
US DOT HAZARD CLASS: 2.1  
US DOT PACKING GROUP: Not applicable



**15. REGULATORY INFORMATION**

1,Chloro-1,1-difluoroethane is listed on the Toxic Control Act (TSCA) Section 8(b) Chemical Inventory. 1,Chloro-1,1-difluoroethane is a hazardous substance as defined by the OSHA Hazard Communication Standard (29 CFR 1910.1200). 1,Chloro-1,1difluoroethane is a controlled product as defined by the Canadian Workplace Hazardous Materials Information System (WHMIS).

CERCLA Reportable Quantity = 5000 lbs.

1-Chloro-1,1-difluoroethane is not listed as a SARA 302 Extremely Hazardous Substance

SARA 311/312	Acute:	Yes
	Chronic:	No
	Fire:	Yes
	Reactivity:	No
	Sudden Release of Pressure:	Yes

1,Chloro-1,1-difluoroethane is listed as a SARA 313 Toxic Chemical

1,Chloro-1,1-difluoroethane is listed on the following state worker right to know hazardous substance lists: Massachusetts, Pennsylvania, (worker and Pennsylvania environmental hazard), New Jersey

In addition, chlorinated ethanes are regulated under the following:

- Clean Water Act Section 304 Water Quality Criteria Substances
- Clean Water Act Section 307 Priority Pollutants
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances

**16. OTHER INFORMATION**

**NFPA, NPCA-HIMS RATING**

NFPA Hazard Ratings: Health – 2, Flammability – 4, Reactivity – 0  
Personal Protection Rating to be supplied by user depending on use conditions.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

**CURRENT ISSUE DATE:** January, 2024

**PREVIOUS ISSUE DATE:** April, 2018

**DISCLAIMER:**

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