# SAFETY DATA SHEET REFRIGERANT R507

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

### 1.1. Product Identifier

**Product name:** REFRIGERANT R507

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

**Use:** Refrigerant.
**Advised Against:** No identified use advised against.

### 1.3. Details of the supplier of the safety data sheet

**Company name:** Chengdu Dimax Chemical Co.,ltd
Add::No.1021,Building 3rd,North Xingle Road No.88,Xindu District, Chengdu, P.R.China
Tel:0086-28-83085054

### 1.4. Emergency telephone number

Emergency Tel: Tel:0086-28-83085054 (24 hour/ 7days a week)

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance of mixture

Not a hazardous substance or mixture according to EC Directive 67/548/EEC or 1999/45/CE.

### 2.2. Label elements

**Special labelling of certain mixtures:** Safety data sheet available on request for professional users.

Contains fluorinated greenhouse gases covered by the Kyoto Protocol

The product does not need to be labelled in accordance with Directive 1999/45/EC or Annex VI to 67/548/EEC.

### 2.3. Other hazards

Rapid evaporation of the liquid may cause frostbite.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
May cause cardiac arrhythmia.

## SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

### 3.2 Mixtures

1,1,1-TRIFLUOROETHANE (R143a), CAS No. 420-46-2, EC No. 206-996-5

| Registration Number | Classification according to 67/548/EEC | Classification according to Regulation 1272/2008 (CLP) | Concentration |
|---|---|---|---|

| | | | |
|---|---|---|---|
| | F+: R12 | Flammable Gas: H220<br>Pressurised Gas: H280 | 48.5 – 50.5 % |

PENTAFLUOROETHANE (R125), CAS No. 354-33-6, EC No. 206-557-8

| Registration Number | Classification according to 67/548/EEC | Classification according to Regulation 1272/2008 (CLP) | Concentration |
|---|---|---|---|
| | | Pressurised Gas: H280 | 49.5 – 50.5 % |

## SECTION 4: FIRST AID MEASURES

### 4.1. Description of first aid measures

**General advice** Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.

**Inhalation:** Remove from exposure, lie down. Move to fresh air. Keep patient warm and at rest. Artificial respiration and/or oxygen may be necessary. Call a physician.

**Skin contact:** Take off all contaminated clothing immediately if not stuck to the skin. Flush area with lukewarm water. Do not use hot water. If frostbite has occurred call a physician.

**Eye contact:** Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention.

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

### 4. 2. Most important symptoms and effects, both acute and delayed

**Inhalation:** Causes shortness of breath, dizziness, severe headache, nausea, and unconsciousness.

**Skin contact:** Low exposure to liquid will cause redness and pain. High exposure to liquid will cause frostbite, blisters and severe pain.

**Eye contact:** Cause severe pain and cornea damage.

**Ingestion:** Not a route of exposure.

**Delayed/immediate effects:**

### 4.3. Indication of any immediate medical attention and special treatment needed

**Immediate/special treatment:** Burns pack should be available on the premises.
Do not give adrenaline or similar drugs.

## SECTION 5: FIRE-FIGHTING MEASURES

### 5.1. Extinguishing media

**Extinguishing media:** Water spray, Foam, Dry chemical, Carbon dioxide ($CO_2$)

### 5.2. Special hazards arising from the substance or mixture

**Special hazards arising from the mixture** Vapours may form explosive mixtures with air.
Vapours are heavier than air and may spread along floors.
Vapours or gases may travel considerable distance to ignition source and flash back.
Fire or intense heat may cause violent rupture of packages.

Hazardous thermal decomposition products: Carbon oxides, Hydrogen fluoride, Carbonyl fluoride, Fluorocarbons.

Exposure to decomposition products may be a hazard to health.

### 5.3. Advice for fire-fighters

**Advice for fire-fighters:** In the event of fire wear self-contained breathing apparatus.
Wear neoprene gloves during cleaning work after a fire.

**Further information** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Cool containers/tanks with water spray.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions, protective equipment and emergency procedures

**Personal precautions:** Evacuate personnel to safe areas.
Ventilate the area, especially low or enclosed places where heavy vapours might collect.

