Material Introduction

PTFE Polymer

PTFE – Polytetrafluoroethylene

Overview-

The unique properties of PTFE have made it the polymer of choice for many applications since it was discovered in the late 1930s. With the lowest coefficient of friction of any polymer we offer and an extremely broad working temperature range, PTFE is ideal for use in products such as catheters for delivery channels for medical devices and wire and cable insulation for aircraft. Because of its unparalleled chemical resistance, PTFE has become an ideal polymer for the chemical and analytical sciences. We extrude PTFE in various forms and also electrospin this material to make next generation composite stent coatings.

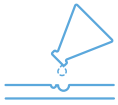
Zeus PTFE Processing Forms:

- *Extrusions*
- *Electrospinning*
- *Expanded (Aeos™ ePTFE) extrusions*

Zeus PTFE Processing Forms:

- *Radio-opaque (bismuth and barium)*
- *Glass*
- *Carbon*
- *Pigment*
- *Others available upon request*

COEFFICIENT OF FRICTION



CHEMICAL RESISTANCE

DIELECTRIC STRENGTH

Our PTFE Sub-Lite-Wall™ heat shrink for wire guides is used in endoscopy applications.

APPLICATIONS

- Catheter componentry
- Wire and cable insulation
- Furcation tubing for fiber optics
- Analytical and fluid management tubing
- Stent grafts

AVAILABLE PRODUCTS

- Tubing and heat shrink
- Convoluted tubing
- Sub-Lite-Wall™ tubing and heat shrink
- Monofilament
- Multi-lumens and custom profiles
- Custom insulated wire
- Membranes and other porous products

QUICK SUMMARY OF PROPERTIES

- Class VI approved resins available
- Excellent chemical resistance
- Low coefficient of friction
- Excellent dielectric strength
- Sterilizable (EtO)
- Working temperature to 260 °C / 500 °F

PTFE

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	PTFE
Density (g/cm³)	D792	2.16 - 2.18
Water Absorption (%)	D570	≤ 0.01
Oxygen Index (%)	D2863	≥ 95

MECHANICAL	ASTM	PTFE
Hardness, Shore D	D2240	50 - 65
Ultimate Tensile Strength (MPa)	D638	21 - 35
Elongation at Break (%)	D638	300 - 500
Modulus of Elasticity (MPa)	D638	392
Flexural Modulus (MPa)	D790	490 - 588
Coefficient of Friction	D1894	0.02 - 0.10

ELECTRICAL	ASTM	PTFE
Volume Resistivity (Ω - cm)	D257	$\leq 1.0 \times 10^{18}$
Dielectric Constant 1 MHz	D150	2.10
Dielectric Strength (V/mil)	D149	457 - 483

THERMAL	ASTM	PTFE
Thermal Conductivity (W/m - K)	D433	0.025 - 0.3
Maximum Service Temp, Air (°C)	na	260
Melt Temp (°C)	D4591	326 - 327
Decomposition Temp (°C)	AIR	505
Coefficient of Thermal Expansion, Linear 20° (µm/m-°C)	D696	100