FPU 50

Limited Availability

FPU 50 is an impact, abrasion and fatigue resistant semi-rigid material that is a good choice for parts that must withstand repetitive stresses such as living hinges or friction fits.

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Tensile Properties ASTM D638, Type V, 10 mm/min	Metric	U.S.
Tensile Modulus	860 ± 110 MPa	125 ± 16 ksi
Ultimate Tensile Strength	29 ± 1 MPa	4.2 ± 0.2 ksi
Tensile Strength at Yield	20 ± 1 MPa	2.9 ± 0.2 ksi
Elongation at Yield	7 ± 1 %	
Elongation at Break	280 ± 15 %	

Flexural Properties ASTM D790-B	Metric	U.S.
Flexural Stress at 5 % Strain, no yielding	32 ± 1 MPa	4.6 ± 0.2 ksi
Flexural Modulus (chord, 0.5-1 % strain)	831 ± 36 MPa	121 ± 5 ksi

Impact Properties	Metric	U.S.
Notched Izod (Machined), 23 °C, ASTM D256	40 ± 5 J/m	0.75 ± 0.09 ft-lb/in
Notched Izod (Machined), -30 °C, ASTM D256	30 ± 6 J/m	0.56 ± 0.11 ft-lb/in
Unnotched Izod, ASTM D4812	No Break	

Thermal Properties	Metric	U.S.
Heat Deflection Temperature @ 0.455 MPa/66 psi, ASTM D648	78 °C	172 °F
Heat Deflection Temperature @ 1.82 MPa/264 psi, ASTM D648	52 °C	126 °F
Coefficient of Thermal Expansion (-40, 40 °C), ASTM E831	129 ppm/°C	72 ppm/°F
Heat Capacity, 23 °C, ASTM E1269	1.48 J/g-°C	0.353 BTU/lb-°F
Thermal Conductivity, ASTM C518	0.138 W/m-K	0.0799 BTU/hr-ft-°F

Electrical Properties	Metric
Dielectric Strength, ASTM D149	13.0 kV/mm
Dielectric Constant, 1 kHz, ASTM D150	3.21
Dissipation Factor, 1 kHz, ASTM D150	0.0131
Volume Resistivity, ASTM D257	1.87E+13 ohm-cm

General Properties	Metric
Hardness, ASTM D2240	71, Shore D
Density, ASTM D792	1.053 g/cm^3
Density (liquid resin)	1.06 g/cm^3
Water Absorption, 23 °C, 24 hours, ASTM D570	0.42 %
Water Absorption, 23 °C, long term, ASTM D570	0.75 %

NOTES—Results in this data sheet are representative of specific sample generation and testing processes and may vary if the established protocols are not followed. Contact Carbon for the specific process used to generate the test samples to determine each of these values. Tensile and flexural data are average ± 1 standard deviation from 16 specimens; impact data used 10 specimens. The U.S. values are converted from Metric measurements and are for reference only.

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We produce.

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