PTFE

PTFE – Polytetrafluoroethylene

Custom Sizes Available

OVERVIEW

The unique properties of PTFE have made it the polymer of choice for many applications since it was discovered in the late 1930's. With the lowest coefficient of friction of any polymer and an extremely broad working temperature range, PTFE has been designed 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 and extreme chemical inertness, PTFE has become an ideal polymer for the chemical and analytical sciences industries. We extrude PTFE in various forms and also electrospin this material to make next generation composite stent coatings.

PTFE Processing Forms:

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

Fillers Available with PTFE Extrusions:

- *Radio-opaque (Bismuth and Barium)*
- *Glass*
- *Carbon*
- *Pigment*
- *More available upon request*

We can extrude PTFE into Sub-Lite-Wall® Heat Shrink for wire guides used in endoscopy applications.

COEFFICIENT OF FRICTION

CHEMICAL RESISTANCE

DIELECTRIC STRENGTH

APPLICATIONS

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

PRODUCTS

- *Tubing*
- *Sub-Lite-Wall® tubing and heat shrink (ultra-thin walls)*
- *Custom profiles*
- *Heat shrink AS23053™/12*
- *Monofilament*
- *Multi-Lumens*
- *Custom insulated wire*
- *Membranes*
- *Expanded porous products*
- *Convoluted tubing (AS 81914)*

KEY PROPERTIES

- *Lowest coefficient of friction of any resin*
- *Working temperature range -454 °F / -270 °C to 500 °F / 260 °C*
- *Chemically resistant (all common solvents, acids and bases)*
- *Low extractables*
- *Excellent dielectric insulation*
- *Biocompatable: Certified USP Class VI*
- *Flame resistant: UL 94 V-0*
- *ETO and autoclave sterilizable*

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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/cc)	D792	2.16 - 2.22
Water Absorption (%)	D570	0
Standard Percent Crystillinity (%)		> 90
Refraction Index		1.350
Radiation Resistance (MRad)		1
Oxygen Index (%)	D2863	> 95

MECHANICAL	ASTM	PTFE
Hardness, Shore D	D2240	50 - 65
Ultimate Tensile Strength (MPa)	D638	20 - 35
Elongation at Break (%)	D638	200 - 550
Modulus of Elasticity (GPa)	D638	0.39 - 0.60
Flexural Modulus (GPa)	D790	0.490 - 0.588
Coefficient of Friction		0.02 - 0.20

ELECTRICAL	ASTM	PTFE
Volume Resistivity (Ω-cm)	D257	1×10^{14} - 1×10^{19}
Dielectric Constant 1 MHz	D150	2.1
Dielectric Strength (V/mil)	D149	189 - 610

THERMAL	ASTM	PTFE
Thermal Conductivity (W/m-K)	C117	0.17 - 0.30
Maximum Service Temp, Air (°C)		260
Minimum Service Temp, Air (°C)		-200 to -240
Melt Temp (°C)		327 - 342
T_g Glass Temp (°C)		127
Decomposition Temp (°C)	E1131	400 - 500
Coefficient of Thermal Expansion, linear 20° (µm/m-°C)	D696	126 - 180