

EPX 81

EPX 81 is our most accurate high strength engineering material. It has a heat deflection temperature of 140 °C.

Tensile Properties ASTM D638, Type V, 1 mm/min	Metric	U.S.
Tensile Modulus	3140 ± 105 MPa	455 ± 15 ksi
Ultimate Tensile Strength	88 ± 3 MPa	13 ± 0.4 ksi
Elongation at Break	5.2 ± 0.7%	

Flexural Properties ASTM D790-B	Metric	U.S.
Flexural Strength	119± 21MPa	17 ± 3 ksi
Flexural Modulus (chord, 0.5-1% strain)	3250 ± 45 MPa	471 ± 6.5 ksi

Impact Properties	Metric	U.S.
Notched Izod (Machined), ASTM D256	23 ± 5 J/m	0.43 ± 0.09ft-lb/in
Unnotched Izod, ASTM D4812	291 ± 48 J/m	5.5 ± 0.9 ft-lb/in

Thermal Properties	Metric	U.S.
Heat Deflection Temperature @ 0.455 MPa/66 psi, ASTM D648	140 °C	284 °F
Heat Deflection Temperature @ 1.82 MPa/264 psi, ASTM D648	131 °C	268 °F
Coefficient of Thermal Expansion (-60, 60 °C), ASTM E831	65 ppm/°C	36 ppm/°F
(60, 130 °C), ASTM E831	93 ppm/°C	52 ppm/°F
(130, 200 °C), ASTM E831	160 ppm/°C	89 ppm/°F
Heat Capacity, 23 °C, ASTM E1269	1.19 J/g-°C	0.284 BTU/lb-°F

Electrical Properties	Metric
Dielectric Strength, ASTM D149	22.4 kV/mm
Dielectric Constant, 1 kHz, ASTM D150	3.04
Dissipation Factor, 1 kHz, ASTM D150	0.00668
Volume Resistivity, ASTM D257	3.08E+14 ohm-cm
Comparative Tracking Index, ASTM D3638	600 V

General Properties	Metric
Hardness, ASTM D2240	90, Shore D
Density, ASTM D792	1.187 g/cm ³
Density (liquid resin)	1.12 g/cm ³
Water Absorption, 23 °C, 24 hours, ASTM D570	0.16%
Water Absorption, 23 °C, long term, ASTM D570	0.80%
Taber Abrasion, ASTM D4060, CS-17, 1 kg, 100 % vacuum	34 mg / 1000 cycles

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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