



Zhejiang Fotech International Co., Ltd
Material Safety Data Sheet

1. CHEMICAL PRODUCT/COMPANY IDENTIFICATION

MATERIAL IDENTIFICATION

MSDS Number: FOTECH010 Formula: CHCLF-CF3
Molecular Weight: 136.48

TRADENAMES AND SYNONYMS

R124 Chlorotetrafluoroethane

COMPANY IDENTIFICATION

MANUFACTURER/DISTRIBUTOR' NAME

Zhejiang Fotech International Co., Ltd.
No.139, Renmin West RD., Jinhua, Zhejiang, P.R. China-321000

PHONE NUMBERS

Product Information: +86-571-87918266
Medical Emergency: +86-571-87085066

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENTS

Material: 2-CHLORO-1, 1, 1, 2-TETRAFLUOROETHANE
CAS Number: 2837-89-0

3. HAZARDS IDENTIFICATION

Potential Health Effects

INHALATION

Gross overexposure may cause: Central nervous system depression with dizziness, confusion, incoordination, drowsiness or unconsciousness. Irregular heart beat with a



strange sensation in the chest, "heart thumping", apprehension, lightheadedness, feeling of fainting, dizziness, weakness, sometimes progressing to loss of consciousness and death. Suffocation, if air is displaced by vapors.

SKIN CONTACT

Immediate effects of overexposure may include: Frostbite, if liquid or escaping vapor contacts the skin.

EYE CONTACT

"Frostbite-like" effects may occur if the liquid or escaping vapors contact the eyes.

ADDITIONAL HEALTH EFFECTS

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

4. FIRST AID MEASURES

SKIN CONTACT

Flush skin with water for at least 15 minutes after excessive contact. Seek medical assistance if irritation is present. Wash contaminated clothing before reuse. Treat for frostbite if necessary by gently warming affected area.

EYES CONTACT

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

INHALATION

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

INGESTION

Ingestion is not considered a potential route of exposure.

NOTES TO PHYSICIAN

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.

5. FIRE-FIGHTING MEASURES

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:

Containers 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 limits, therefore, stop all work and ventilate to disperse refrigerant vapors from the work area before using any open flames.

HCFC-124 is not flammable in air at temperatures up to 100 deg. C (212 deg. F) at atmospheric pressure. However, mixtures of HCFC-124 with high concentrations of air at elevated pressure and/or temperature can become combustible in the presence of an ignition source. HCFC-124 can also become combustible in an oxygen enriched environment (oxygen concentrations greater than that in air). Whether a mixture containing HCFC-124 and air, or HCFC-124 in an oxygen enriched atmosphere become combustible depends on the inter-relationship of 1) the temperature, 2) the pressure, and 3) the proportion of oxygen in the mixture. In general, HCFC-124 should not be allowed to exist with air above atmospheric pressure or at high temperatures; or in an oxygen enriched environment. For example, HCFC-124 should NOT be mixed with air under pressure for leak testing or other purposes.

Cylinders may rupture under fire conditions. Decomposition may occur.

EXTINGUISHING MEDIA

Use media appropriate for surrounding material.

FIRE FIGHTING INSTRUCTIONS

Cool tank/container with water spray. Self-contained breathing apparatus (SCBA) may be required if cylinders rupture or release under fire conditions.

Water runoff should be contained and neutralized prior to release.



6. 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.

Ventilate area, especially low or enclosed places where heavy vapors might collect, Remove open flames. Use self-contained breathing apparatus (SCBA) if large spill or leak occurs.

Spill Clean Up

Comply with Federal, State, and local regulations for reporting releases.

7. HANDLING AND STORAGE

HANDLING (PERSONNEL)

Avoid breathing vapors or mist. Avoid contact with eyes or skin. Use with sufficient ventilation to keep employee exposure below recommended limits.

STORAGE

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

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

Personal Protective Equipment

Lined butyl gloves should be used to avoid prolonged or repeated exposure.
Chemical splash goggles should be available for use as needed to prevent eye contact.
Under normal manufacturing conditions, no respiratory protection is required when using this product.
Self-contained breathing apparatus (SCBA) is required if a large release occurs.



9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

| | |
|--------------------------|---------------------------------------|
| Boiling Point: | -11 C (12 F) @ 760 mm Hg |
| Vapor Pressure: | 61 psia at 25 C (77 F) |
| Freezing Point: | -199 C (-326F) |
| % Volatiles: | 100 WT% |
| Solubility in Water: | 1.71 WT% @ 24 C (75 F) |
| Odor: | Slight ethereal |
| Form: | Liquefied Gas |
| Color: | Clear, colorless |
| Liquid Density: | 1.364 g/cm ³ @ 25 C (77 F) |
| Saturated Vapor Density: | 6.882 g/L (at boiling point) |
| Critical temperature: | 122.2 C (252 F) |
| Critical pressure: | 518.3 psia |
| Critical volume: | 246.4 cc/g mol |
| Critical density: | 0.554 g/cm ³ |

10. STABILITY AND REACTIVITY

Chemical Stability

Stable

Conditions to Avoid

Avoid open flames and high temperatures.

Incompatibility with Other Materials

Incompatible with 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 hydrochloric and hydrofluoric acids, and possibly carbonyl halides. These materials are toxic and irritating. Contact should be avoided.

Polymerization

Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Animal Data

INHALATION

4 hour, ALC, rat: 230,000 - 300,000 ppm.



Single exposure caused: Cardiac sensitization, a potentially fatal disturbance of heart rhythm associated with a heightened sensitivity to the action of epinephrine.

Lowest-Observed-Adverse-Effect-Level for cardiac sensitization: 25,000 ppm. Single exposure caused: the following temporary effects - Inactivity or anaesthesia. Low blood pressure. Repeated exposure caused: Decreased body weight. Altered clinical chemistry. These effects were reversible. Repeated exposure caused: the following temporary effects - Inactivity or anaesthesia. Lethargy. Incoordination. Altered respiratory rate. One study showed: Increased liver weight.

CARCINOGENIC, DEVELOPMENTAL, REPRODUCTIVE, MUTAGENIC EFFECTS:

In animal testing this material has not caused carcinogenicity, developmental toxicity. No animal data are available to define the following effects of this material: reproductive 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).

Inhalation 2-hour ALC: > 200,000 ppm in guinea pigs

Single inhalation exposure to very high concentrations caused weakness. Repeated inhalation exposure at lower concentrations was without effect.

12. ECOLOGICAL INFORMATION

No Information Available

13. DISPOSAL CONSIDERATIONS

Waste Disposal

Recover by distillation or remove to a permitted waste disposal facility. Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations.

14. TRANSPORT INFORMATION

Shipping Information

DOT/IMO

Proper Shipping Name: 1-CHLORO-1, 2, 2, 2-TETRAFLUOROETHANE

Hazard Class: 2.2

UN No.: 1021



DOT/IMO Label: nonflammable gas

Shipping Containers

Cylinders

Ton Tanks

Tank Trucks

15. 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: | No |

16. OTHER INFORMATION

The information given corresponds to the current state of our knowledge and experience of the product, and is not exhaustive. This applies to product that conforms to the specification, unless otherwise stated. In the case of combinations and mixtures one must make sure that no new dangers can arise. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and protection of human welfare and environment.

Responsibility for MSDS: MSDS Coordinator
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Indicates updated section.

End of MSDS