



Material Safety Data Sheet

1. CHEMICAL PRODUCT / COMPANY IDENTIFICATION

Material Identification

Product Name: Perfluorinated ethylene propylene (FEP)

Other Name: Tetrafluoroethylene-Hexafluoropropylene Copolymer, F46

CAS No.: 25067-11-2

Company Identification

Hangzhou Fine Fluorotech Co., Ltd

Add: No. 1509 Binsheng Road, Binjiang District, Hangzhou, Zhejiang, China.

2. COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS No.	%
Tetrafluoroethylene-hexafluoropropylene Copolymer	25067-11-2	100

3. HAZARDS IDENTIFICATION

Potential Health Effects

Additional health effects

Before using read the Fluoro polymers Safe Handling Guide published by the Society of the Plastics Industry.

The primary hazard associated with these polymers is the inhalation of fumes from overheating or burning, which may cause "polymer fume fever" (see HUMAN HEALTH EFFECTS below).

FEP

Inhalation of FEP dust may cause generalized irritation of the nose, throat and lungs with cough, difficulty breathing or shortness of breath.

Heating FEP above 300 degrees C may liberate a fine particulate fume. Inhalation may produce polymer fume fever, a temporary breath, chest tightness, muscle or joint ache, and sometimes cough and elevated white blood cell count. The symptoms are often delayed 4 to 24 hours after exposure. These signs are generally temporary, lasting 24-48 hours and resolve without further complications. However, some individuals with repeated episodes of polymer fume fever have reported persistent pulmonary effects. Protection against polymer fume fever should also provide protection against any potential chronic effects.



Exposure to decomposition products from FEP heated above 400 degrees C may cause pulmonary inflammation, hemorrhage or edema. These more serious consequences of exposure may occur from extreme thermal decomposition of FEP, which can liberate fume particles, and toxic gases (carbonyl fluoride, hydrogen fluoride, and other fluorinated gases) especially under conditions of poor ventilation and/or confined spaces. These decomposition products may initially produce chest tightness or pain, chills, fever, nausea, with shortness of breath, cough, wheezing and progression into pulmonary edema. Edema may be delayed in onset and requires medical treatment. In severe cases, if medical intervention is delayed, pulmonary edema may become life threatening. Recovery is persistent lung function abnormalities have been reported.

Compared to nonsmokers, polymer fume fever symptoms appear to be more prevalent and serious in smokers. Smokers must avoid contamination of tobacco with residual polymer from their hands or from fumes, and should wash their hands before smoking.

Significant skin permeation, and systemic toxicity, after contact with the dust appears unlikely. There are no reports of human sensitization from contact with the dust.

If FEP dusts contact the eye, mechanical irritation with tearing, pain or blurred vision may result.

Individuals with pre-existing diseases of the lungs or cardiovascular system may have increased susceptibility to the reduction in blood oxygen that may develop after excessive exposures to thermal decomposition products.

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

First Aid

Inhalation

No specific intervention is indicated as the compound is not likely to be hazardous by inhalation. Consult a physician if necessary. If exposed to fumes from overheating or combustion, move to fresh air. Consult a physician if symptoms persist.

Skin contact

The compound is not likely to be hazardous by skin contact, but cleansing the skin after use is advisable. If molten polymer gets on skin, cool rapidly with cold water. Do not attempt to peel polymer from skin. Obtain medical treatment for thermal burn.

Eye contact

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

Ingestion

No specific intervention is indicated as compound is not likely to be hazardous by ingestion. Consult a physician if necessary.

5. FRIST FIGHTING MEASURES

Flammable Properties

Flash Ignition Temperature:	530-550C (986-1022F)
Self Ignition Temperature:	520-560C (968-1040F)
UL-94 Flammability Rating:	V-0
Limiting Oxygen Index:	>95

Difficult to ignite, and flame goes out when initiating source is removed (UL-94). Limited flame spread and low smoke generation (NFPA 262-1990, UL-910). Complies with NFPA definition of “limited combustible” material. High self-ignition and auto-ignition temperatures (ASTM D1929). Hazardous gases/vapors produced in fire are hydrogen fluoride (HF), carbon monoxide, potentially toxic fluorinated compounds.

