

# Material Safety Data Sheet

## (REFRIGERANT R507)

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### 1. PRODUCT AND COMPANY IDENTIFICATION

#### Material Identification

Corporate MSDS Number: HFC 507 CAS Number: 354-33-6/420-46-2  
Product Name HFC 507  
Chemical Formula C<sub>2</sub>HF<sub>5</sub>/CH<sub>3</sub>F<sub>3</sub>  
Chemical Name Pentafluoroethane/1,1,1-Trifluoroethane  
Product Use refrigerant

#### Company Identification

**MANUFACTURER/DISTRIBUTOR:** Cosutin Industrial CO., Limited  
Add: Unit B, 10/F Lee May Building 788-790 Nathan Road, Mongkok, Kowloon, H.K.  
Tel.: +852 21395855 Fax: +852 81673777  
**PHONE NUMBERS Product Information:** +86 136 31481545  
**Transport Emergency:** +86 136 31481545  
**Medical Emergency:** +86 136 31481545

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name of the substance:  
Pentafluoroethane/1,1,1-Trifluoroethane  
General name: HALOGENATED HYDROCARBON

| Ingredient Name              | CAS No.  | Typical Wt. % |
|------------------------------|----------|---------------|
| Pentafluoroethane(R125)      | 354-33-6 | 50%           |
| 1,1,1-Trifluoroethane(R143a) | 420-46-2 | 50%           |

#### Hazardous components according to Regulation (EC) 1272/2008 as amended

| Substance name                | Hazard class         | Hazard category | H Phrases |
|-------------------------------|----------------------|-----------------|-----------|
| Pentafluoroethane (R125)      | Gases under pressure | Liquefied gas   | H280      |
| 1,1,1-Trifluoroethane (R143a) | Flammable gases      | Category 1      | H220      |
|                               | Gases under pressure | Liquefied gas   | H280      |

### 3. HAZARDS IDENTIFICATION

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**Potential Health Effects****SKIN CONTACT**

Immediate effects of overexposure may include: Frostbite, if liquid or escaping vapor contacts the skin. Significant skin permeation, and systemic toxicity, after contact appears unlikely.

**INHALATION**

Gross overexposure may cause: Central nervous system depression with dizziness, headache, confusion, incoordination, drowsiness or unconsciousness. Suffocation, if air is displaced by vapors. Based on animal data, this material may cause: Irregular heart beat with a strange sensation in the chest, "heart thumping", cardiac arrhythmias, apprehension, lightheadedness, feeling of fainting, dizziness, inadequate circulation, weakness, sometimes progressing to loss of consciousness and death.

At flame temperatures, this material can decompose to hydrogen fluoride which can be lethal at much lower concentrations.

**ADDITIONAL HEALTH EFFECTS**

Increased susceptibility to the effects of this material may be observed in persons with pre-existing disease of the: cardiovascular system.

**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.

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## 4. FIRST AID MEASURES

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**First Aid**

**Inhalation** If inhaled, immediately remove to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

**Skin contact** In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician. Wash contaminated clothing before reuse. Treat for frostbite if necessary by gently warming affected area.

**Eye contact** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

**Ingestion** Ingestion is not considered a potential route of exposure.

**Notes to Physicians**

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

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## 5. FIRE FIGHTING MEASURES

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**Flammable Properties**

**Flash Point** : No flash point

**Flammable Limits in Air, % by Volume:**

**LEL** : None per ASTM E681

**UEL** : None per ASTM E681

**Autoignition:** Not determined

**Fire and Explosion Hazards:**

Cylinders may rupture under fire conditions. Decomposition may occur.

Contact of welding or soldering torch flame with high concentrations of refrigerant can result in visible changes in the size and color of torch flames. This flame effect will only occur in concentrations of product well above the recommended exposure limit, therefore stop all work and ventilate to disperse refrigerant vapors from the work area before using any open flames.

R-507 is not flammable in air at temperatures up to 100 deg C (212 deg F) at atmospheric pressure. However, mixtures of R-507 with high concentrations of air at elevated pressure and/or temperature can become combustible in the presence of an ignition source. R-507 can also become combustible in an oxygen enriched environment (oxygen concentrations greater than that in air). Whether a mixture containing R-507 and air, or R-507 in an oxygen enriched atmosphere becomes combustible depends on the inter-relationship of 1) the temperature 2) the pressure, and 3) the proportion of oxygen in the mixture. In general, R-507 should not be allowed to exist with air above atmospheric pressure or at high temperatures; or in an oxygen enriched environment. For example: R-507 should NOT be mixed with air under pressure for leak testing or other purposes.

**Extinguishing media**

As appropriate for combustibles in area.

**Fire Fighting Instructions**

Cool cylinder with water spray or fog. Self-contained breathing apparatus (SCBA) is required if cylinders rupture and contents are released under fire conditions. Water runoff should be contained and neutralized prior to release.

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## 6. ACCIDENTAL RELEASE MEASURES

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**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 (using forced ventilation), especially low or enclosed places where heavy vapors might collect. Remove open flames. Use self-contained breathing apparatus (SCBA) for large spills or releases.

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## 7. HANDLING AND STORAGE

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**Handling (Personnel)**

Avoid breathing high concentrations of vapor. Avoid contact of liquid with eyes and prolonged skin exposure. Use with sufficient ventilation to keep employee exposure below recommended limits.

Contact with chlorine or other strong oxidizing agents should also be avoided. See Fire and Explosion Data section.

**Storage**

Do not heat above 52 C (126 F). Store in a clean, dry place.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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**Engineering Controls**

Refrigerant concentration monitors may be necessary to determine vapor concentrations in work areas prior to use of torches or other open flames, or if employees are entering enclosed areas.

