

# MATERIAL SAFETY DATA SHEET

## Acme Cool AC-77 Refrigerant cylinders

### SECTION 1 – IDENTIFICATION

Prepared May 13, 2016

**Company:** FrostyCool Refrigerants  
Mississauga Ontario  
L4T 1G2 Canada

**Product:** Name AC-77 Refrigerant

**CHEMTREC – TOLL FREE 24 HOUR EMERGENCY TELEPHONE NUMBER**  
**North America 1-800-424-9300 / International 0 703 527 3887 Call Collect**

### SECTION 2 – COMPOSITION

INGREDIENTS	CAS NUMBER
Pentafluoroethane (HFC-125)	354-33-6
1,1,1,2-Tetrafluoroethane (HFC-134a)	811-97-2
Butane (R-600)	106-97-8
Isobutane (R-600a)	75-28-5
Isopentane (R-601a)	78-78-4

### 3. HAZARDS INGREDIENTS

**MAIN HAZARDS:** No Significant Hazard  
**OTHER HAZARDS:** Liquefied Gas  
Rapid evaporation of the liquid may cause frostbite  
**DELAYED EFFECTS:** None Known

**Ingredients found on one of the OSHA designated carcinogen lists are listed below:**

INGREDIENT NAME	NTP STATUS	IARC STATUS	OSHA LIST
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No ingredients listed in this section

### 4. FIRST AID MEASURES

**SKIN:** Allow to evaporate normally. Wash off immediately with soap and warm water.  
Remove contaminated clothing. Seek medical attention if irritation or symptoms persist.

**EYES:** Keep eyelids open to allow evaporation of the product. Rinse immediately with warm water for 15 minutes with eyelids open, use eyewash station if available. Seek medical attention if irritation or symptoms persist.

**INHALATION:** Move the exposed person to fresh air immediately. If breathing is difficult give oxygen. Seek medical attention if irritation or symptoms persist.

**INGESTION:** Not likely to occur due to physical properties and is not expected to be hazardous. Do not induce vomiting unless advised to by a physician.

## 5. FIRE FIGHTING MEASURES

### FLAMMABLE PROPERTIES

<b>FLASH POINT:</b>	Gas, not applicable / DOT regulations
<b>FLASH POINT METHOD:</b>	Not applicable
<b>AUTOIGNITION TEMPERATURE:</b>	Unknown
<b>UPPER FLAME LIMIT (volume % in air):</b>	None*
<b>LOWER FLAME LIMIT (volume % in air):</b>	None*

\*Based on ASHRAE Standard 34

<b>FLAME PROPAGATION RATE (solids):</b>	Not applicable
<b>OSHA FLAMMABILITY CLASS:</b>	Not applicable

<b>EXTINGUISHING MEDIA:</b>	Use extinguishing media appropriate to the surrounding fire Conditions Cool fire and exposed containers with water spray.
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<b>FIRE HAZARDS:</b>	Heating produces hazardous fumes.
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### SPECIAL FIRE FIGHTING PRECAUTIONS/INSTRUCTIONS:

Firefighters should wear self-contained, NIOSH-approved breathing apparatus for protection against possible toxic decomposition products. Proper eye and skin protection should be provided. Use water spray to keep fire-exposed containers cool.

## 6. ACCIDENTAL RELEASE MEASURES

### PERSONAL PRECAUTIONS:

Ensure adequate ventilation of the working area. Evacuate personnel to a safe area. Vapours displace oxygen which may lead to suffocation. Prevent further spillage if safe. Keep public away from danger area. Keep upwind. Eliminate all sources of ignition.

**ENVIRONMENTAL PRECAUTIONS:** Should not be released into the environment.

**CLEAN UP METHODS:** Allow to evaporate. Do not allow product to enter sewers or drains. Spills and releases may require reporting to Federal and or local authorities, Check local regulations.

## 7. HANDLING AND STORAGE

**HANDLING:** Ensure adequate ventilation of the working area. Keep away from sources of ignition. No smoking, open flames or sources of ignition in the work area. Keep away from heat. Use only equipment and materials which are compatible with the product.

**STORAGE:** 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 and affix valve cap to cylinder after use and when empty.

## 8. EXPOSURE / PERSONAL PROTECTION

### ENGINEERING MEASURES:

Provide local ventilation at filling zones, work area 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 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 side vented preferred safety goggles. In case of splashing wear face shield.

#### RESPIRATORY PROTECTION:

Use self-contained breathing apparatus in confined areas, in cases of uncontrolled emissions where standard respiratory protection does not provide adequate protection use only respiratory protection that conforms to international / national standards. In the case of vapor formation use a respirator with an approved filter.

#### ADDITIONAL:

In the event that contact with liquid may occur, or in cases of 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.

### EXPOSURE

INGREDIENT	ACGIH TLV	OSHA PEL	OTHER LIMIT
Pentafluoroethane	None	None	1000ppm TWA (8hr)
1,1,1,2-Tetrafluoroethane	None	None	1000ppm TWA (8hr)
Butane	1000 ppm TWA (8hr)	None	None
Isobutane	1000 ppm TWA (8hr)	None	None
Isopentane	6000 ppm TWA (8hr)	None	None

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>APPEARANCE:</b>	Clear, colorless liquid and vapor
<b>PHYSICAL STATE:</b>	Gas at ambient temperatures
<b>MOLECULAR WEIGHT:</b>	108.1
<b>ODOR:</b>	Faint ethereal odor
<b>SOLUBILITY IN WATER (weight %):</b>	Insoluble in water
<b>BOILING POINT:</b>	-38.7°C (-37.6°F)
<b>VAPOR PRESSURE at 25°C:</b>	9.67 bar 140.2 psig
<b>FLASH POINT:</b>	Not applicable

## 10. STABILITY AND REACTIVITY

### NORMALLY STABLE (CONDITIONS TO AVOID):

The product is stable.

