

## MATERIAL SAFETY DATA SHEET

### R502

#### Chemical Product/Company Identification

Material Identification: CAS Number: 76-15-3 Formula: CH Cl F<sub>2</sub> / C Cl F<sub>2</sub> C F<sub>3</sub>

Molecular Weight: 154.5

Tradenames and Synonyms: CFC-502, Aspen R-502

#### Composition/Information On Ingredients

Components:	Material:		CAS Number
	ETHANE,CHLOROPENTAFLUORO- (R-115)	51.2%	76-15-3
	METHANE, CHLORODIFLUORO- (R-22)	48.8%	75-45-6

Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

#### Potential Health Effects

**INHALATION:** High concentrations of vapor is harmful and may cause heart irregularities, unconsciousness, or death. Intentional misuse or deliberate inhalation can cause death without warning. Vapor reduces oxygen available for breathing and is heavier than air. Overexposure to the vapors by inhalation may include temporary nervous system depression with anesthetic effects such as dizziness, headache, confusion, incoordination, and loss of consciousness. Higher inhalation overexposures to the vapors may cause temporary alteration of the heart's electrical activity with irregular pulse, palpitations, or inadequate circulation. Fatality from gross overexposure may occur.

**SKIN CONTACT:** With the liquid may cause frostbite.

**ADDITIONAL INFORMATION:** Individuals with preexisting diseases of the central nervous system, cardiovascular system, lungs or kidneys may have increased susceptibility to the toxicity of excessive exposures.

**CARCINOGENICITY INFORMATION:** None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

#### First Aid Measures

**INHALATION:** If large amounts are inhaled, immediately remove to fresh air. Keep persons calm. If not breathing, give artificial

respiration. If breathing is difficult, give oxygen. Call a physician. SKIN CONTACT: In case of skin contact, flush with water for 15 minutes. Treat for frostbite if necessary by gently warming affected area.

EYE CONTACT: In case of eye contact, immediately flush eyes with plenty of water for 15 minutes. Call a physician.

INGESTION: Not considered a potential route of exposure.

NOTES TO PHYSICIANS: Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be used with special caution only in situations of emergency life support.

### **Fire Fighting Measures**

FLAMMABLE PROPERTIES: Flash Point: Will not burn

Flammable limits in Air, % by Volume LEL: Not applicable UEL: Not applicable Autoignition: 704°C (1299°F)

FIRE AND EXPLOSION HAZARDS: Cylinders are equipped with temperature and pressure relief devices but still may rupture under fire conditions. Decomposition may occur.

EXTINGUISHING MEDIA: As appropriate for combustibles in area.

FIRE FIGHTING INSTRUCTIONS: Keep containers cool with water spray. Self-contained breathing apparatus (SCBA) is required if cylinders rupture or release under fire conditions.

### **Accidental Release Measures**

SAFEGUARDS (PERSONNEL):NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

ACCIDENTAL RELEASE MEASURES: Ventilate area - especially low places where heavy vapors might collect. Remove open flames. Use self-contained breathing apparatus (SCBA) for large spills. Comply with Federal, State, and local regulations for reporting releases.

### **Handling And Storage**

HANDLING (PERSONNEL): Avoid breathing vapors. Avoid liquid contact with skin or eyes. Use with sufficient ventilation to keep employee exposure below recommended limits.

STORAGE: Clean, dry area. Do not heat above 52°C (125°F).

### **Exposure Controls/Personal Protection**

ENGINEERING CONTROLS: Use with sufficient ventilation to keep employee exposure below recommended exposure limits. Local exhaust should be used when large amounts are released. Mechanical ventilation should be used in low or enclosed places.



PERSONAL PROTECTIVE EQUIPMENT: Impervious gloves and chemical splash goggles should be used if contact is possible. Under normal manufacturing conditions, no respiratory protection is required when using this product. Self-contained breathing apparatus (SCBA) is required if a spill or release occurs.

EXPOSURE GUIDELINES:	Exposure Limits PEL (OSHA):	Chloropentafluorethane R-115) None Established
	TLV (ACGIH):	1,000 ppm, 6,320 mg/m <sup>3</sup> , 8 Hr. TWA

Chlordifluormethane (R-22)

PEL (OSHA: None Established

TLV (ACGIH): 1,000 ppm, 3,540 mg/m<sup>3</sup>, 8 Hr. TWA, A4

### Physical And Chemical Properties

PHYSICAL DATA:

Boiling Point: -45.4°C (-49.7°F)

Vapor Pressure: 169 psia at 25°C (77°F)

Vapor Density: 3.92 at 25°C (77°F) (Air= 1)

% Volatiles: 100 WT%

Evaporation Rate: >1 (CCl<sub>4</sub> = 1)

Solubility in Water: 0.15 WT% @ 25°C (77°F)

CFC Refimax, LLC MSDS ASPEN R-502

pH: Neutral Odor: Slight ethereal Form: Liquified gas Color: Clear, colorless Density: 1.22 g/cc at 25°C (77°F)- Liquid

### Stability And Reactivity

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

CONDITIONS TO AVOID: Incompatible with alkali or alkaline earth metals- powdered Al, Zn, Be, etc.

