



Material Safety Data Sheet

R-422C

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: R-422C
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. COMPOSITION / INFORMATION ON INGREDIENTS

<u>INGREDIENT NAME</u>	<u>CAS NUMBER</u>	<u>WEIGHT %</u>
*1,1,1,2,2-Pentafluoroethane (HFC - 125)	354-33-6	82%
*1,1,1,2-Tetrafluoroethane (HFC - 134A)	811-97-2	15%
Isobutane (HC - 600A)	75-28-5	3%

*Regulated as a Toxic Chemical under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Overexposure may cause dizziness and loss of concentration. At higher levels, central nervous system depression and cardiac arrhythmia may result. Vapors displace air and may cause asphyxiation in confined spaces. Volatile liquid with faint sweetish odor.

POTENTIAL HEALTH HAZARDS:

EYE: Liquid may cause frostbite. Mist may irritate.

SKIN: Irritation can result from a defatting action on tissue. Liquid contact may cause frostbite.

INGESTION: Unlikely route of exposure. Should it result, discomfort in the gastrointestinal tract would occur.

INHALATION: Overexposure may cause dizziness and loss of concentration. At higher levels, central nervous system depression and cardiac arrhythmia may result.

CHRONIC (CANCER) INFORMATION: None of the components are designated as carcinogens by IARC, NTP, OSHA, or ACGIH.

TERATOLOGY (BIRTH DEFECT) INFORMATION: No hazard expected.

4. FIRST AID MEASURES

INHALATION: Remove to fresh air. If not breathing, give artificial respiration administer oxygen and call a physician. DO NOT give epinephrine or similar drugs.



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SKIN CONTACT: Warm the area gradually by flushing with plenty of water. Get medical attention if there is evidence of tissue damage.

EYE CONTACT: Irrigate eyes with running water for at least 15 minutes. Get medical attention.

INGESTION: Do not induce vomiting. Get medical attention.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

Flash Point: No flash point

Autoignition: >550 deg. C (1022 deg. F)

Flammable Limits in Air (% by volume)

LEL: NONE (per ASTM E681)

UEL: NONE (per ASTM E681)

EXTINGUISHING MEDIA:

The choice of media depends on surrounding materials.

FIRE AND EXPLOSION HAZARDS:

Cylinders may rupture under elevated temperatures and /or fire conditions. In concentration above the recommended exposure limit, open flame will vary in size and color. Eliminate the flame or ignition source and ventilate to disperse the refrigerant vapors.

Refrigerant 422C is not flammable at atmospheric pressure and temperatures below 100 deg. C. Refrigerant 422C should not exist with air/excess oxygen at elevated pressures and high temperatures. Refrigerant 422C can become combustible with combinations of elevated temperatures, pressures, and oxygen, and an ignition source. For example: Do not mix Refrigerant 422C with air under pressure for leak detection purposes.

FIRE FIGHTING INSTRUCTIONS:

Keep personnel removed and upwind of fire. Wear self contained breathing apparatus. Wear full protective equipment.

Cool tank/container with water spray. Heat may rupture containers. Fight fire from distance. Contain and neutralize runoff prior to disposal.

6. ACCIDENTAL RELEASE MEASURES

SAFEGUARDS (Personnel):

Note: Review FIRE FIGHTING MEASURES and HANDLING sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up.

ACCIDENTAL RELEASE MEASURES:

Remove or extinguish combustion sources. Evacuate enclosed spaces until gas is dispersed. Stop the release if possible.

Ventilate area including low or enclosed spaces. Exhaust outdoors. Contain spill and collect remainder using absorbent material and place in drum approved for waste disposal or recovery.

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7. HANDLING AND STORAGE

HANDLING (Personnel):

Avoid breathing vapors. Avoid contact with skin or eyes. Use insulated or lined butyl gloves, face shield or goggles, and impervious clothing. Do not smoke.

HANDLING (Physical Aspects):

Insure adequate ventilation to keep exposure below recommended limits. Avoid contact with chlorine or other oxidizers. See Fire and Explosion Data section.

STORAGE RECOMMENDATIONS:

Do not store cylinders in direct sun or expose to heat above 120 deg. F (52 deg. C).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS:

Avoid contact with skin or eyes. Avoid breathing vapors. Use with sufficient ventilation to keep exposure below recommended exposure limit. Utilize mechanical ventilation in case of low or enclosed spaces, or release of large quantity.

PERSONAL PROTECTIVE EQUIPMENT:

EYE/FACE PROTECTION: Goggles or face shield.

