

Thermosets

Polyester BMC Styrene-Free Polyester Phenolic Melamine/Phenolic

Automotive

Plenco Thermoset materials offer a proven blend of physical strength, thermal stability and chemical resistance that makes them ideally suited for high-temperature applications in combination with automotive fluids or electrical distribution.

Applications

- Plenco 01581** Ignition system components, electric motor housings
- Plenco 06310** Brake valve bodies
- Plenco 06401** Pump impellers and housings
- Plenco 06553** Brake caliper pistons
- Plenco 07697** Pulleys
- Plenco 08112, 08218** - Forward lighting, shrouds and covers, electrical systems



Thermal Stability

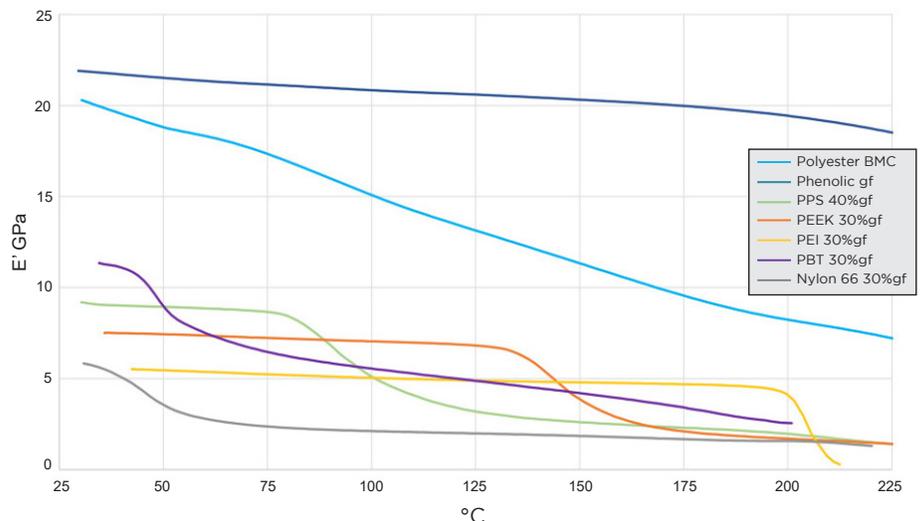
The cross-linked chemical structure of Plenco Thermosets gives them a wider operating temperature range than many, more-costly thermoplastics. From external shrouds and heat shields to internal cam sprockets and pulleys, the right Plenco Thermoset can give you the most consistent, predictable performance from -40°F to +350°F.

°C Scanning DMA T_g vs. Modulus

The Glass Transition Temperature (T_g) is where molecular mobility increases dramatically. Below their T_g, some thermoplastics become brittle. Above their T_g creep resistance and physical properties can decline rapidly.

Properly prepared Plenco Thermosets always operate below their T_g providing greater property retention at elevated temperatures.

DMA COMPARISON



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Compressive Strength and Modulus



The compressive strength and modulus of Plenco Thermosets approach those of aluminum and zinc die castings.

This provides exceptional creep resistance, bolt torque retention and molded-in thread strength.

Compressive Strengths to 56,500 psi
Compressive Modulus 1.8MM psi

Thread Strength Comparisons

#10 - 5/8" coarse thread self tapping screw

06310 - glass/mineral reinforced phenolic	126.0 in·lbs torque
06401 - glass/mineral reinforced phenolic	114.0 in·lbs torque
03356 - mineral reinforced phenolic	76.8 in·lbs torque
08218 - glass fiber reinforced polyester	53.0 in·lbs torque



Surface Hardness and Wear



The high surface hardness and smooth finish provided by Plenco Thermosets produce excellent cosmetic and wear surfaces.

Internal testing of cam lobes molded from Plenco 06401 showed no measurable wear after running against a steel cam follower under a 5# spring load for 2000 hours in 300°F oil.

Gasoline and Oil Resistance

Plenco 06401

Gasoline at 22°C	Hours	Dimensional Stability %	Barcol Hardness	Flexural Strength MPa	Flexural Modulus MPa	Charpy Impact Strength J/m
	0	0	54	130.5	12245	31.1
	168	-0.013	59	146.5	12743	30.9
	1000	0	68	130.3	12839	28.1
Motor oil at 150°C	0	0	54	130.5	12245	31.1
	168	-0.11	71	157.8	14158	27.6
	1000	-0.22	70	113.7	13398	27.6