



PEKTRAN PR SERIES MATERIALS

PEKTRAN PR Series Materials are a class of high temperature, semi-crystalline aromatic polymer compounds based on Polyaryetheretherketone resin.

The wholly aromatic structure of the **PEKTRAN** compounds is responsible for the high temperature-performance and outstanding mechanical and electrical properties in chemically hostile environments. Diversity of end-use applications has led to the development of several grades, each formulated and molded to maximize specific properties.

Applications/Grades:

PR-100: Unreinforced grade molded from 100% virgin resin. Unfilled, **PEKTRAN PR** provides a well-balanced combination of rigidity, strength, and excellent ductility and impact resistance. PEEK PR-100 is ideal for high resiliency seals, back-up rings, valve seats for harsh and nuclear environments, packing distillation columns, high-temperature, and high-pressure electrical insulators.

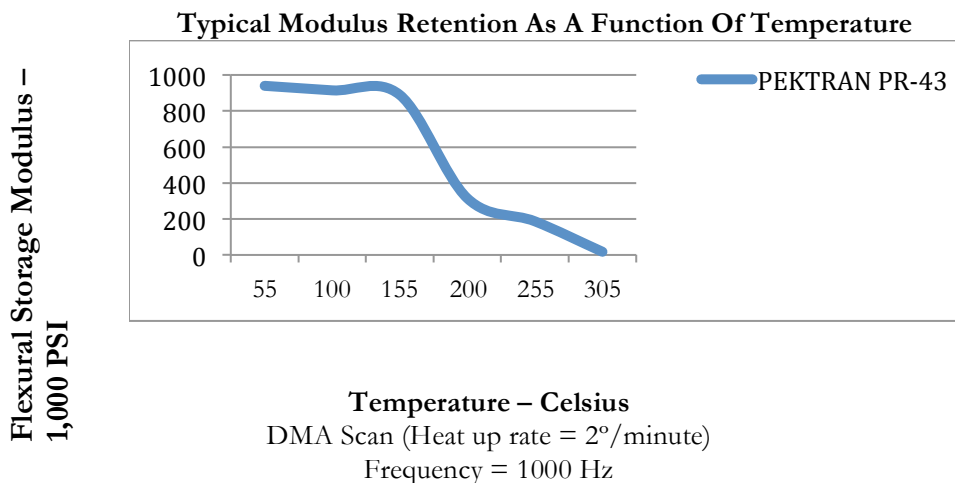
PR-32: 30%glass fiber reinforced version. By adding glass the material yields a higher tensile and flexural modulus than the unreinforced grade with good retention of properties up to 525° F in a variety of media. **PR-32** is excellent for electrical insulators at elevated temperatures and a superior material for anti-extrusion rings for oil tools and hydraulic devices. It is also currently being utilized for cable and hose connectors, heat exchanger parts, gears and transmission devices, and pump and compressor components.

PR-44: Specialty glass fiber filled grade. Designed for maximum property retention at elevated temperatures without a premium. This product is recommended for process engineering applications such as: seals for valves, pumps, compressors, roller clutches, friction bearings, impellers, extrusion sealing devices, and high temperature insulation.

PR-43: Compression molded 30%, carbon-fiber filled PEEK polymer. Reinforced for maximum improvement (versus glass) in tensile, flexural, and compressive strengths. Flexural modulus is as high as seven times the base resin. As an excellent metal replacement, typical uses are: compressor and pump mechanical devices such as casings, rotors, vanes, valve plates, and high-precision gears with low expansion rates. Other applications include high compression packings and valve seats for critical service such as deep oil wells, petrochemical production, and nuclear plants.

PR-10211: Compression molded graphite, PTFE lubricated, carbon-fiber reinforced PEEK polymer. This grade provides low-friction, low-wear at elevated temperatures, excellent tribological characteristics at medium load, and speed against metals. Applications: bearings, thrust washers, wear pads, pistons, piston rings, and mechanical seals.

Corrosion resistance charts will be sent upon request. If your application demands other fillers or reinforcements different than those listed as standard, Symmtek can provide custom molded compounds to meet your specific needs.





**Summary Of Typical Properties
– Pektran Series Material –**

	Properties	Units	Test Method	PR-100	PR-32	PR-44	PR-10211	PR-43
Physical	Specific Gravity		ASTM D-792	1.31	1.56	1.58	1.45	1.43
	Water Absorption							
	24 hours		ASTM D-570	0.05%	0.23%	0.27%	0.07%	0.13%
	48 hours		ASTM D-570	0.05%	n/a	n/a	n/a	n/a
Mechanical	Tensile Strength @ 75°F	psi	ASTM D-638	13,800	12,300	12,750	13,500	17,850
	Tensile Modulus	psi	ASTM D-638	600,000	500,000	800,000	550,000	850,000
	Tensile Elongation	%	ASTM D-638	16.0%	2.2%	1.5%	2.0%	2.1%
	Flexural Strength	psi	ASTM D-790	22,300	20,300	17,300	20,000	31,000
	Flexural Modulus	psi	ASTM D-790	770,000	1,000,000	1,200,000	1,150,000	1,300,000
	Izod Impact Strength Notched	ft*lb/in	ASTM D-256	0.78	0.8	0.6	0.8	1.0
	Compressive Strength	psi	ASTM D-695	19,300	20,100	26,000	20,000	24,800
	Hardness Shore D		ASTM-D-785	89	91	94	90	94
Rockwell R		ASTM-D-785	101	102	105	125	102	
Thermal	HDT (F) @ 264psi	F°	ASTM D-648A	350	490	550	480	575
	Coefficient of Linear Expansion	10 ⁻⁵ in/in*F°	ASTM C- 518	2.2	1.7	1.6	2.7	1.7
	Continuous Use Temperature	F°	ASTM D-696	450	500	490	490	500
Electrical	Dielectric Strength	V/ml	ASTM D-149	480	437	400	Conductive	Conductive
	Dissipation Factor	10 ⁻⁶ Hz	ASTM D-150	0.003	0.002	0.002	n/a	n/a
	Dielectric Constant	10 ⁻⁶ Hz	ASTM D-150	3.3	3.8	3.8	n/a	n/a
	Surface Resistivity	oh ²	EOS/ESD S11.11	10 ¹³	10 ¹³	10 ¹³	10 ⁵	10 ⁵

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