DuPont™ Vespel® SCP-5000

POLYIMIDE ISOSTATIC SHAPES

TYPICAL ISO PROPERTIES

DuPont™ Vespel® SCP-5000 is a new unfilled polyimide polymer that offers high modulus and surface hardness and improved dimensional stability. Compared to traditional polyimides, it offers better strength and stiffness at high temperatures.

The typical values presented below are preliminary results and are subject to revision.

Mechanical Property	Temperature	ASTM Method	SI (English) Units	Typical Values
Tensile Strength	23°C (73°F) 260°C (500°F)	D-638 D-1708 Specimen	MPa (kpsi)	163 (23.6) 62 (9.0)
Tensile Elongation	23°C (73°F) 260°C (500°F)	D-638 D-1708 Specimen	%	7.5 49
Young's Modulus	23°C (73°F) 260°C (500°F)	D-638 D-1708 Specimen	MPa (kpsi)	3,990 (580) 2,370 (340)
Flexural Strength	23°C (73°F) 260°C (500°F)	D-790	MPa (kpsi)	254 (36.8) 96.5 (14.0)
Flexural Modulus	23°C (73°F) 260°C (500°F)	D-790	MPa (kpsi)	5,760 (836) 3,007 (436)
Compressive Strength	23°C (73°F) 260°C (500°F)	D-695	MPa (kpsi)	640 (92.9) 549 (79.6)
Compressive Modulus	23°C (73°F) 260°C (500°F)	D-695	MPa (kpsi)	9,060 (1,314) 3,698 (536)
Compressive Stress at 10% Strain	23°C (73°F) 260°C (500°F)	D-695	MPa (kpsi)	230 (33.4) 73.6 (10.7)
Deformation Under Load 24 hours, 14 MPa (2 kpsi)	23°C (73°F)	D-621	% deformation	0.05
Rockwell "E" Hardness	—	D-785	—	95
Thermal Property	**Temperature**	**ASTM Method**	**SI (English) Units**	**Typical Values**
Coefficient of Thermal Expansion	23°C – 300°C (73°F – 572°F)	E-831	m/m·°C or m/m·K (in/in·°F)	45×10^{-6} (26×10^{-6})
Specific Heat	60°C (140°F)	E-1269	J/kg °C (Btu/lb °F)	9.2×10^{5} (0.22)

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DuPont™ Vespel® SCP-5000 Typical ISO Properties *continued*

Electrical Property	Temperature	ASTM Method	SI (English) Units	Typical Values
Dielectric Constant, 10^4 Hz 10^6 Hz	23°C (73°F)	D-150	—	3.3 3.3
Dielectric Factor, 10^4 Hz 10^6 Hz	23°C (73°F)	D-150	—	0.001 0.001
Volume Resistivity	23°C (73°F)	D-257	Ohm-m	10^{14}
Surface Resistivity	23°C (73°F)	D-257	Ohm-m	10^{15}
Wear Property	**Temperature**	**ASTM Method**	**SI (English) Units**	**Typical Values**
Coefficient of Friction, Unlubricated, Air • 0.88 (25K) PV • 3.50 (100K) PV	0.7 m/s (134 fpm) 2.0 m/s (400 fpm)	1.3 MPa (187 psi) 1.7 MPa (250 psi)	Falex	0.26 0.15
Other Property	**Temperature**	**ASTM Method**	**SI (English) Units**	**Typical Values**
Specific Gravity	—	D-792	—	1.46
Water Absorption after 24 hours	23°C (73°F)	D-570	% weight change	0.08

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