



TORLON® PAI

Characteristics

- * Maintains Strength and Stiffness to 500° F (260° C)
- * Minimal Expansion Rate to 500° F (260° C)
- * Excellent Wear Resistance in Bearing Grades
- * Able to Endure Harsh Thermal, Chemical, and Stress Conditions

Description

Torlon is the highest performing, melt processable plastic. It has superior resistance to elevated temperatures. It is capable of performing under severe stress conditions at continuous temperatures to 500° F (260° C). Parts machined from Torlon stock shapes provide greater compressive strength and higher impact resistance than most advanced engineering plastics.

Torlon PAI's extremely low coefficient of linear thermal expansion and high creep resistance deliver excellent dimensional stability over its entire service range.

Torlon stock shapes are post-cured using proprietary procedures. This eliminates the need for additional curing by the end user in most situations.

Forms Available

ROD	.250 to 2.00 " diameter, Lengths to 12 feet
BUSHING	Custom produced as requested
PLATE	.250" to 1.000" thick, Widths to 12", Lengths to 48"
COLOR	Black

Typical Property Values

MECHANICAL @ 73F

		Torlon® 4203	Torlon® 4503	Torlon® 4301	Torlon® 4501	Torlon® 4540
Specific Gravity		1.41	1.40	1.45	1.45	1.46
Tensile Strength	psi	20,000	18,000	15,000	10,000	13,000
Tensile Modulus of Elasticity	psi	600,000	500,000	900,000	440,000	575,000
Tensile Elongation (at Break)	%	10	5	3	3	5
Flexural Strength	psi	24,000	24,000	23,000	20,000	24,000
Flexural Modulus of Elasticity	psi	600,000	600,000	800,000	650,000	680,000
Shear Strength	psi	16,000		16,400		
Compressive Strength, 10% Deformation	psi	24,000	18,000	22,000	16,000	17,000
Compressive Modulus of Elasticity	psi	478,000	350,000	950,000	359,000	350,000
Rockwell Hardness	M Scale	120	119	106	106	107
Izod Impact Strength, Notched	ft-lbs/in. of notch	2.00	1.50	0.80	0.50	1.10
Coefficient of Friction, Dynamic (Dry vs. Steel)		0.35	0.30	0.20	0.20	0.20
Limiting PV (4 :1 Safety Factor Applied)	ft.lbs/in. ² min	12,500	7,500	22,500	22,500	7,500
Wear Factor	in ³ -min/ft.lbs. hr.	50	>1,000	10	4.5	315
Water Absorption 24 hrs	% by wt.	0.40	0.35	0.40	0.30	0.30

THERMAL

Coefficient of Linear Expansion (-40°F to 300°F)	in./in./°F	1.7 x 10 ⁻⁵	1.5 x 10 ⁻⁵	1.4 x 10 ⁻⁵	2 x 10 ⁻⁵	2 x 10 ⁻⁵
Heat Deflection Temperature @264 psi	°F	532	532	534	534	534
Tg-Glass Transition (amorphous)	°F	527	527	527	527	527
Continuous Service Temperature in Air	°F	500	500	500	500	500
Thermal Conductivity	°F	1.80	1.80	3.70	3.70	

ELECTRICAL

Dielectric Strength, Short Term	Volts/mil	580	600			
Surface Resistivity	Ohms/Sq.	>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³	>10 ¹³
Dielectric Constant	1 MHz	4.2	4.2	6.0	6.0	
Dissipation Factor	1 MHz	0.0260	0.031	0.037	0.042	

(Properties listed above are provided for reference only, they should not be used for design specifications or quality control , Torlon is a registered Trademark of Solvay Corp.)