



Material Safety Data Sheet

TE-4

Perfluorobutyl Ethylene

Revised 03-November-2009

1. PRODUCT AND COMPANY IDENTIFICATION

Material Identification:

Product name: TE-4
Chemical name: Perfluorobutyl ethylene;
1H,1H,2H-Nonafluorohex-1-ene
Chemical formula: $\text{CH}_2=\text{CH}(\text{CF}_2\text{CF}_2)_2\text{F}$
 $\text{C}_6\text{H}_3\text{F}_9$

Company Identification:

Distributor Top Fluorochem Co., Ltd.
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XinZhuang Industrial Park
Minhang District
Shanghai, P. R. China 201108

Manufacturer Fuxin Hengtong Fluorine Chemicals Co., Ltd.
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2. COMPOSITION AND INFORMATION ON COMPONENTS

Material	Molecular Weight	Weight %	EINECS #	CAS #
Perfluorobutyl ethylene	246.07		243-053-7	19430-93-4
4- <i>tert</i> -Butylcatechol (inhibitor)	166.22	100 ppm	202-653-9	98-29-3

3. HAZARDS IDENTIFICATION

Flammable Flash point = -17 °C

Potential Health Effects: Eye contact may cause eye irritation with discomfort, tearing or blurring of vision.

Based on related products, inhalation of spray or mist may cause nasal, throat, or lung irritation. Inhalation of large amounts of respirable particles may be toxic to the lungs. Symptoms may be modest initially, followed in hours by severe shortness of breath requiring prompt medical attention.

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

Potential Exposure:

Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
Eye contact:	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.
Skin contact:	Flush skin with water after contact. Wash contaminated clothing before reuse.
Ingestion:	If swallowed, do not induce vomiting. Immediately give 2 glasses of water. Never give anything by mouth to an unconscious person. Call a physician.

Note to Physicians:

Activated charcoal mixture may be administered. To prepare activated charcoal mixture, suspend 50 grams activated charcoal in 400 mL water and mix thoroughly. Administer 5 mL/kg, or 350 mL for an average adult.

5. FIRE FIGHTING MEASURES

Flammable Properties:

Flash Point: -14 °C. Flammable.

Method: closed up

Hazardous decomposition products including carbon dioxide, carbon monoxide, and hydrogen fluoride. Toxic gases or particles may be formed during combustion. These products may cause severe eye, nose, throat, and lung irritation or toxic effects.

Extinguishing Media:Water spray, foam, dry chemical, CO₂.**Fire Fighting Instructions:**

Wear self-contained breathing apparatus. Wear full protective equipment. Avoid breathing decomposition products.

6. ACCIDENTAL RELEASE MEASURES

Personal Protection:

Wear protective equipment including rubber gloves, and eye protection. Evacuate personnel to safe areas.

Environmental Protection:

Take precautions to ensure product does not contaminate the ground or enter the drainage system.

Spill Clean-Up:

Mix with vermiculite or proprietary absorbent material and transfer to sealed containers for disposal.

7. HANDLING AND STORAGE

Handling (Personnel):

Avoid contact with eyes. Wash thoroughly after handling.

Storage:

Keep container tightly closed. Keep away from

open flames and heated surfaces above 200 °C.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls:	Keep container tightly closed. Use only with adequate ventilation. Vent heated extruder or dryer fumes outside work area. Do not aerosolize. In spray applications, use airless type pressure spray equipment at less than 60 psi, and exhaust ducts, drip pans, or other design features to minimize worker exposure to mists and overspray. Keep away from open flames and heated surfaces above 200 °C.
Personal Protective Equipment:	
Eye/face protection:	Wear safety glasses or coverall chemical splash goggles.
Respirators:	Wear NIOSH approved respiratory protection as appropriate.
Protective clothing:	Where there is potential for skin contact have available and wear as appropriate, impervious gloves, apron, pants, and jacket.

9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point	59 - 60 °C @ 760 mm Hg
Flash Point	-17 °C (closed cup)
pH	Not measured
Form	Liquid, clear
Color	Colorless
Specific Gravity	1.452 g/mL @ 25 °C
Refractive Index	1.3 @ 20 °C
% Volatiles	100 weight %
Solubility in Water	Negligible

10. STABILITY AND REACTIVITY

Chemical Stability:	Stable at normal temperatures and storage conditions.
Incompatibility with Other Materials:	None reasonably foreseeable.
Decomposition:	Hazardous decomposition products including carbon dioxide, carbon monoxide, hydrogen fluoride, toxic gases or particles may be formed during combustion. These products may cause severe eye, nose, throat, and lung irritation or toxic effects.
Polymerization:	Homopolymerization will not occur. Copolymerization can occur in the presence of free radical sources, heat or UV light.

11. TOXICOLOGICAL INFORMATION

Animal Data:	Inhalation 1 hour ALC: > 7,178 ppm in mice Oral LD50: > 25,000 mg/kg in rats
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The product is not a skin irritant, is a mild eye irritant, and is untested for skin sensitization in animals. Repeated exposure to high levels (5 vol %) produced blood changes (decreased platelets and increased monocytes). Tests in animals demonstrate no developmental toxicity. The product does not produce genetic damage in bacterial cell cultures but has not been tested in animals. Tests for carcinogenic and reproductive activity have not been performed.

12. ECOLOGICAL INFORMATION

General Prevent chemicals from entering the ground, water courses, or drainage system.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial, and local regulations.

14. TRANSPORTATION INFORMATION

Shipping Information:

Mode	DOT/IMDG/IATA
UN Number	UN1993
Class (Subsidiary)	3
Proper Shipping Name	Flammable Liquid, n.o.s.
Hazard Label (Subsidiary)	Flammable Liquid
Packing Group	II
Shipping Hazard Label:	



15. REGULATORY INFORMATION

U.S. Federal Regulations:	TSCA Inventory Status: Reported/Included.
	TITLE III HAZARD CLASSIFICATIONS
	SECTIONS 311, 312
	Acute Yes
	Chronic No
	Fire Yes
	Reactivity No
	Pressure No

16. OTHER INFORMATION

NFPA, NPCA-HMIS:	NPCA-HMIS Rating
	Health: 1
	Flammability: 3
	Reactivity: 0
	Personal Protection rating to be supplied by user depending on use conditions.

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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