

POLYETHYLENE TEREPHTHALATE - PET SUSTADUR®



SUSTADUR® Polyethylene Terephthalate (PET) has high mechanical strength, good resistance to creep, excellent dimensional stability and excellent sliding properties. Polyester has superior wear resistance compared to acetal and is ideal for close tolerance parts. Its low moisture absorption enables mechanical and electrical properties to remain virtually unaffected by moisture making this material ideally suited as a bronze bush replacement. Polyester can be machined to precise detail on standard metal working equipment.

PROPERTIES:

- Improved tensile strength.
- Good for both wet and dry environments.
- High strength and rigidity - ideal for close tolerance parts.
- Excellent stain resistance.
- Good wear resistance and excellent dimensional stability.
- Better resistance to acids than nylon or acetal.
- Better operating temperature.
- Reduced notched impact resistance.
- SUSTADUR® is FDA approved (WHITE ONLY).

TEMPERATURE RANGE:

	POLYESTER
Max service temperature for short periods	180 °C
Max service temperature continuously	115 °C
Min service temperature	-20 °C

APPLICATIONS:

For high-grade and high-strength technical parts in many industrial sectors like e.g. mechanical engineering, electronics industry, ship building, materials handling, food processing etc. General mechanical and plant engineering: e.g. gears, levers, handles, control discs, cams, bearings, sliding elements, bearings, door furniture, hinges, food industry.

NOTE: Although it absorbs very little moisture polyester does suffer from hydrolysis and should not be used in aqueous applications at temperatures above 70° C or steam environments.

DELIVERY PROGRAMME

Ex Stock from Maizey branches:

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SUSTADUR® PET (POLYESTER)			
PROPERTIES	TEST METHOD	UNIT OF MEASURE	POLYESTER VIRGIN
GENERAL			
DENISTY	DIN EN ISO 1183-1	g/cm ³	1,38
WATER ABSORPTION	DIN EN ISO 62	%	0,3
FLAMABILITY 3mm	UL 94	3mm	HB
FLAMABILITY 6mm	UL 94	6mm	HB
MECHANICAL			
TENSILE STRENGTH	DIN EN ISO 527	MPA	85
ELONGATION AT BREAK	DIN EN ISO 527	%	15
E MODULUS	DIN EN ISO 527	MPA	3 000
NOTCHED IMPACT STRENGTH	DIN EN ISO 179	kJ/m ²	2,00
BALL INDENTATION HARDNESS	DIN EN ISO 2039-1	MPA	170
SHORE HARDNESS	DIN EN ISO 868	SCALE D	84
THERMAL			
MELTING TEMPERATURE	ISO 11357-3	°C	255
THERMAL CONDUCTIVITY	DIN 52612-2	W/(m.K)	0,28
SPECIFIC THERMAL CAPACITY	DIN 52612	kJ/(kg.K)	1,1
COEFFICIENT OF LINEAR THERMAL EXPANSION	DIN 53752	10 ⁻⁶ K ⁻¹	60
LONG TERM SERVICE TEMPERATURE	GUIDELINE ONLY	°C	- 20 TO 115
SHORT TERM SERVICE TEMPERATURE	GUIDELINE ONLY	°C	180
HEAT DEFLECTION TEMPERATURE	DIN EN ISO 75.VERF.A	°C	80
ELECTRICAL			
DIELECTRIC CONSTANT	IEC 60250	N/A	3,4
DIELECTRIC DISSIPATION FACTOR	IEC 60250	N/A	0,001
SPECIFIC VOLUME RESISTIVITY	IEC 60093	Ω.cm	10 ¹⁸
SURFACE RESISTIVITY	IEC 60093	Ω	10 ¹⁶
DIELECTRIC STRENGTH	IEC 60243	kV/mm	20

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, nonaromatic, 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.