

HOT SHOT Refrigerant  
MSDS #: 202  
Proposed ASHRAE Designation R-414b

Section I



Trade Name: **HOT SHOT**  
Common Name: **Refrigerant**  
Manufacturer's Name: ICOR International, Inc.  
Address: 2351 Kentucky Avenue, Bldg 3  
Indianapolis, IN 46221

Emergency Telephone No: 800-457-4280 (CHEMTREC, 24 Hours)  
Information Telephone 800-497-6805 (Weekdays 7:30 am - 4:00 pm)  
No:

Prepared By: W.E.Oatess  
Date Prepared: November 1, 1995  
Date Revised: November 11, 1997

Chemical Name: Chemical Family - Halogenated Hydrocarbons  
Supplier's Generic Name: Refrigerant  
Synonyms: N/A  
Hazard Class: 2.2

Other Identifying Data: This product is a direct replacement for CFC-12 and HFC-134a, and R-500. No modification of stationary equipment design necessary. Follow SNAP/EPA regulations for use in mobile A/C.

CFR49 Ch. 1 (10/97 Edition)prgrph. 172.101 -UN3163

General Information: THIS MATERIAL CONTAINS SARA 313 REPORTABLE COMPONENTS 1-CHLORO-1,2,2,2-TETRAFLUOROETHANE, 1-CHLORO-1,1-DIFLUOROETHANE, AND CHLORODIFLUOROMETHANE. CHLOROTETRAFLUOROETHANE IS ALSO SUBJECT TO THE PROVISIONS OF A SIGNIFICANT NEW USE RULE (SNUR), PUBLISHED BY EPA IN 40 CFR 721.3180.

Section II HAZARDOUS INGREDIENTS / IDENTIFY INFORMATION

Chemical Name	OSHA-PEL (ppm)	ACGIH-TLV (ppm)	CAS Number	Percent
Chlorodifluoromethane		1000	000075-45-6	50

1-Chloro-1,1-Difluoroethane 000075-68-3 9.5  
1-Chloro-1,2,2,2-Tetrafluoroethane 002837-89-0 39  
Isobutane 1000 068476-85-7 1.5

Section III PHYSICAL / CHEMICAL CHARACTERISTICS

Boiling Point (F): -28  
Vapor Pressure: NDA  
Evaporation Rate: NDA  
Vapor Density (Air=1): >1  
Solubility in Water: VERY SLIGHT  
Specific Gravity: 1.1  
Pure or Mixture: MIXTURE  
Melting Point (F): NDA  
pH: NA  
Ignition Temperature (F): 1170  
Physical State: GAS  
(Butyl Acetate = 1)

How to detect this substance: Odor and coolness if close to a source of leaking gas

Other Physical / Chemical Data: NA

Section IV FIRE AND EXPLOSION HAZARD DATA

Flash Point (F): NA Method: NA  
Flammability Classification: WILL NOT BURN  
NFPA Health Hazard Code: NONHAZARDOUS  
Flammable Limits in Air-> LEL: NA % UEL: NA %  
Extinguishing Media: STOP FLOW OF GAS

USE CLASS A EXTINGUISHING AGENT

USE CLASS B EXTINGUISHING AGENT

WATER MAY BE USED TO BLANKET FIRE

EXPLODES ON HEATING

Special Fire Fighting Procedures: The material is not flammable and does not support combustion. The choice of fire extinguishing media depends on the surrounding materials

involved in the fire. Use self-contained breathing apparatus and full protective gear. Use a water spray to cool fire-exposed containers.

Unusual Fire & Explosion Hazards: Cylinders may vent or rupture in fire conditions, leading to decomposition. Vapors may decompose if exposed to direct flame conditions. The vapor may displace oxygen making breathing difficult and causing light headedness or suffocation.

## Section V

## REACTIVITY DATA

Stability: NORMALLY STABLE

Incompatibilities: Strong oxidents and freshly scraped aluminum, alkali metals, and alkali earth metals (sodium, magnesium, etc.) may cause exothermic reaction. The aluminum in refrigeration systems contains an oxide/chloride coating to prevent reaction with metal.

Conditions To Avoid: INTENSE HEAT AND OPEN FLAME

Hazardous Decomposition Products: Hydrochloric acid, Hydrofluoric acid, chlorine, fluorine, possibly phosgene, carbon dioxide, and carbon monoxide

Hazardous Polymerization: WILL NOT OCCUR

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

## Section VI

## HEALTH HAZARD DATA

ROUTES OF ENTRY: Inhalation

## HEALTH HAZARDS

Immediate: The greatest hazard is contact with escaping gas which can cause frostbite and damage to exposed tissue. The escaping gas may displace oxygen and cause light headedness, eye irritation, and suffocation.

Long Term: Exposure to high concentrations may lead to cardiac irregularities, unconsciousness or death.

Other Hazards: None listed

Carcinogenicity: THIS PRODUCT'S INGREDIENTS ARE NOT FOUND IN OSHA, NTP, IARC, OR APD LISTS.

SIGNS & SYMPTOMS OF EXPOSURE / EMERGENCY & FIRST-AID PROCEDURES

Eye Contact: The liquid can cause irritation, redness, tearing, blurred vision, and possible frostbite. / For liquid contact, irrigate with running water for a minimum of 15 minutes. Contact a physician immediately.

Skin Contact: The liquid can cause severe freeze burns similar to frostbite. / Warm the area gradually by flushing with plenty of water. Get medical attention if there is evidence of tissue damage.

Inhaled: Anaesthetic effects and feeling of euphoria, rapid breathing, headache, dizziness, and narcosis. / Remove to fresh air. If breathing has stopped, restore breathing by artificial respiration, administer oxygen, and get medical help. DO NOT give epinephrine or similar drugs.

Swallowed: There is an aspiration hazard which may cause coughing and breathing difficulty. / DO NOT induce vomiting. Contact a physician immediately.

Medical Conditions Aggravated By Exposure: Persons subject to cardiac problems may be at increased risk by exposure.

#### Section VII

#### PRECAUTIONS FOR SAFE HANDLING AND USE

Action If Released or Spilled: Remove or extinguish ignition or combustion sources. Evacuate enclosed spaces until gas is dispersed. Keep upwind. Stop the release of gas, if possible without risk. Disperse the gas with floor level forced-air ventilation. Exhaust vapors outdoors. Contain the spill by building a dike using absorbent material. Collect the remainder of the spill with absorbent material and place into a drum approved for waste disposal or recovery. Wash contaminated clothing before reuse.

Waste Disposal Method: Recycle or reclaim if possible. Reclaimed material may be incinerated, if the toxic and corrosive combustion products (HF and HI) are handled appropriately.

DOT Storage Category: Nonflammable gas

Handling / Storage Precautions: Do not store the cylinder in direct sun or expose it to heat above 120 degrees F. Keep the cylinder valve tightly closed when not in use and store in a well ventilated area.

Other Precautions: NA

NOTE: Dispose of all wastes in accordance with federal, state, and local regulations

#### Section VIII

#### CONTROL MEASURES

Work / Hygiene Practices: Use insulated or lined butyl gloves, face shield or goggles. and

impervious clothing.

Special Protective Measures for Maintenance Work: Good general ventilation is usually adequate, but local ventilation may be needed if gas is vented to the atmosphere.

Other Controls, Protection: Use self-contained breathing apparatus if local ventilation is not adequate.

#### DISCLAIMER

These data are offered in good faith as typical values and not as a product specification. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate. These recommendations are not intended to supersede state, local, or use safety codes and procedures. In the event of any question, please call the telephone number provided.