Thermosets

PLENCO
Together Through Chemistry

Polyester BMC Styrene-Free Polyester Phenolic Melamine/Phenolic

Marine & Outdoor Power

PLENCO Thermoset materials offer a proven blend of physical strength, thermal stability and chemical resistance that makes them ideally suited for marine and outdoor power equipment.

Applications

PLENCO 04485	Carburetor insulators, control knobs, heat shields
PLENCO 06401	Cam sprockets, cam lobes, drive gears, carburetor spacers, bearing journals, heat shields
PLENCO 07697	Pulleys
PLENCO 08218	External housings, covers and brackets

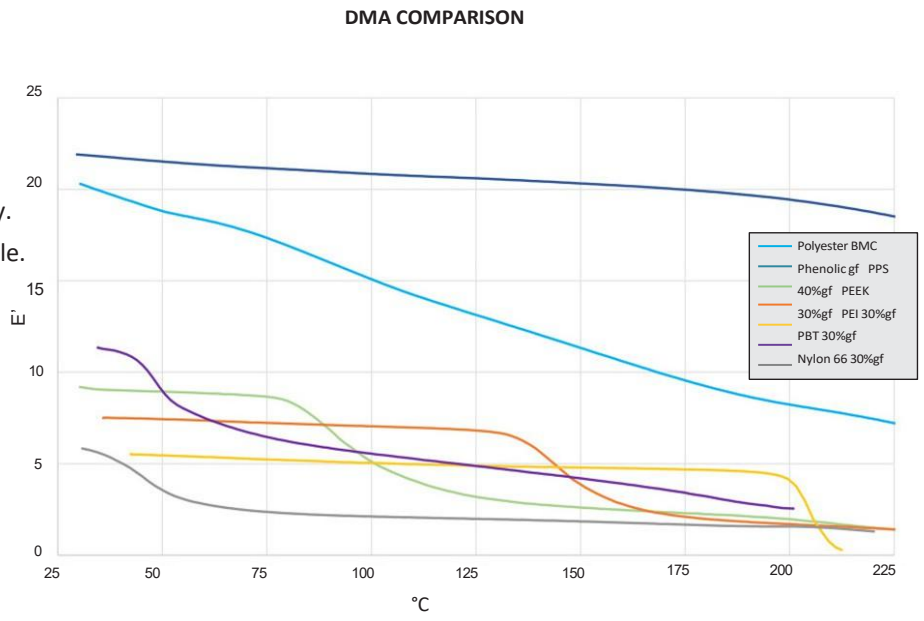
Thermal Stability

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 Tg vs. Modulus

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

Properly prepared PLENCO Thermosets always operate below their Tg, providing greater property retention at elevated temperatures.



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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 50,100 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