

# TFT™ Perfluoropolyether (PFPE)

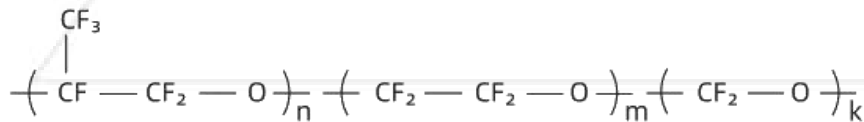
## Teflus® PE Series

<b>PET Series (Thermal Conduction)</b>	<b>PEV Series (Vacuum Pumps)</b>	<b>PES Series (Vapor Phase Soldering)</b>
<b>Teflus® PET</b>	<b>Teflus® PEV</b>	<b>Teflus® PES</b>
<b>PET-55 ~ PET-270</b>	<b>PEV-L1 ~ PEV-L4</b> <b>PEV-H1 ~ PEV-H4</b>	<b>PES-200 ~ PES-260</b>
<b>PEG Series (General Purpose)</b>	<b>PEL Series (Lubricant oil)</b>	<b>PEA Series (Processing Additive)</b>
<b>Teflus® PEG</b>	<b>Teflus® PEL</b>	<b>Teflus® PEA</b>
<b>PEG-1 ~ PEG-5</b>	<b>PEL-5 ~ PEL-520</b>	<b>PEA-1 ~ PEA-3</b>

# Perfluoropolyether (PFPE)

TFT LIMITED perfluoropolyether (PFPE) is synthesized by the polymerization of hexafluoropropylene monomer (HFP,  $\text{CF}_3\text{CF}=\text{CF}_2$ ) and oxygen, and a colorless and transparent liquid is obtained after post-treatment.

Chemical structure:



## Product Features:

- > For most highly corrosive chemicals, such as strong acids, peroxides, etc., it has excellent chemical inertness.
- > It has the characteristics of high density, low surface tension, low volatility, non-combustibility, good insulation, good lubricity, etc., and has good compatibility with plastics, rubber and metals.
- > It is often used as a heat transfer fluid for many working conditions and as a lubrication use, suitable for high temperature and harsh working environments.
- > In the absence of an effective catalyst, PFPE remained stable in the range of 270°C-300°C, even in the presence of oxygen. Its decomposition temperature can reach 350°C-410°C.

## Types, grades and applications:

Type	Grade	Application
Thermal Conduction	Teflus <sup>®</sup> PET	Used in coolant or heat transfer fluid in chemical, semiconductor, nuclear, pharmaceutical and other industries.
Vacuum Pumps	Teflus <sup>®</sup> PEV	Used as vacuum pump oil to meet the requirements of vacuum pumps for the highly clean electronics industry; Vacuum mechanical pumps for the production of semiconductors using ion etching, LPCVD and plasma culture technologies; Vacuum pumps (rotary vane pumps, molecular pumps, diffusion pumps, etc.) used in environments where corrosive gases are present.
Vapor Phase Soldering	Teflus <sup>®</sup> PES	Used as vapor phase soldering fluid in the vapor phase soldering (VPS) process, the latent heat of condensation of perfluoropolyether oil vapor is used to melt the solder.
General Purpose	Teflus <sup>®</sup> PEG	Low viscosity perfluoropolyether can be used as heat transfer fluid, electronic cleaning fluid, electronic reliability test fluid, vapor phase welding fluid, mainly suitable for cleaning of electronic products, heat transfer, testing and welding of electronic products, and can also be used in other chemical-resistant occasions; High viscosity perfluoropolyether can be used as lubricating oil, used in oxygen, fluorine, chlorine, hydrogen and other gas compressors, transfer pump lubrication, can also be used as vacuum pump oil, to meet the requirements of vacuum pumps for high cleanliness electronics industry. It can be used as a polymer processing aid to improve the fluidity and self-lubrication of polymers, reduce wear and improve scratch resistance.
Lubricant Oil	Teflus <sup>®</sup> PEL	Mainly used in chemical, electronic, machinery, aerospace, nuclear industry and other fields, used in oxygen, fluorine, chlorine, hydrogen and other gas compressors, lubrication of transfer pumps, etc.; It is used for the lubrication of hard disks and other magnetic recording media on computers and other instruments; as a lubricant for high temperature and chemically stable porous metal bearings, conveyor belts, paper and textile machinery; for the lubrication of rocket nozzles; for lubrication of missile launch systems; lubrication for anti-lock braking systems; Used for lubrication in the nuclear industry, etc.
Polymer Processing Additive	Teflus <sup>®</sup> PEA	As a polymer processing aid to improve process ability (e.g. improved flow ability, extrusion rate and mold release, reduced melt viscosity, reduced die build-up) and improved polymer properties (e.g. enhanced self-lubrication, reduced wear, improved scratch resistance). It can be used for acetal, nylon 6, nylon 12, thermoplastic polyurethane (TPU), SEBS, thermoplastic elastomer (TPE), etc.

# Perfluoropolyether (Vapor Phase Soldering) Teflus<sup>®</sup> PES

## Product Features:

- > Narrow molecular Weight distribution.
- > Zero ozone depletion.
- > Excellent insulation properties and dielectric properties.
- > Non corrosive to metal material, soldering with no residue.
- > Outstanding radiation stability excellent weather-resistance.
- > Fully flame retardant, no flash point, no ignition point, no spontaneous ignition point, will not burn in the presence of oxygen.

## Typical Properties:

Property	Test Method	Unit	Technical Standards				
			S-200	S-215	S-230	S-240	S-260
Boiling Point	GB/T 22226	°C	200	215	230	240	260
Appearance	Visual Check	-	Colorless transparent liquid				
Flash Point (Closed)	GB/T 261	-	Non-flammable in any circumstances, Does not burn at any oxygen concentration.				
Flash Point (Open)	GB/T 3536	-	Non-flammable in any circumstances, Does not burn at any oxygen concentration.				
Density (20°C)	GB/T 29617	g/cm <sup>3</sup>	1.80	1.82	1.83	1.84	1.85
Dynamic Viscosity(20°C)	NB/SH/T 0956	mm <sup>2</sup> /s	3.2	4.3	5.5	6.2	14.5
Pour Point	GB/T 3535	°C	< -80	< -70	< -70	< -60	< -60
Moisture	GB/T 11133	mg/kg	< 20	< 20	< 20	< 20	< 20
Neutralization Number(KOH)	NB/SH/T 0434	mg KOH/g	0.01	0.01	0.01	0.01	0.01

Note: The above data is typical data.

## Product Application:

- > It can be used as vapor phase soldering fluids. Mainly used during the process of Teflus<sup>®</sup> PES. The basic principle is to use condensation latent heat of PFPE vapor to melt solder.

## Package and Shipment:

- > PE plastic drum, available in 1 kg, 5 kgs, 10 kgs, or according to customers' requirements.
- > It is shipped as non-dangerous liquid goods.

## Storage:

- > Avoid to mix with other oils, long-term storage after sealing in a dry environment.
- > Avoid contact with aluminum chloride and other Lewis acid.

## Handling Precautions:

- > It does no harm to eyes, skin, or other human organs. Please rinse excessively with running water if accidentally exposed.
- > Please do not discard the waste oil and packaging uncautiously.
- > Please do not contact this product with Lewis acid to avoid decomposing.
- > For other safety issues, please review MSDS of the product or contact sales representatives.



**TFT LIMITED**

## **Fluoro Organic Materials**

**We might adjust the grades and properties of our products without any further notices.  
If the up-to-date information is needed,  
please contact us.**

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