RESPIRATORS: Use if exposure level is above PEL.

PROTECTIVE CLOTHING: Impervious.

HYGIENE MEASURES: Do not drink, eat, or smoke in work place.

EXPOSURE GUIDELINES

INGREDIENT NAME	ACGIH TLV	OSHA PEL	OTHER LIMITS
Pentafluoroethane	None	None	*1000 ppm TWA (8hr)
1,1,1,2-Tetrafluoroethane	None	None	*1000 ppm TWA (8hr)
Isobutane	1000 ppm TWA (8hr)	None	** 800 ppm TWA (10hr)

* = Workplace Environmental Exposure Level (AIHA).

**= National Institute of Occupational Safety & Health (NIOSH).

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Colorless
PHYSICAL STATE:	Gas at ambient temperature
FREEZING POINT:	Not determined
ODOR:	Slight ethereal
pH:	Neutral
BOILING POINT:	Dew @ 1 atm. -45.1 deg. F Bubble @ 1 atm. -50.7 deg. F
DENSITY:	Liquid @ 1atm. 89.20 lb/ft ³ Vapor @ 1 atm. .3912 lb/ft. ³
VAPOR PRESSURE:	@ 70 deg. F 155.6 psia @ 130 deg. F 360.1 psia



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SOLUBILITY IN WATER: Not Determined
MOECULAR WEIGHT: 113.49 g/mol
% VOLITILES: 100

10. STABILITY AND REACTIVITY

CHEMICAL STABLILITY:

Material is stable. However, avoid open flames and high temperatures.

DECOMPOSITION:

Decomposition products are hazardous. High temperatures or flames will cause decomposition by products forming halogens, halogen acids and possible carbonyl halides.

POLYMERIZATION:

Will not occur.

OTHER HAZARDS:

Cylinders of used product may contain oil as well as refrigerant. A leak or venting during a fire will produce a cloud of oil mist that is flammable.

11. TOXICOLOGICAL INFORMATION

Immediate (Acute) Effects:

As Blended: Untested

HFC-134a:

LC50: 4hr. (rat) >500,000 ppm
Cardiac Sensitivity Threshold 80,000 ppm
NOEL 50,000 ppm

HFC-125:

LC50: 4hr. (rat) >800,000 ppm
Cardiac Sensitivity Threshold 75,000 ppm

HC-600a:

LC50: 2hr. (mouse) >520,000 ppm

12. ECOLOGICAL INFORMATION

DEGRADABILITY:

Refrigerant 422C is a gas at room temperature. It is unlikely to remain in water.

Octanol Water Partition Coefficient: As blended N/A

Components: R-134a – Log Pow = 1.06
R-125 – Log Pow = 1.48
R-600a – Log Pow = 2.8



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13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:

Disposal must comply with federal, state, and local regulations. Refrigerant 422C is subject to Clean Air Act Regulations Section 608 in 40 CFR Part 82 concerning refrigerant recycling.

RCRA: Not a hazardous waste.

Alteration to the product such as mixing with other material may change the characteristics of the material and alter the RCRA classification and the proper disposal method.

14. TRANSPORT INFORMATION

DOT/IMO/IATA: US DOT PROPER SHIPPING NAME: Liquefied Gas, n.o.s (Pentafluoroethane, 1,1,1,2-Tetrafluoroethane)
US DOT HAZARD CLASS: 2.2
SHIPPING LABEL: Nonflammable Gas

US DOT ID NUMBER: UN3163
(ICOA-IATA): Cargo aircraft: Packing instruction: 200 Quantity: 150 kg
Passenger aircraft: Packing instruction: 200 Quantity: 75 kg

15. REGULATORY INFORMATION

TOXIC SUBSTANCE CONTROL ACT (TSCA)

Components: Listed on Inventory

SARA TITLE III/CERCLA: Components:

Reportable Quantities (RQs):	No components listed
Threshold Planning Quantities (TPQs):	No components listed
Section 311 Hazard Class:	IMMEDIATE PRESSURE
Section 313 Toxic Chemical:	No components listed

WHMIS Classification (Canada): This product has been evaluated with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

ADDITIONAL REGULATORY INFORMATION: U. S. Clean Air Act – 40 CFR Part 82

16. OTHER INFORMATION

HMIS Classification:

Health	1
Flammability	1
Reactivity	0

NFPA Classification:

Health	2
Flammability	1
Reactivity	0

OSHA Regulations for compressed gases: 29CFR 1910.11
ANSI/ASHRAE: Standard 34 Safety Designation – A1

DOT Classification per 49 CFR 172.101



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