POLYMERIZATION: Polymerization will not occur.

DECOMPOSITION: Decomposition products are hazardous. R-502 Refrigerant can be decomposed by high temperatures (open

flames, glowing metal surfaces, etc.) forming hydrochloric and hydrofluoric acids, and possibly carbonyl halides.

### Toxicological Information

Add.:No.1021,Building 3rd,North Xingle Road No.88,Xindu District, Chengdu, P.R.China  
Tel:0086-28-83085054

ANIMAL DATA: R-115

INHALATION: 4-hour LC50: >800,000 ppm in rats Oral ALD: >1200 mg/kg in rats. The effects of a single inhalation exposure at high concentrations include rapid respiration and inactivity. Repeated exposure at lower levels produced no signs of toxicity. Exposure to 150,000 ppm with simultaneous epinephrine challenge produced cardiac arrhythmia in dogs. The effects of repeated ingestion include mild diarrhea, salivation and increased activity.

No animal test reports are available to define carcinogenic developmental or reproductive hazards. The compound does not produce genetic damage in bacterial cell cultures but has not been tested in animals.

INHALATION 4-hour LC50: 220,000 ppm in rats.

EYE: Is a slight irritant

SKIN: Is a skin irritant but is not a skin sensitizer in animals.

Effects from single high exposures include central nervous system depression, anesthesia, rapid breathing, lung congestion and microscopic liver changes. Cardiac sensitization occurred in dogs at 50,000 ppm or greater from the action of exogenous epinephrine.

No toxic effects or abnormal histopathological observations occurred in rats repeatedly exposed to concentrations ranging from 10,000 to 50,000 ppm (v/v). Long-term exposures to 50,000 ppm (v/v) of vapors produced organ weight increases and a decrease in body weight gain, but no increased mortality or adverse hematological effects.

INHALATION: In chronic studies, R-22, at a concentration of 50,000 ppm (v/v), produced a small, but statistically significant increase of late-occurring tumors involving salivary glands in male rats, but not female rats or male or female mice. In the same studies, no increased incidence of tumors was seen in either species at concentrations of 10,000 ppm or 1000 ppm (v/v).

Long-term administration in corn oil produced no effects on body weight or mortality.

R-22 was mutagenic in some strains of bacteria in bacterial cell cultures, but not mammalian cell cultures or animals. It did not cause heritable genetic damage in mammals. A slight, but significant increase in developmental toxicity was observed at high concentrations (50,000 ppm) of R-22, a concentration which also produced toxic effects in the adult animal. Based on these findings, and other negative developmental studies, HCFC-22 is not considered a unique hazard to the conceptus. Studies of the effects of R-22 on male reproductive performance have been negative. Specific studies to evaluate the effect on female reproductive performance have not been conducted, however, limited information obtained from studies on developmental toxicity do not indicate adverse effects on female reproductive performance at concentrations up to 50,000 ppm.

AQUATIC TOXICITY: 48 hour EC50 - Daphnia magna: 433 mg/L

### **Disposal Considerations**

WASTE DISPOSAL: Comply with Federal, State, and local regulations. Remove to a permitted waste disposal facility or reclaim by distillation.

**Transportation Information**

## SHIPPING INFORMATION:

Proper Shipping Name: Chlorodifluoromethane and

Chloropentafluoroethane Mixture Hazard Class: 2.2 UN No: 1973 DOT/IMO Label:

Non-Flammable Gas Shipping Containers: Cylinders, Ton Tanks.

**Regulatory Information**

U.S. Federal Regulations

TSCA Inventory Status: Reported/Included.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute: Yes Chronic: No Fire: No Reactivity: No Pressure: Yes

## HAZARDOUS CHEMICAL LISTS

SARA Extremely Hazardous Substance: No CERCLA Hazardous Substance: No SARA Toxic

Chemical: See Components Section

<b>Other Information</b>	
NFPA, NPCA-HMIS	
NPCA-HMIS Rating	
Health:	1
Flammability:	0
Reactivity:	1

Personal Protection rating to be supplied by user depending on use conditions.