Extinguishing Media

Water, Foam, Dry Chemical, CO₂.

Fire Fighting Instructions

Wear self-contained breathing apparatus. Wear full protective equipment.

Does not burn without an external flame. Protect from hydrogen fluoride fumes which react with water to form hydrofluoric acid. Wear Neoprene gloves when handling refuse from a fire.

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. Spilled material is a slipping hazard.

Spill Clean Up

Recover undamaged and minimally contaminated material for reuse and reclamation.
Shovel or sweep up.

7. HANDLING AND STORAGE

Handling (Personnel)

Avoid contamination of cigarettes or tobacco with dust from this material.

Handling (Physical Aspects)

Do not use a torch to clean this material from equipment without local exhaust ventilation and respirator.

Storage

Keep container closed to prevent contamination.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

VENTILATION Use local exhaust to completely remove vapors and fumes liberated during hot processing from the work area.

Personal Protective Equipment

EYE / FACE PROTECTION Wear safety glasses. Wear coverall chemical splash goggles and face shield when possibility exists for eye and face contact due to splashing or spraying of molten material.

RESPIRATORS A respirator is not required if local exhaust ventilation is adequate. At processing temperatures less than 400 deg C (750 deg F) a NIOSH / MSHA approved air purifying respirator with dust/mist cartridge or canister may provide protection from airborne particulates which cause polymer fume fever. At higher processing temperatures if ventilation is inadequate to maintain hydrogen fluoride and carbonyl fluoride concentrations below exposure limits, use a positive pressure air supplied respirator. Air purifying respirators may not provide adequate protection

PROTECTIVE CLOTHING If there is potential contact with hot / molten material, wear heat resistant clothing and footwear.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Melting Point	257-263 C (495-505 F)
Solubility in Water	Insoluble
Odor	None
Form	Granule
Color	White translucent
Specific Gravity	2.1~2.2

10. STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

Incompatible or can react with finely divided metal powders (e.g., aluminum and magnesium) and potent oxidizers like fluorine (F₂) and related compounds (e.g., chlorine trifluoride, ClF₃). Contact with incompatibles can cause an explosion, fire.

Decomposition

Heating above 275 deg C (527 deg F), may cause evolution of particulate matter, which can cause polymer fume fever (see HUMAN HEALTH EFFECTS), Trace amounts of hydrogen fluoride, carbonyl fluoride, and perfluoroisobutylene may be evolved at about 380 deg C (716 deg F), with larger amounts at higher temperatures.

11. TOXICOLOGICAL INFORMATION

Animal Data

FEP

Inhalation 4 hour LC50; >4,900 mg/m³ in rats

There was no skin irritation after dermal injection of extracts from FEP into rabbits.

At very high inhalation exposure levels to FEP, animals were suffocated by accumulated dust in the lungs.

Repeated ingestion exposure to FEP caused no adverse effects in rats.

No animal test reports are available to define carcinogenic, mutagenic, developmental, or reproductive hazards.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:

No information is available. Toxicity is expected to be low based on insolubility in water.

13. DISPOSAL CONSIDERATIONS

Waste Disposal

Preferred options for disposal are (1) recycling and (2) landfill. Incinerate only if incinerator is capable of scrubbing out hydrogen fluoride and other acidic combustion products. Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state / provincial, and local regulations.

14. TRANSPORTATION INFORMATION

Shipping Information

Proper Shipping Name IMDG Not regulated

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture No further relevant information available.

Labelling according to Regulation(EC) No 1272/2008 Not applicable

Hazard pictograms Not applicable

Signal word Not applicable

National regulations No further information available.

Other regulations, limitations and prohibitive regulations: 1

16. OTHER INFORMANTION

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Jan 1st, 2018

End of MSDS