



UNILATE® PBT Polyester

UNILATE PBT is a semi-crystalline polybutylene terephthalate (PBT) material that exhibits excellent rigidity, toughness, and machinability. Additionally, UNILATE PBT offers dimensional stability and wear resistance that meets or exceeds that of nylon and acetal. Due to its superior chemical resistance and food contact approvals, UNILATE is the preferred material for components in wet and dry food processing applications such as pistons, valves, feed screws, and forming/extrusion dies. For applications involving high speed wear, UNILATE is available in an internally lubricated grade, UNILATE Lf, that provides a much lower coefficient of friction compared to non-lubricated grades.

PRODUCT ATTRIBUTES

- 225°F continuous use temperature
- High strength and stiffness
- Excellent toughness
- Superior wear resistance
- Chemically resistant to chlorine and caustic/acidic cleaning agents
- Better UV resistance than acetal or nylon
- Very low moisture absorption
- Easily machined and fabricated
- FDA, USDA, NSF, and 3-A compliant
- Very high “value to cost” ratio

INDUSTRIES

- Food and dairy processing
- Material handling equipment
- Fluid handling
- Electronics manufacturing
- Automotive

APPLICATIONS

- Pistons
- Valves
- Manifolds
- Food product forming dies
- Timing screws
- Scraper blades
- Wear strips
- Pump components
- Gears
- Bushings and bearings



Nytec Plastics, Ltd. is dedicated to supplying our customers with the highest quality thermoplastic stock shapes for machining. We manufacture and stock a full line of thermoplastic materials in a wide variety of rod, plate and tubular bar sizes. In addition, we offer over 35 years of experience in the custom extrusion of application-specific and proprietary resins to meet even the most demanding performance requirements. Nytec Plastics offers full technical support for all products and is certified to ISO 9002 standards for the manufacture of extruded plastics stock shapes.



UNILATE® PBT POLYESTER

Property	Test Standard	Units	UNILATE PBT unfilled	UNILATE Lf lubricated
Mechanical				
Specific Gravity	ASTM-D792	—	1.31	1.35
Tensile Strength	ASTM-D638	psi	9,000-9,500	8,000-8,500
Tensile Elongation	ASTM-D638	%	25-100	25-100
Tensile Modulus of Elasticity	ASTM-D638	psi	410,000	365,000
Flexural Strength	ASTM-D790	psi	12,000	10,200
Flexural Modulus of Elasticity	ASTM-D790	psi	425,000	350,000
Compressive Strength	ASTM-D695	psi	13,000	10,500
Izod Notched Impact	ASTM-D256	ft.-lbs./in.	1.0	0.9
Rockwell Hardness	ASTM-D785	R scale	R117	R115
Thermal				
Coef. of Linear Thermal Expansion	ASTM-D696	in./in./°F	4.5 x 10 ⁻⁵	4.8 x 10 ⁻⁵
Max. Continuous Use Temp.	Nytec Std.	°F	225	225
Heat Deflection Temp. @ 66 psi	ASTM-D648	°F	310	305
Melting Point	ASTM-D3418	°F	437	437
Electrical				
Dielectric Strength-Short Term	ASTM-D149	volts/mil	400	
Dielectric Constant @ 60 Hz	ASTM-D150		3.3	
Dielectric Constant @ 10 ⁶ Hz	ASTM-D150		3.1	
Dissipation Factor @ 60 Hz	ASTM-D150		0.002	
Volume Resistivity	ASTM-D257	ohm-cm	> 10 ¹⁵	>10 ¹⁵
Miscellaneous				
Water Absorption/24 hrs.	ASTM-D570	% weight	0.08	0.08
Water Absorption @ Saturation	ASTM-D570	% weight	0.50	0.50
Flammability	UL 94		HB	HB
Dynamic Coefficient of Friction	Nytec Std.	dry vs. steel	0.25	0.08

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