#### # Personal Protective Equipment

For large spills or releases, use self-contained breathing apparatus (SCBA).

#### Exposure Guidelines

Applicable Exposure Limits

HFC-125

PEL (OSHA) : None Established

TLV (ACGIH) : None Established

AEL \* : 1000 ppm, 8 & 12 Hr. TWA

WEEL (AIHA) : 1000 ppm, 4900 mg/m<sup>3</sup>, 8 Hr. TWA

HFC-143a

PEL (OSHA) : None Established

TLV (ACGIH) : None Established

AEL \* : 1000 ppm, 8 & 12 Hr. TWA

WEEL (AIHA) : 1000 ppm, 8 Hr. TWA

\* AEL is Manufacturer's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Physical Data

% Volatiles : 100 %

Evaporation Rate : >1

Solubility in Water : Not Determined

Odor : Ethereal (slight).

Form : Liquified Gas.

Color : Clear, Colorless.

Boiling Point : -46.9 C (-52.4 F) @ 1 atm

Vapor Pressure : 184.9 psia @ 25 C (77 F)

Specific Gravity : 1.079 @ 25 C (77 F)

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## 10. STABILITY AND REACTIVITY

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### Chemical Stability

Stable at normal temperatures and storage conditions. However, avoid open flames and high temperatures.

### Incompatibility with Other Materials

Incompatible with active metals, alkali or alkaline earth metals--powdered Al, Zn, Be, etc.

### Decomposition

Decomposition products are hazardous. This material can be decomposed by high temperatures (open flames, glowing metal surfaces, etc.) forming hydrofluoric acid and possibly carbonyl fluoride. These materials are toxic and irritating. Contact should be avoided.

### Polymerization

Polymerization will not occur.

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## 11. TOXICOLOGICAL INFORMATION

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**Animal Data****HFC-125**

## INHALATION:

4 hour, ALC, rat: > 709,000 ppm (Very low toxicity).

Single exposure to high doses caused: Lethargy. Labored breathing. Weak cardiac sensitization, a potentially fatal disturbance of heart rhythm caused by a heightened sensitivity to the action of epinephrine. Repeated exposure caused: No significant toxicological effects.

No-Observed-Adverse-Effect-Level (NOAEL): 50,000 ppm

## ADDITIONAL TOXICOLOGICAL EFFECTS:

No animal data are available to define the following effects of this material: carcinogenicity, reproductive toxicity. In animal testing this material has not caused developmental toxicity. Tests have shown that this material does not cause genetic damage in bacterial or mammalian cell cultures, or in animals. This material has not been tested for its ability to cause permanent genetic damage in reproductive cells of mammals (not tested for heritable genetic damage).

**HFC-143a**

Inhalation 4 hour LC50: > 540,000 ppm in rats (Very low toxicity by inhalation)

INHALATION: Single exposure to 500,000 ppm caused anaesthesia, but no mortality at 540,000 ppm. Cardiac sensitization occurred in dogs at 300,000 ppm from the action of exogenous epinephrine. Two, 4-week inhalation studies have been conducted. In the first study, pathological changes in the testes were observed at all exposures concentrations; no effects were observed in females. The testicular effect was considered related to the method used to expose the rats to HFC-143a. In the second study using the same exposure concentrations, no effects were noted in males at any concentration. Data from a 90-day study revealed no effects in male or female rats at exposures up to 40,000 ppm. INGESTION: Long-term exposure caused significantly decreased body weights in male rats fed 300 mg/kg for 52 weeks, but there was no effect on mortality. During this long-term exposure study, tests in rats demonstrated no carcinogenic activity when HFC-143a was administered orally in corn oil at 300 mg/kg/day, five days a week, for 52 weeks and observed for an additional 73 weeks. Tests in animals demonstrate no developmental toxicity. No animal test reports are available to define reproductive hazards. Tests in bacterial cell cultures demonstrate mutagenic activity, but the compound did not induce oncogenic transformation of mammalian cells in culture. HFC-143a was not mutagenic in animals.

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## 12. ECOLOGICAL INFORMATION

## Ecotoxicological Information

## AQUATIC TOXICITY:

## HFC-143a

The compound is very low to slightly toxic.

96 hr. LC50, rainbow trout: > 40 mg/L.

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## 13. DISPOSAL CONSIDERATIONS

## Waste Disposal

Comply with Federal, State, and local regulations. Reclaim by distillation or remove to a permitted waste disposal facility.

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## 14. TRANSPORTATION INFORMATION

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### Shipping Information

#### DOT/IMO/IATA

**Proper Shipping Name :** LIQUEFIED GAS, N.O.S.  
(PENTAFLUOROETHANE AND TRIFLUOROETHANE)

**Hazard Class :** 2.2

**UN No. :** 3163

**DOT/IMO Label :** NONFLAMMABLE GAS

#### Shipping Containers

Tank Trucks.

Cylinders.

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## 15. REGULATORY INFORMATION

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U.S. Federal Regulations

TSCA Inventory Status : Listed.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : No

Chronic : No

Fire : No

Reactivity : No

Pressure : Yes

HAZARDOUS CHEMICAL LISTS

SARA Extremely

Hazardous Substance - No

CERCLA Hazardous Substance - No

SARA Toxic Chemical - No

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## 16. OTHER INFORMATION

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NFPA, NPCA-HMIS

NPCA-HMIS Rating

Health : 1

Flammability : 0

Reactivity : 1

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

Information in this publication is believed to be accurate and is given in good faith, but is for the Customer to satisfy itself of the suitability or its own particular purpose.

**End of MSDS**