



## Technical Datasheet ApexPAI

### Product Description

ApexPAI is a rigid, imidized, homogeneous composite thermoplastic which offers the ultimate performance when used in precision engineered racing components. Its ability to withstand repeated abuse is unrivalled by any nonmetallic bushing or bearing material available. It has high compressive strength, excellent performance in high PV (pressure & velocity) conditions, is lightweight, and requires no lubrication. This durable material's use in suspension bushings combines exceptional chassis feedback with smooth-sliding operation.

### Typical Applications

- Control arm bushings
- Knuckle bushings
- Sway bar bushings (Anti-roll bar bushings)
- Watts link bushings
- Panhard bar bushings
- Spherical or rod end bushing inserts
- Differential housing bushings
- Thrust washers

### Mechanical Data

	Imperial	Metric	Test Method
Ultimate Tensile Strength	13000 psi	89.6 MPa	ASTM D638
Tensile Modulus	1000 ksi	6.89 GPa	ASTM D638
Elongation at Break	2 %	2 %	ASTM D638
Compressive Strength	20000 psi	137.9 MPa	ASTM D695
Compressive Modulus	990 ksi	6.82 GPa	ASTM D695
Flexural Strength (Yield)	16000 psi	110.3 MPa	ASTM D790
Flexural Modulus	1100 ksi	7.58 GPa	ASTM D790
Hardness, Rockwell M	106	106	ASTM D785
Hardness, Shore D	84	84	ASTM D2240
Izod Impact (notched)	0.6 ft-lb/in	0.32 J/cm	ASTM D256 Type A
Density	0.057 lb/in <sup>3</sup>	1.59 g/cm <sup>3</sup>	ASTM D792

### Thermal Data

Glass Transition Temperature	525 °F	274 °C	ASTM D3418
Heat Deflection Temperature	536 °F	280 °C	ASTM D648
Melting point	N/A	N/A	
Coefficient of Thermal Expansion	7.8 µin/in-°F	14.0 µm/m-°C	ASTM D696
Thermal Conductivity	5.62 BTU-in/hr-ft <sup>2</sup> -'	0.81 W/(mK)	ASTM C177

### Friction & Wear Data, Unlubricated

Wear Factor, K @ PV 100K ft-lb/min-in<sup>2</sup>

Velocity 50 ft/min	$20 \times 10^{-10}$ in <sup>3</sup> -min/ft-lb-hr	ASTM D3702
Velocity 100 ft/min	$20 \times 10^{-10}$ in <sup>3</sup> -min/ft-lb-hr	ASTM D3702
Velocity 200 ft/min	$52 \times 10^{-10}$ in <sup>3</sup> -min/ft-lb-hr	ASTM D3702

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