### 6.2. Environmental precautions

**Environmental precautions:** Should not be released into the atmosphere.

### 6.3. Methods and material for containment and cleaning up

**Clean-up procedures:** Material evaporates.

### 6.4. Reference to other sections

**Reference to other sections:** Refer to Section 7 of SDS. Refer to Section 8 of SDS.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

**Handling requirements:** *Advice on handling:* Avoid breathing vapours or mist. Avoid liquid contact with skin and clothing. Provide sufficient air exchange and/or exhaust in work rooms.
*Advice on protection against fire and explosion:* No special measures against fire required.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage conditions:** Do not drag, slide or roll cylinders. Use a check valve or trap in the discharge line to prevent hazardous back flow into the cylinder. Store in cool, dry well ventilated place. Temperature not to exceed 52°C. Keep valves tightly closed.

**Storage Temperature** < 52°C

**Suitable packaging:** Store in original cylinder only.
Protect from contamination.

### 7.3. Specific end use(s)

**Specific end use(s)** No data is available.

## SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1. Control parameters

If subsection is empty then no values are applicable

**Substances with workplace control parameters**

**Derived No Effect Level**

| | |
|---|---|
| 1,1,1-trifluoroethane: | Type of Application (Use): Workers<br>Exposure routes: Inhalation<br>Health Effects: Chronic effects, Systemic toxicity<br>Value: 38 800 mg/m$^3$<br>Type of Application (Use): Consumers<br>Exposure routes: Inhalation<br>Health Effects: Chronic effects, Systemic toxicity<br>Value: 10 700 mg/m$^3$ |
| Pentafluoroethane: | Type of Application (Use): Workers<br>Exposure routes: Inhalation<br>Health Effects: Chronic effects, Systemic toxicity<br>Value: 16 444 mg/m$^3$<br><br>Type of Application (Use): Consumers<br>Exposure routes: Inhalation<br>Health Effects: Chronic effects, Systemic toxicity<br>Value: 1 753 mg/m$^3$ |

**Predicted No Effect Concentration**

| | |
|---|---|
| 1,1,1-Trifluoroethane: | Value: 350 mg/l<br>Compartment: Fresh water |
| Pentafluoroethane: | Value: 0.1 mg/l<br>Compartment: Fresh water<br><br>Value: 1 mg/l<br>Compartment: Water<br>Remarks: Intermittent use/release<br><br>Value: 0.6 mg/l<br>Compartment: Fresh water sediment |

### 8.2. Exposure controls

| | |
|---|---|
| **Engineering measures:** | Ensure adequate ventilation, especially in confined areas. Local exhaust should be used when large amounts are released. |
| **Respiratory protection:** | For rescue and maintenance work in storage tanks use self-contained breathing apparatus. Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing. |
| **Hand protection:** | Heat insulating gloves |
| **Eye protection:** | Safety glasses with side shields. Wear a face shield in addition where the possibility exists for face contact due to splashing, spraying or airborne contact with this material. |
| **Skin and body protection:** | Impervious clothing that covers legs and arms. |
| **Environmental:** | Gas escapes to be kept to the minimum by engineering processes and operating methods. |

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

| | |
|---|---|
| **State:** | Compressed liquefied gas |
| **Colour:** | Water white |
| **Odour:** | Slight ethereal |

| | |
|---|---|
| **Boiling Point/range:** | -46.7°C (-52°F) |
| **Flash Point:** | N/A |
| **Vapour pressure:** | 10.47 Bar at 21°C (70°C) |
| **Liquid Density:** | 1049.2 kg/m$^3$ |
| **Vapour Density:** | 3.43 (Air = 1) |

## SECTION 10. STABILITY AND REACTIVITY

### 10.1. Reactivity

**Reactivity:** Decomposes on heating.

### 10.2. Chemical stability

**Chemical stability:** Chemically stable under normal conditions.

### 10.3. Possibility of hazardous reactions

**Hazardous reactions:** Hazardous reactions will not occur under recommended storage and transport conditions.
May react with aluminium.