Do not mix with oxygen or air above atmospheric pressure. Any source of high temperatures, such as lighted cigarettes, flames, hot spots or welding may yield toxic and/or corrosive decomposition products.

### INCOMPATIBILITIES:

Under the following conditions: very high temperatures or increased pressures, freshly abraded aluminum surfaces (may cause strong exothermic reaction).

Chemically reactive metals: potassium, calcium, powdered aluminum, magnesium, and zinc.

### HAZARDOUS DECOMPOSITION PRODUCTS:

Hydrogen fluoride products.

### HAZARDOUS POLYMERIZATION:

Will not occur.

## 11. TOXICOLOGICAL INFORMATION

Butane	Inhalation Rat LC50/4H h = 658000 mg/m <sup>3</sup>
	Inhalation Mouse LC50/2H h = 68000 mg/m <sup>3</sup>
Isobutane	Inhalation Rat LC50/15min = 57 pph
	Inhalation Rat LC50/4H h = 65800 mg/m <sup>3</sup>
	Inhalation Mouse LC50/2H h = 68000 mg/m <sup>3</sup>
1,1,1,2-Tetrafluoroethane	Inhalation Rat LC50/4H h = 1500 gm/m <sup>3</sup>
	Inhalation Mouse LC50/2H h = 1700 gm/m <sup>3</sup>

### CORROSIVITY:

May cause irritation to eyes. May cause irritation to skin. Rapid evaporation of the liquid may cause frostbite.

## 12. ECOLOGICAL:

### ECOTOXICITY:

<b>1,1,1,2-Tetrafluoroethane</b>	Daphnia ED50/48h = 980 mg/l
	Rainbow trout LC50/96h = 450 mg/l

### BIO-ACCUMULATION:

This product is subject to U.S. Environmental Protection Agency Clean Air Act Regulations at 40 CFR Part 82. This product contains greenhouse gases which may contribute to global warming. Do NOT vent to the atmosphere. To comply with provisions of the U.S. Clean Air Act, any residual must be recovered.

### 13. DISPOSAL

#### RCRA

**Is the unused product a RCRA hazardous waste if discarded?** Product is not a hazardous waste  
**If yes, the RCRA ID number is:** Not applicable

#### OTHER DISPOSAL:

Product as shipped. Disposal must comply with federal, state, and local disposal or discharge laws. Acme-Cool 424a is subject to U.S. Environmental Protection Agency Clean Air Act Regulations Section 608 in 40 CFR Part 82 regarding refrigerant recycling.

### 14. TRANSPORT INFORMATION

**PROPER SHIPPING NAME:** LIQUEFIED GAS, N.O.S. (Pentafluoroethane, 1,1,1,2-tetrafluoroethane, Iso-Pentane, Butane, Isobutane)  
**US DOT HAZARD CLASS:** 2  
**US DOT PACKING GROUP:** Not applicable  
**US DOT ID NUMBER:** UN3163

### 15. REGULATORY INFORMATION

#### SUBSTANCES CONTROL ACT (TSCA)

**TSCA INVENTORY STATUS:** Listed on the TSCA inventory

**OTHER TSCA ISSUES:** None

#### SARA TITLE III / CERCLA

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

#### INGREDIENT NAME SARA / CERCLA RQ (lb.) SARA EHS TPQ (lb.)

No ingredients listed in this section

#### SECTION 311 HAZARD CLASS:

IMMEDIATE PRESSURE

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

#### SARA 313 TOXIC CHEMICALS:

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

#### INGREDIENT NAME COMMENT

No ingredients listed in this section.

#### RIGHT-TO-KNOW

In addition to the ingredients found in Section 2, the following are listed for state right-to-know purposes.

#### INGREDIENT NAME WEIGHT % COMMENT

No ingredients listed in this section

**ADDITIONAL REGULATORY INFORMATION:**

Acme-Cool 424a is subject to U.S. Environmental Protection Agency Clean Air Act Regulations at 40 CFR Part 82.

**WARNING: DO NOT VENT** to the atmosphere. To comply with provisions of the U.S. Clean Air Act, any residual must be recovered. Product **Contains Pentafluoroethane (HFC-125), and 1,1,1,2-Tetrafluoroethane (HFC-134a)**, which are greenhouse gases that may contribute to global warming.

**WHMIS CLASSIFICATION (CANADA):**

This product has been evaluated in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

**16. OTHER INFORMATION**

HMIS Classification: Health – 1, Flammability – 1, Reactivity – 0  
NFPA Classification: Health – 2, Flammability – 1, Reactivity – 0  
ANSI/ASHRAE 34 Safety Group – A1

UL Classified

Regulatory Standards:

1. OSHA regulations for compressed gases: 29 CFR 1910.101
2. DOT classification per 49 CFR 172.101
3. Clean Air Act Class II Substance

**SECTION 17 -PREPARATION DISCLAIMER**

FrostyCool Refrigerants Mississauga Ontario Canada L4T 1G2

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