



Material Safety Data Sheet

FHT-4500

1,1,2,2-Tetrafluoroethyl-2,2,3,3-Tetrafluoropropyl Ether

Revised 13-October-2010

1. PRODUCT AND COMPANY IDENTIFICATION

Material Identification

Product name: FHT-4500
Chemical name: 1,1,2,2-Tetrafluoroethyl-2,2,3,3-tetrafluoropropyl ether
Chemical formula: $\text{HCF}_2\text{CF}_2\text{CH}_2\text{OCF}_2\text{CF}_2\text{H}$
 $\text{C}_5\text{H}_4\text{F}_8\text{O}$
Synonym: HFE-458

Company Identification

Distributor: Top Fluorochem Co., Ltd.
Building C2, 3rd Floor
479 Chun Dong Road
XinZhuang Industrial Park
Minhang District
Shanghai, P. R. China 201108

Manufacturer: Fuxin Hengtong Fluorine Chemicals Co., Ltd.
Fuxin Chemicals Community
West Pingan St.
Haizhou District
Fuxin City, Liaoning Province, P. R. China

Emergency Call: +86-21-54833399

2. COMPOSITION AND INFORMATION ON COMPONENTS

Material	CAS Number	Molecular Weight
1,1,2,2-Tetrafluoroethyl-2,2,3,3-tetrafluoropropyl ether	16627-68-2	232.07 g/mole

3. HAZARDS IDENTIFICATION

Route of Entry:

Inhalation: Yes
Skin: Yes
Ingestion: Unlikely

Potential Effects of Exposure:

Inhalation:	CAUTION – harmful if inhaled.
Eyes:	Slight irritation.
Skin contact:	In case of repeated contact: dry and chapped skin.
Ingestion:	No data available for humans.
Potential Symptoms of Exposure:	
Main Hazards:	Irritating to eyes, respiratory system and skin.
Skin contact:	There may be redness or whiteness of the skin in the area of exposure. Irritation or pain may occur at the site of contact.
Eye contact:	The eyes may water profusely. The vision may become blurred. There may be pain and redness.
Ingestion:	Nausea and stomach pain may occur. There may be vomiting. The casualty may appear intoxicated. Convulsions may occur. There may be loss of consciousness.
Inhalation:	CAUTION – harmful if inhaled. Absorption through the lungs can occur causing symptoms similar to those of ingestion. Drowsiness or mental confusion may occur. There may be a feeling of tightness in the chest with shortness of breath.

4. FIRST AID MEASURES

Inhalation:	Remove casualty from exposure ensuring one's own safety whilst doing so. Apply oxygen. If conscious, ensure the casualty sits or lies down. If unconscious and breathing is OK, place in the recovery position. If unconscious, check for breathing and apply oxygen.
Eye contact:	Bathe the eye with running water for 15 minutes. Consult a doctor.
Skin contact:	Remove all contaminated clothes and footwear immediately unless stuck to skin. Drench the affected skin with running water for 10 minutes or longer if substance is still on skin. Transfer to hospital if there are burns or symptoms of poisoning.
Ingestion:	Rinse the mouth with water. Do not induce vomiting. If conscious, give half a liter of water to drink immediately. If unconscious, check for breathing and apply artificial respiration if necessary. If unconscious and breathing is OK, place in the recovery position. Transfer to hospital as soon as possible.

5. FIRE FIGHTING MEASURES

Flash point:	None
Extinguishing media:	Suitable extinguishing media for the surrounding fire should be used. Carbon dioxide. Dry chemical powder. Alcohol or polymer foam. Halons. Use water spray to cool containers.
Exposure hazards:	Vapors are harmful if inhaled. In combustion, emits toxic fumes.
Protection of fire fighters:	Wear self-contained breathing apparatus. Wear

protective clothing to prevent contact with skin and eyes.

6. ACCIDENTAL RELEASE MEASURES

Precautions:

Evacuate the area immediately. Approach from upwind. Keep bystanders upwind and away from danger point. Mark out the contaminated area with signs and prevent access to unauthorized personnel. Do not attempt to take action without suitable protective clothing - see section 8 of SDS. Turn leaking containers leak-side up to prevent the escape of liquid.

