

DuPont™ Vespel® CR-6110

Chemically-Resistant Shapes for Electronic Applications

Technical Datasheet

DuPont™ Vespel® CR-6110 shapes are the latest carbon-fiber filled thermoplastic fluoropolymer that have demonstrated outstanding performance in aggressive wet chemical / plasma conditions and elevated temperatures. Customers report improved preventative maintenance cycles by switching to Vespel® CR-6110 in wafer cleaning and resist stripping operations. It has also demonstrated good ultraviolet (UV) resistance in Flat Panel Display applications. In dry plasma applications, Vespel® CR-6110 has been used as a thermal insulator and bearing.

Vespel® CR-6110 is available upon request in wide variety of shapes (plaque, sheet, rod, ring, tube) and can also be machined for custom parts in various applications.

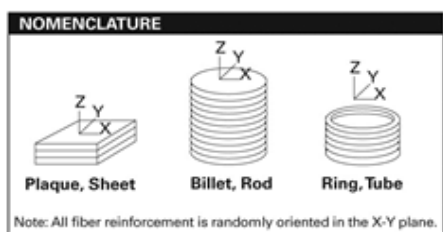
The data presented below are based on limited production runs and are subject to revision as new data becomes available.

Mechanical Property	Temperature	Test Method	Direction	Unit	Typical Values
Tensile Strength	23 °C (73 °F)	ASTM D-638/test specimen modified	x-y z	MPa (ksi)	126 (18) 15 (2)
Tensile Elongation	23 °C (73 °F)	ASTM D-638/test specimen modified	x-y z	%	1.4 0.7
Tensile Modulus	23 °C (73 °F)	ASTM D-638/test specimen modified	x-y z	MPa (ksi)	7,180 (1,050) 2,287 (332)
Compressive Strength	23 °C (73 °F)	ASTM D-695	x-y z	MPa (ksi)	103 (15) 189 (36)
Compressive Modulus	23 °C (73 °F)	ASTM D-695	x-y z	MPa (ksi)	10,045 (1,457) 2,810 (407)
Compressive Strength	260 °C (500 °F)	ASTM D-695	x-y z	MPa (ksi)	25 (3.6) 131 (19)
Compressive Modulus	260 °C (500 °F)	ASTM D-695	x-y z	MPa (ksi)	1,785 (259) 1,137 (165)
Flexural Strength	23 °C (73 °F)	ASTM D-790	x-y	MPa (ksi)	180 (26)
Flexural Modulus	23 °C (73 °F)	ASTM D-790	x-y	MPa (ksi)	12,100 (1,754)



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Thermal Property	Conditions	Test Method	Direction	Unit	Typical Values
Heat Distortion Temperature	1.82 MPa	ASTM D-648	x-y	°C (°F)	319 (606)
Coefficient of Thermal Expansion (CLTE)	23-260 °C (73-500 °F) 35 – 149 °C (95-300 °F) 149 -204 °C (300-399 °F) 204 -260 °C (399-500 °F)	ASTM E-831	x-y z z z	10 ⁻⁶ ppm/°C (10 ⁻⁶ in/in-°F)	5.6 (3) 290 (160) 450 (249) 720 (400)
Other Property	Conditions	Test Method	Direction	Unit	Typical Values
Electrical Property Surface Resistivity	23 °C (73 °F)	JIS K7194	x-y z	Ohm/square	10 ⁻¹ 10 ⁻¹
Volume Resistivity	23 °C (73 °F)	JIS K7194	x-y z	Ohm-cm	10 ⁻² 10 ⁻¹
Hardness	Test force: 1kgf	Micro Vickers ASTM E-384	x-y z	none	11 14
Specific Gravity	23 °C (73 °F)	ASTM D-792	—	—	2.06



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