

# DuPont™ Vespel® SCP-5009

## Polyimide Isostatic Shapes

### Typical SCP-5009 ISO Properties- Rev. 2, April 2011

DuPont™ Vespel® SCP-5009 provides material solutions for high wear and friction applications under high operating pressure and elevated temperature environments. Vespel® SCP-5009 shapes have a low coefficient of thermal expansion and provide good sealing as well as outstanding mechanical properties like high compressive strength and low creep, even at these extreme conditions.

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

Mechanical Property	Temperature	ASTM Method	SI (English) Units	Typical Values
Tensile Strength	23 °C (73 °F) 260 °C (500 °F)	D638 /D1708 Specimen	MPa (kpsi)	116 (16.9) 57 (8.4)
Tensile Modulus	23 °C (73 °F) 260 °C (500 °F)	D638 /D1708 Specimen	MPa (kpsi)	6,003 (871) 2,612 (379)
Tensile Elongation	23 °C (73 °F) 260 °C (500 °F)	D638 /D1708 Specimen	%	3.0 9.7
Flexural Strength	23 °C (73 °F) 260 °C (500 °F)	D790	MPa (kpsi)	195 (28.3) 99 (14.4)
Flexural Modulus	23 °C (73 °F) 260 °C (500 °F)	D790	MPa (kpsi)	6,231 (903) 3,560 (516)
Compressive Strength	23 °C (73 °F) 260 °C (500 °F)	D695	MPa (kpsi)	481 (70) 414 (60)
Compressive Strain, Ultimate	23 °C (73 °F) 260 °C (500 °F)	D695	%	51 66
Compressive Modulus	23 °C (73 °F) 260 °C (500 °F)	D695	MPa (kpsi)	2,594 (376) 1,663 (241)
Compressive Stress at 1% Strain at 10% Strain at 0.1% Offset	23 °C (73 °F)	D695	MPa (kpsi)	31 (4.5) 222 (32.2) 196 (28.5)
Compressive Stress at 1% Strain at 10% Strain at 0.1% Offset	260 °C (500 °F)	D695	MPa (kpsi)	19 (2.8) 96 (13.9) 45 (6.5)



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## DuPont™ Vespel® SCP-5009 ISO Typical Properties (continued)

Thermal Properties	Temperature	Pressure	ASTM Method	SI (English) Units	Typical Values
Coefficient of Linear Thermal Expansion	23–300 °C (73–572 °F)	—	E831	10 <sup>-6</sup> m/m·°C (10 <sup>-6</sup> in/in·°F)	44 (24)
Wear Property	Velocity	Pressure	Method	SI (English) Units	Typical Values
Coefficient of Friction, Unlubricated, Air 25K PV 100K PV	0.7 m/s (134 fpm) 2.0 m/s (400 fpm)	1.3 MPa (187 kpsi) 1.7 MPa (250 kpsi)	Falex	—	0.22 0.14
Other Properties	Temperature	Pressure	ASTM Method	SI (English) Units	Typical Values
Water Absorption	23 °C (73 °F)	—	D570	% weight change % width change % length change	0.09 0.14 0.14
Specific Gravity	23 °C (73 °F)	—	D792	—	1.5
Rockwell "E" Hardness	23 °C (73 °F)	—	D785	—	91
Deformation under Load 10 minutes 24 hours	—	14 MPa (2 kpsi)	D621	%	0.01 0.03

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