Clean-up procedures:

Clean up should be dealt with only by qualified personnel familiar with the specific substance. Mix with sand or vermiculite. Transfer to a closable, labeled salvage container for disposal by an appropriate method.

Environmental precautions:

Prevent discharge into drains or rivers. Contain the spillage using bonding. Alert the neighborhood to the presence of fumes or gas.

7. HANDLING AND STORAGE

Handling requirements:

Avoid direct contact with the substance. Ensure there is exhaust ventilation of the area – harmful if inhaled. Do not handle in a confined space. Avoid the formation or spread of mists in the air.

Storage conditions:

Store in cool, well-ventilated area. Keep container tightly closed. Keep away from sources of ignition. Avoid contact with water or humidity.

Packaging:

Can be packed in any packaging with top that will seal.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Occupational Exposure Controls:**Ventilation:**

Harmful if inhaled. Use only in a chemical fume hood. Follow the protective measures given in section 7. Ensure there is sufficient ventilation of the area. Respect local, state and national regulations for aqueous emissions (see section 15).

Respiratory Protection:

Self-contained breathing apparatus must be available in case of emergency.

Hand protection:

Impermeable gloves.

Eye protection:

Safety goggles. Ensure eye bath is to hand.

Skin protection:

Impermeable protective clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point	93.17 °C
Melting Point	-94 °C
Flash Point	None
Form	Clear liquid
Density	1.533 @ 25 °C
Ozone Depletion Potential	0
Global Warming Potential	Not determined
Molecule Weight	232.07
Vapor Pressure	20.9 Kpa @ 49.5 °C

10. STABILITY AND REACTIVITY

Conditions to Avoid:	Heat. Flames.
Materials to Avoid:	Strong oxidizing agents. Strong acids. Alkaline metals.
Hazardous Polymerization:	Will not occur.
Hazardous Decomposition Products:	Emits toxic fumes in combustion including hydrogen fluoride and fluorophosgene.
Other Information:	The vapor is heavier than air and disperses at ground level.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:	
Inhalation:	Static inhalation (rat): acute inhalation toxicity LC50 = 3.16 mg/L (2 hours)
Oral:	No data.
Dermal:	No data.
Skin:	Non-sensitizing.
Chronic Toxicity:	To the best of our knowledge, the toxicological properties of this product have not been fully determined. It is recommended that this product be treated as harmful, and is only used by staff trained in the handling of hazardous chemicals.
Routes of exposure:	Refer to section 4 of MSDS for routes of exposure and corresponding symptoms.
Carcinogenic Designation:	None.

12. ECOLOGICAL INFORMATION

Mobility:	Readily absorbed into soil.
Persistence and Degradability:	No data available.
Bioaccumulative Potential:	No data available.
Other Adverse Effects:	No data available.
Abiotic:	
Air, Photolysis, ODP = 0	Result: no effect on stratospheric zone.

Air, Greenhouse Effect Reference value for CFC 11: ODP = 1.
 GWP: No data.
 Reference value for carbon dioxide: GWP = 1.

Biotic: No data.

Potential for Bioaccumulation: No data.

13. DISPOSAL CONSIDERATIONS

Operation Treatment: Arrange disposal as special waste, by licensed disposal company. It is recommended to contact the producer for recycling /recovery.

Packaging and Treatment: Arrange for collection by specialized disposal company.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

14. TRANSPORT INFORMATION

UN-Number: 2810
Class 6.1
Proper Shipping Name: Toxic liquid, organic, n.o.s.*
Packing Group: III

15. REGULATORY INFORMATION

Hazard symbols: CAUTION – harmful if inhaled



Hazard statements:

H331: Toxic if inhaled.

Precautionary statements:

P261: Avoid breathing dust/fume/gas/mist/vapours/spray.

16. OTHER INFORMATION

Legal Disclaimer: For R&D use only. Not for drug, household, or other uses. The previous information is based upon our current knowledge and experience of our product and is not exhaustive. It applies to the product as defined by the specifications. In case of combinations or mixtures, one must confirm that no new hazards are likely to exist. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to

the product, personal hygiene, and integrity of the work environment. Unless noted to the contrary, the technical information applies only to pure product.

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End of MSDS