

# ETFE Polymer

ETFE - Ethylene Tetrafluoroethylene

## Overview-

A copolymer of ethylene and tetrafluoroethylene, ETFE resins make products with excellent resistance to abrasion and stress cracking. ETFE, also known as \*Tefzel® possesses superior toughness, stiffness, and durability all while being chemically inert. The material can be extruded in multiple forms and offers products with high-energy radiation resistance. ETFE can operate in wide temperature ranges, has low water absorption, and performs well with ETO (ethylene oxide), autoclave, and gamma sterilizations.

Due to ETFE's characteristics, when extruded it can be made into durable components for a wide variety of markets. Medical industries value extrusions from this material due to its ability to be gamma sterilized or autoclaved while maintaining its mechanical integrity. Automotive markets value the low moisture absorption properties when made into a heat shrink for sensor protection, while aerospace and fiber optic markets value its abrasion resistance and stability at wide temperature ranges. \*Tefzel® is a registered trademark of Chemours.

## Fillers available with FEP extrusions:

- Carbon
- Pigments
- More available upon request



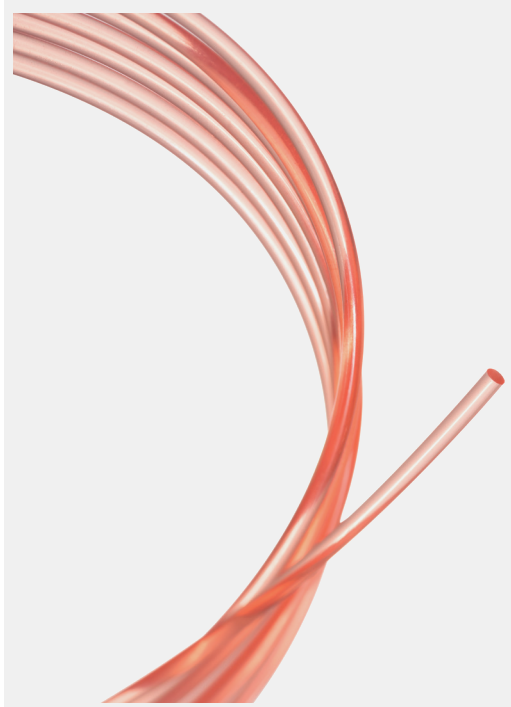
ABRASION RESISTANCE



RADIATION RESISTANCE



HARDNESS



*With exceptional impact and abrasion resistance, ETFE drawn fiber is ideal for challenging applications in many industries.*

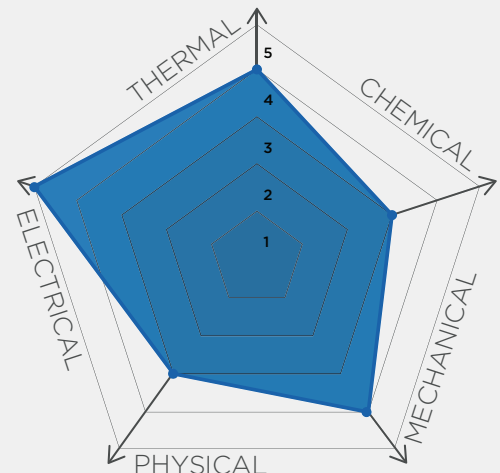
## APPLICATIONS

- Electrical component insulation
- Jacketing for abrasion reduction
- Wire/cable insulation
- Medical components

## AVAILABLE PRODUCTS

- Extruded tubing
- Coated optical fiber
- Convoluted tubing
- Co-extrusions
- Drawn fiber
- Multi-lumens and custom profiles














## QUICK SUMMARY OF PROPERTIES



# ETFE

The information presented in this publication is believed to be accurate and is not intended to constitute a specification. Property characteristics are dramatically impacted by geometry and processing method, thus properties of extruded parts may vary. In some instances, data may not be available for publication and will be notated as "na" where applicable.

These tables are meant to serve as a general guideline only. Users should evaluate the material to determine suitability for their own particular application.

PHYSICAL		ASTM	ETFE
	Density (g/cm <sup>3</sup> )	D792	1.73 - 1.74
	Water Absorption (%)	D570	< 0.03
	Oxygen Index (%)	D2863	32
MECHANICAL		ASTM	ETFE
	Hardness, Shore D	D2240	67
	Ultimate Tensile Strength (MPa)	D638	48 - 52
	Elongation at Break (%)	D638	382 - 415
	Flexural Modulus (MPa)	D790	890 - 960
ELECTRICAL		ASTM	ETFE
	Volume Resistivity (Ω - cm)	D257	> 1.0 x 10 <sup>17</sup>
	Dielectric Constant 1 MHz	D150	2.6
	Dielectric Strength (V/mil)	D149	1800
THERMAL		ASTM	ETFE
	Maximum Service Temp, Air (°C)	na	150
	Melt Temp (°C)	D3418	260 - 265
	Coefficient of Thermal Expansion, Linear 20° (µm/m-°C)	D696	131.4