### 10.4. Conditions to avoid

**Conditions to avoid:** Heat, hot surfaces, flames.
The product is not flammable in air under ambient conditions of temperature and pressure. When pressurised with air or oxygen, the mixture may become flammable. Certain mixtures of HCFC's or HFC's with chlorine may become flammable or reactive under certain conditions.

### 10.5. Incompatible material

**Materials to avoid:** Alkali metals, alkaline earth metals, powdered metals, powdered metal salts.

### 10.6. Hazardous decomposition products

**Hazardous decomposition products** Thermal decomposition yields toxic products, Carbon oxides, Hydrogen Fluoride, Carbonyl Fluoride and fluorocarbons, which can be corrosive in the presence of moisture.

## SECTION 11: TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

| | | |
|---|---|---|
| **Acute oral toxicity:** | 1,1,1-Trifluoroethane: | Not applicable. |
| **Acute inhalation toxicity:** | 1,1,1-Trifluoroethane: | $LC_{50}$ /rat: 591 000 ppm /dog: Cardiac sensitization. |
| | Pentafluoroethane: | $LC_{50}$/rat: >800 000 ppm /dog: Cardiac sensitization. |
| **Acute dermal toxicity:** | 1,1,1-Trifluoroethane: | Not applicable. |
| | Pentafluoroethane: | Not applicable. |
| **Skin irritation:** | 1,1,1-Trifluoroethane: | Not tested on animals<br>Classification: Not classified as irritant.<br>Result: No skin irritation<br>Not expected to cause skin irritation based on expert review of the Properties of the substance. |
| | Pentafluoroethane: | Not tested on animals<br>Classification: Not classified as irritant.<br>Result: No skin irritation<br>Not expected to cause skin irritation based on expert review of the Properties of the substance. |
| **Eye irritation:** | 1,1,1-Trifluoroethane: | Not tested on animals |

| | | |
|---|---|---|
| | | Classification: Not classified as irritant.<br>Result: No eye irritation<br>Not expected to cause eye irritation based on expert review of the Properties of the substance. |
| | Pentafluoroethane: | Not tested on animals<br>Classification: Not classified as irritant.<br>Result: No eye irritation<br>Not expected to cause eye irritation based on expert review of the Properties of the substance. |
| **Sensitisation:** | 1,1,1-Trifluoroethane: | Not tested on animals<br>Classification: Not a skin sensitizer.<br>Not expected to cause sensitization based on expert review of the Properties of the substance. |
| | Pentafluoroethane: | Not tested on animals<br>Classification: Not a skin sensitizer.<br>Result: Does not cause skin sensitization.<br>Not expected to cause sensitization based on expert review of the Properties of the substance.<br>There are no reports of human respiratory sensitization. |
| **Repeated dose toxicity:** | 1,1,1-Trifluoroethane: | Inhalation: rat<br>No toxicologically significant effects were found. |
| | Pentafluoroethane: | Inhalation: rat<br>No toxicologically significant effects were found. |

**11.2 Mutagenic assessment**

| | | |
|---|---|---|
| **Mutagenicity assessment:** | 1,1,1-Trifluoroethane: | Animal testing did not show any mutagenic effects.<br>Tests on bacterial or mammalian cell cultures did not show mutagenic effects. |
| | Pentafluoroethane: | Animal testing did not show any mutagenic effects.<br>Tests on bacterial or mammalian cell cultures did not show mutagenic effects. |

**11.3 Carcinoginicity assessment**

| | | |
|---|---|---|
| **Carcinoginicity assessment:** | 1,1,1-Trifluoroethane: | Animal testing did not show any carcinogenic effects.<br>Not classifiable as a human carcinogen. |
| | Pentafluoroethane: | Not classifiable as a human carcinogen. |

**11.4 Toxicity to reproduction**

| | | |
|---|---|---|
| **Toxicity to reproduction assessment:** | 1,1,1-Trifluoroethane:<br>Pentafluoroethane; | No toxicity to reproduction.<br>No toxicity to reproduction. |

**11.5 Human experience**

**Human experience:** Excessive exposure may affect human health as follows:
Inhalation: Sever shortness of breath, narcosis, irregular cardiac activity.

