

# DuPont™ Vespel® SCP-5050

## Polyimide Shapes

### Typical Properties

DuPont™ Vespel® SCP-5050 parts and shapes improve high temperature performance and wear resistance to allow for the replacement of metal and graphite parts. Vespel® SCP-5050 parts and shapes enable more efficient and durable systems, increased performance and reduced maintenance costs. SCP-5050 has a Coefficient of Thermal Expansion (CTE) similar to steel.

*Some data presented below are based on limited production runs and are subject to revision as new knowledge and experience become available.*

Mechanical Properties	Temperature	Test Method	Units	Typical Values
Tensile Strength	23 °C (73 °F) 260 °C (500 °F)	ASTM D-638 D-1708 Specimen	MPa (kpsi)	72 (10.5) 38 (5.6)
Tensile Elongation	23 °C (73 °F) 260 °C (500 °F)	ASTM D-638 D-1708 Specimen	%	2.5 5.3
Young's Modulus	23 °C (73 °F) 260 °C (500 °F)	ASTM D-638 D-1708 Specimen	MPa (kpsi)	8,928 (1,295) 2,931 (425)
Flexural Strength	23 °C (73 °F) 260 °C (500 °F)	ASTM D-790	MPa (kpsi)	130 (19) 73 (11)
Flexural Modulus	23 °C (73 °F) 260 °C (500 °F)	ASTM D-790	MPa (kpsi)	7,800 (1,130) 5,080 (740)
Compressive Strength	23 °C (73 °F) 260 °C (500 °F)	ASTM D-695	MPa (kpsi)	219 (32) 240 (35)
Compressive Modulus	23 °C (73 °F) 260 °C (500 °F)	ASTM D-695	MPa (kpsi)	2,997 (435) 3,138 (455)
Compressive Stress at 10% Strain	23 °C (73 °F) 260 °C (500 °F)	ASTM D-695	MPa (kpsi)	172 (25.0) 184 (26.7)
Rockwell "E" Hardness	—	ASTM D-785	—	63
Deformation Under Load 24 hr, 14 MPa (2 kpsi)	23 °C (73 °F)	ASTM D-621	% deformation	0.03
Thermal Properties				
Coefficient of Thermal Expansion*	23 °C–300 °C (73 °F–572 °F)	ASTM E-831	m/m·°C or m/m·K (in/in·°F)	29 x 10 <sup>-6</sup> (16 x 10 <sup>-6</sup> )
Specific Heat	60 °C (140 °F)	ASTM E-1269	J/kg °C (Btu/lb °F)	920 (0.22)
Other Properties				
Specific Gravity	—	ASTM D-792	—	1.76
Water Absorption after 24 hr	23 °C (73 °F)	ASTM D-570	% weight change	0.04

\*Plaque CTE is 45 x 10<sup>-6</sup> m/m·°C (25 x 10<sup>-6</sup> in/in·°F) in the z direction and 16 x 10<sup>-6</sup> m/m·°C (9 x 10<sup>-6</sup> in/in·°F) in the x, y plane.



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