POLYTETRAFLUOROETHYLENE -

MAIZEY PTFE

Virgin - Unfilled P.T.F.E. is a unique thermoplastic and is resistant to almost all corrosive chemicals, except for alkali metals. It has the lowest coefficient of friction of all materials and a slippery surface to which no substances will adhere. It is the perfect material for environments where the use of lubricants are not desirable. PTFE has the widest working temperature range of all plastics, from -270°C to 260°C, and is excellent for use in cryogenic applications as it shows no brittleness. PTFE has very good sealing properties and is not flammable unless in a 94% oxygen environment.

Virgin - Unfilled PTFE is not ideal in high wear abrasive applications or in high loading applications. Here filled PTFE grades are used to improve resistance to load and wear. Alloys and Fillers – As the need for more demanding uses emerge, PTFE can be customised by the addition of fillers to create PTFE compounds with enhanced physical properties to suit particular mechanical applications outside the scope of virgin PTFE.

PROPERTIES:

- Chemically inert.
- Insoluble in all known solvents below 300 °C.
- High thermal stability, continuous service temperature range (-270 °C to 260 °C).
- Low coefficient of friction.
- Outstanding electrical and dielectric properties.
- Resistant to stress cracking and weathering.
- Limited use in structural components because of low modulus of elasticity.
- Poor wear resistance.
- Poor mechanical strength.
- Non toxic EU and FDA approval for food contact applications.
- Very high specific gravity.
- Easy to machine.

APPLICATIONS:

Mechanical seals, gaskets, packing's, electrical insulators, bridge bearing pads, chemical bellows, vee rings, valve seats, spiral back-up rings, ball valve seats and seals, expansion bearings, chemical transfer tubing, linings and coatings, glandless valves and pumps, laboratory equipment.

DELIVERY PROGRAMME

Ex Stock from Maizey branches:
Rods | Sheets | Tube | Machined components
PTFE is available in specially enhanced grades:
Glass-filled | Carbon-filled | Bronze-filled

maizey
ENGINEERED PLASTIC PRODUCTS

NATIONAL DISTRIBUTION - STOCK SHAPES 086 1100 420

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MAIZEY (PTFE)			
PROPERTIES	**TEST METHOD**	**UNIT OF MEASURE**	**VIRGIN**
GENERAL			
DENISTY	ISO (IEC) 1183	g/cm³	2,15
WATER ABSORPTION	NOT AVAILABLE	% @ 50% RH	<0.01
FLAMABILITY 1.5mm	ISO 4589	1.5mm	96 V-O
MECHANICAL			
TENSILE STRENGTH AT BREAK	R 527	M/mm²	>16
ELONGATION AT BREAK	ISO 527	%	≤250
E MODULUS	R 528	N/mm²	400…700
NOTCHED IMPACT STRENGTH (IZOD)	ISO 180/2A	KJ/m²,J/m	16 160
BALL INDENTATION HARDNESS	NOT APPLICABLE	MPA	N/A
SHORE HARDNESS	NOT APPLICABLE	SCALE D	50…60
THERMAL			
MELTING TEMPERATURE	NOT AVAILABLE	°C	327
THERMAL CONDUCTIVITY	NOT AVAILABLE	W/(m.K)	0,23
SPECIFIC THERMAL CAPACITY	NOT AVAILABLE	kJ/(kg.K)	N/A
COEFFICIENT OF LINEAR THERMAL EXPANSION	NOT AVAILABLE	m/(m.k)x10^<6	130…170
LONG TERM SERVICE TEMPERATURE	GUIDELINE ONLY	°C	260
SHORT TERM SERVICE TEMPERATURE	GUIDELINE ONLY	°C	300
HEAT DEFLECTION TEMPERATURE	NOT AVAILABLE	°C	N/A
ELECTRICAL			
DIELECTRIC CONSTANT	ISO (250)	@ 50 MHz	2,1
DIELECTRIC DISSIPATION FACTOR	ISO (250)	@ 50 MHz	<0.0003
SPECIFIC VOLUME RESISTIVITY	ISO (93)	Ω.cm	>10^18
SURFACE RESISTIVITY	ISO (93)	Ω	>10^17
DIELECTRIC STRENGTH	NOT AVAILABLE	kV/mm	N/A

When machining thermoplastic stock shapes, remember…

- Thermal expansion is up to 10 times greater with plastics than metals.
- Plastics lose heat more slowly than metals, so avoid localized overheating.
- Softening (and melting) temperatures of plastics are much lower than metals and plastics are much more elastic than metals.

Getting started

- Positive tool geometries with ground peripheries are recommended.
- HSS/Tip tooling with polished top surfaces is suggested for optimum tool life and surface finish.
- Use adequate chip clearance to prevent clogging.
- Adequately support the material to restrict deflection away from the cutting tool.

Coolants

Coolants are generally not required for most machining operations, but are strongly suggested during drilling operations, especially with notch sensitive materials such as Nylon, PET-P, PAI, PBI and glass or carbon reinforced products.

In addition to minimizing localized part heat-up, coolants prolong tool life. For optimum surface finishes and close tolerances, non-aromatic, water soluble coolants are suggested. General purpose petroleum based cutting fluids, although suitable for many metals and plastics, may contribute to stress cracking of amorphous plastics such as Polycarbonate.

Because of these differences, you may wish to experiment with fixtures, tool materials, angles, speeds and feed rates to obtain optimum results.

GENERAL NOTE:

The data shown fall within the normal parameters of product properties. They should only be used as a guide to initial material selection for the relevant application and for material specification limits. Further technical information is available for specific application requirements. When no value is listed, insufficient details were available to present a usable value.