**11.6 Further information**

**Further information:** Rapid evaporation of the liquid may cause frostbite.
May cause cardiac arrhythmia.

## SECTION 12. ECOLOGICAL INFORMATION

**12.1. Toxicity**

| | | |
|---|---|---|
| **Toxicity to fish:** | 1,1,1-Trifluoroethane: | $LC_{50}$/96 h/Oncorhynchus mykiss (rainbow trout): > 100 mg/l |
| | Pentafluoroethane: | $LC_{50}$/96 h/Oncorhynchus mykiss (rainbow trout): > 81.8 mg/l<br>Information given is bases on data obtained from similar Substances.<br>$LC_{50}$/96 h/Danio rerio (zebra fish): > 200 mg/l<br>Information given is bases on data obtained from similar Substances.<br>$LC_{50}$/96 h/Oncorhynchus mykiss (rainbow trout): 450 mg/l |

| | | |
|---|---|---|
| | | Information given is bases on data obtained from similar Substances. |
| **Toxicity to aquatic plants:** | 1,1,1-Trifluoroethane:<br>Pentafluoroethane: | Not applicable<br>$EC_{50}$/72 h/Pseudokirchneriella subcapitata (green algae):>118mg/l<br>Information given is bases on data obtained from similar Substances.<br>$EC_{50}$/72 h/Pseudokirchneriella subcapitata (green algae):>114mg/l<br>Information given is bases on data obtained from similar Substances.<br>$EC_{50}$/96 h/Algae: 142 mg/l<br>Information given is bases on data obtained from similar Substances. |
| **Toxicity to aquatic invertebrates:** | 1,1,1-Trifluoroethane:<br>Pentafluoroethane: | $EC_{50}$/48 h/Daphnia: 300 mg/l<br>$EC_{50}$/48 h/Daphnia magna (Water flea): > 200 mg/l<br>Information given is bases on data obtained from similar Substances.<br>$EC_{50}$/48 h/Daphnia magna (Water Flea): > 97.9 mg/l<br>Information given is bases on data obtained from similar Substances. |

### 12.2. Persistence and degradability

**Persistence and degradability:** No data available

### 12.3. Bio accumulative potential

**Bio-accumulative potential:** No data available

### 12.4. Mobility in soil

**Mobility:** No data available

### 12.5. Results of PBT and vPvB assessment

**PBT identification:** No data available

### 12.6. Other adverse effects

**Other adverse effects:** Ozone Depletion Potential (ODP): 0 (R11 = 1)
Global Warming Potential (GWP): 3800 ($CO_2$ = 1)

## SECTION 13. DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

**Disposal operations:** Can be used after re-conditioning, in accordance with local and national regulations. Do not allow product to be released into the environment.

**Recovery Operations:** Consult the manufacturer or supplier for information regarding recovery and recycling of the product. If recovery is not possible, incinerate at a licensed installation.

**Disposal of packaging:** De-gas and return cylinders to suppliers.

**N.B.** The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

## SECTION 14. TRANSPORT INFORMATION

### 14.1. ADR:

| | | |
|---|---|---|
| **ADR** | Class: | 2 |
| | Classification code: | 2A |
| | HI No.: | 20 |
| | UN number | 1078 |
| | Labelling No.: | 2.2 |
| | Proper shipping name: | REFRIGERANT GAS N.O.S. (PENTAFLUOROETHANE, 1,1,1-TRIFLUOROETHANE) |
| | Tunnel restriction code: | (C/E) |

**14.2. IATA_C:**

| | | |
|---|---|---|
| **IATA_C:** | Class: | 2 |
| | UN number: | 1078 |
| | Labelling No.: | 2.2 |
| | Proper shipping name: | REFRIGERANT GAS N.O.S. (PENTAFLUOROETHANE, 1,1,1-TRIFLUOROETHANE) |

**14.3. IMDG:**

| | | |
|---|---|---|
| **IMDG:** | Class: | 2.2 |
| | UN number: | 1078 |
| | Labelling No.: | 2.2 |
| | Proper shipping name: | REFRIGERANT GASN.N.O.S. (PENTAFLUOROETHANE. 1,1,1-TRIFLUOROETHANE) |

## SECTION 15. REGULATORY INFORMATION

**15.1. Safety, health and environment regulations/legislation specific for the substance or mixture**

**Special labelling of certain mixtures:** Contains fluorinated greenhouse gases covered by the Kyoto Protocol.

**15.2. Chemical Safety Assessment**

**Chemical safety assessment:** No data available.

## 16. OTHER INFORMATION

**Other information:** This SDS adheres to the standards and regulatory requirements of Great Britain and may not meet the regulatory requirements in other countries.

