

DURALAST SERIES MATERIALS

PPS resin's unique flow behavior and affinity for a variety of fillers and reinforcements, coupled with Symmtek Polymer's continuing commitment to customer satisfaction has insured the development of **Duralast** molded compounds. **Duralast** can be ordered in a variety of formulations including glass-fiber reinforced, carbon fiber, mineral/glass combinations, as well as specialized self-lubricating formulations.

Duralast PPS is being utilized routinely and continues to find new applications in many different industries. **Duralast PPS's** excellent thermal and chemical resistance make it an ideal material for uses in the Fluid Handling Industries such as valve and pump components (seals, housings, pistons, packings, bearings, and bushings).

The oil exploration and recovery industries find **Duralast** the right economical choice for high temperature and corrosive environments. Applications include packings, back-up rings, anti-extrusion devices and seals for surface or sub-surface devices and tools. Uses in electronic industries are connectors, insulators, switches, coil bobbins, and housings.

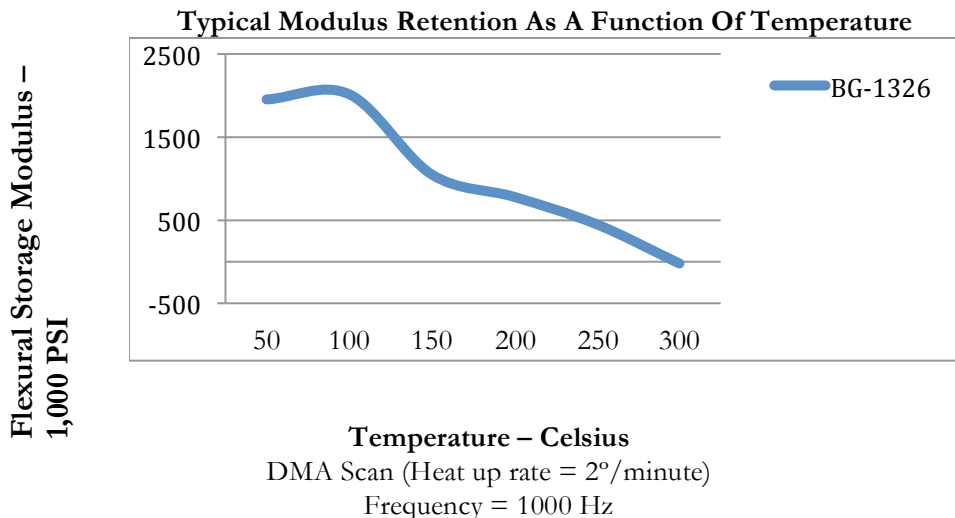
Duralast VR-80: stabilized base resin. This material has excellent chemical and environmental resistance and is not attacked by strong acids and bases. VR-80 has good electrical insulating properties, but is not recommended for structural application.

Duralast VR-40: 40% glass-reinforced grade. This compound has excellent electrical properties such as high dielectric strength, stable dielectric constant and dissipation factor over a wide range of temperatures, making it the ideal choice for high temperature insulators and interconnecting devices. VR-40 has excellent retention of strength at elevated temperatures offering 490° F HDT, with a continuous use temperature of 458° F. Chemical resistance comparable to fluoropolymers combined with low water absorption and excellent machinability make VR-40 the ideal product for oil service and chemical processing components.

Duralast VR-48: PPS/30% Glass/15% PTFE. This material has similar mechanical and electrical properties to VR-40 giving high temperature performance up to 458° F with outstanding toughness, offering the highest impact resistance of the PPS family of compounds. Excellent cost/performance value—bearing grade recommended for electrical and mechanical components subjected to mechanical loads and friction.

Duralast VR-54: PPS/Glass/Mineral reinforced. This blend offers high-heat distortion temperature, and low thermal conductivity. VR-54 is ideal for heat insulation applications, sealing, and anti-extrusion devices—making it an excellent Asbestos/Phenolic replacement.

Duralast BG-1326: PPS/Graphite fiber reinforced/PTFE lubricated. Low coefficient of expansion and friction, high HDT, excellent wear and chemical resistance make this compound ideal for friction applications in corrosive environments. This tribological compound of high mechanical properties is ideal for bearing surfaces such as bushings, wear pads, mechanical seals, thrust washers, rod packing, and reciprocating components in pumps, valves and compressors.





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

	Properties	Units	Test Method	VR-80	VR-40	VR-48	VR-52	VR-54-IM	BG-1326
Physical	Specific Gravity		ASTM D-792	1.32	1.65	1.43	1.78	1.84	1.52
	Water Absorption								
	24 hours		ASTM D-570	0.02%	0.015%	0.015%	0.015%	0.010%	n/a
	48 hours		ASTM D-570	0.02%	0.02%	0.015%	0.015%	0.010%	n/a
Mechanical	Tensile Strength @ 75°F	psi	ASTM D-638	10,600	8,200	8,100	12,000	21,000	12,500
	Tensile Modulus	psi	ASTM D-638	420,000	1,005,000	540,000	820,000	900,000	800,000
	Tensile Elongation	%	ASTM D-638	3.0%	1.13%	3.50%	2.00%	2.00%	1.80%
	Flexural Strength	psi	ASTM D-790	11,000	15,780	10,780	14,500	35,500	10,000
	Flexural Modulus	psi	ASTM D-790	420,000	960,000	530,000	1,280,000	2,300,000	800,000
	Izod Impact Strength Notched	ft*lb/in	ASTM D-256	0.3	1.0	1.4	0.5	1	2.0
	Compressive Strength	psi	ASTM D-695	20,600	24,300	15,700	28,000	24,500	15,900
	Hardness Shore D		ASTM-D-785	86	90	89	90	99	89
Rockwell R		ASTM-D-785	124	123	120	123	123	123	
Thermal	HDT (F) @ 264psi	F°	ASTM D-648A	278	490	435	535	500	495
	Coefficient of Linear Expansion	10 ⁻⁵ in/in*F°	ASTM C- 518	2.7	2.3	2.4	2.3	1.8	1.8
	Continuous Use Temperature	F°	ASTM D-696	400	450	450	475	475	490
Electrical	Dielectric Strength Short Term	V/ml	D-149	500	450	365	n/a	425	n/a
	Dissipation Factor	10 ⁻⁶ Hz	D-150	0.0013	0.002	0.0014	n/a	n/a	n/a
	Dielectric Constant	10 ⁻⁶ Hz	D-150	3	3.8	3.2	n/a	n/a	conductive
	Surface Resistivity	ohm ²	EOS/ESD S11.11	10 ¹³	10 ¹³	10 ¹³	n/a	10 ¹³	10 ⁵

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