This safety sheet is prepared in accordance with Commission Regulation (EU) No. 453/2010.

* Indicates text in SDS which has changed since the last revision.

| | | |
|---|---|---|
| **Text of R-phrases mentioned in Section 3:** | R12 | Extremely flammable. |
| **Text of H-phrases referred to under section3:** | H220 | Extremely flammable gas |
| | H280 | Contains gas under pressure; may explode if heated. |

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# GENERAL SAFETY & HANDLING DATA

1. GENERAL

Only trained persons should handle compressed gases.
Observe all regulations and local requirements regarding the storage of Cylinders.
Do not remove or deface labels provided by the supplier for the identification of the Cylinder contents.
Ascertain the identity of the gas before using it.
Know and understand the properties and hazards associated with each gas before using it.
When doubt exists as to the correct handling procedure for a particular gas contact the supplier.

HANDLING AND USE

Wear stout gloves.
Never lift a Cylinder by the cap or guard unless the supplier states it is designed for that purpose.
Use trolley or other suitable device or technique for transporting heavy Cylinders, even for a short distance.
Where necessary wear suitable eye and face protection.
The choice between safety glasses, chemical goggles, or full face shield will depend on the pressure and nature of the gas being used,

Where necessary for toxic gases see that self-contained positive pressure breathing apparatus or full face airline respirator is available in the vicinity of the working area.
Employ suitable pressure regulating device on all Cylinders when gas is being emitted to systems with lower pressure rating than that of the Cylinder.
Ascertain that all electrical systems in the area are suitable for service with each gas.

Never use direct flame or electrical heating devices to raise the pressure of a Cylinder, Cylinders should not be subjected to temperatures above 45$^{o}$C.
Never re-compress a gas mixture without consulting the supplier. Never attempt to transfer gases from one Cylinder to another.
Do not use Cylinders as rollers or supports, or for any other purpose other than to contain the gas as supplied.
Never permit oil, grease or other readily combustible substances to come into contact with valves of Cylinders containing oxygen or other oxidants.
Keep Cylinder valves clean and free from contaminants particularly oil and water.

Do not subject Cylinders to mechanical shocks which may cause damage to their valves or safety devices.

Never attempt to repair or modify Cylinder valves or safety relief devices. Damaged valves should be reported immediately to the supplier.
Close the Cylinder valve whenever gas is not required even if the Cylinder is still connected to the equipment.

2. STORAGE

Cylinders should be stored in a well-ventilated area.
Some gases will require a purpose built area.
Store Cylinders in a location free from fire risk and away from sources of heat and ignition. Designate as a no smoking area.

Gas Cylinders should be segregated in the storage according to the various categories.

The storage area should be kept clear and access should be restricted to authorized persons only, the area should be clearly marked as a storage area and appropriate hazard warning signs displayed (Flammable, Toxic etc.).
The amount of flammable or toxic gases should be kept to a minimum.
Flammable gases should be stored away from other combustible materials.

Cylinders held in storage should be periodically checked for general condition and leakage.

Cylinders in storage should be properly secured to prevent toppling or rolling.
Vertical storage is recommended where the Cylinder is designed for this.
Cylinder valves should be tightly closed and, where appropriate, valves should be capped or plugged.
Protect Cylinders stored in the open against rusting and extremes of weather.
Cylinders should not be stored in conditions likely to encourage corrosion.
Store full and empty Cylinders separately and arrange full Cylinders so that the oldest stock is used first.

FOR FURTHER INFORMATION CONTACT YOUR NEAREST DISTRIBUTION CENTRE

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