

# DuPont™ Vespel® SCP-50094

## POLYIMIDE ISOSTATIC SHAPES

### TYPICAL ISO PROPERTIES

DuPont™ Vespel® SCP-50094 is a proprietary polymer. It is designed for demanding applications that require extensive toughness and chemical resistance.

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

DuPont™ Vespel® SCP-50094 Isostatic Shapes					
Mechanical Property	Temperature	Pressure	ASTM Method	SI (English) Units	Typical Properties
Tensile Strength	23°C (73°F) 260°C (500°F)	—	D-638 Method/ D-1708 Specimen	MPa (kpsi)	124 (18.0) 55 (8.0)
Elongation	23°C (73°F) 260°C (500°F)	—	D-638 Method/ D-1708 Specimen	%	4.3 13
Young's Modulus	23°C (73°F) 260°C (500°F)	—	D-1708	MPa (kpsi)	4140 (600) 2350 (340)
Compressive Strength	23°C (73°F) 260°C (500°F)	—	D-695	MPa (kpsi)	385 (56) 450 (65)
Compressive Strain, Ultimate	23°C (73°F) 260°C (500°F)	—	D-695	%	41 63
Compressive Stress at 10% Strain	23°C (73°F) 260°C (500°F)	—	D-695	MPa (kpsi)	220 (31.9) 81 (11.7)
Flexural Modulus	23°C (73°F) 260°C (500°F)	—	D-790	MPa (kpsi)	6370 (923) 3540 (514)
Flexural Strength	23°C (73°F)	—	D-790	MPa (kpsi)	200 (29)
Rockwell "E" Hardness	23°C (73°F)	—	D785		91
Poisson's Ratio	23°C (73°F) 190°C (374°F)	—	D-638		0.34 0.34
Specific Gravity	23°C (73°F)	—	D-792		1.50
Deformation Under Load, 10 minutes 24 hours Permanent Deformation	23°C (73°F)	14 MPa (2.0 kpsi)	D-621	%	0.03 0.05 0.05
Compressive Creep, 10 hours 100 hours 1000 hours	23°C (73°F)	10 MPa (1.5 kpsi)	D-2990	%	0.02 0.02 0.05
Compressive Creep, 10 hours 100 hours 1000 hours	23°C (73°F)	14 MPa (2.5 kpsi)	D-2990	%	0.03 0.05 0.07
Water Absorption	23°C (73°F)	—	D-570	% weight change	0.06

*continued*



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DuPont™ Vespel® SCP-50094 Typical ISO Properties *continued*

DuPont™ Vespel® SCP-50094 Isostatic Shapes					
Thermal Property	Temperature	Pressure	ASTM Method	SI (English) Units	Typical Properties
Coefficient of Thermal Expansion	23–300°C (73–572°F)	—	E-831	m/m°C (in/in°F)	42.7 x 10 <sup>-6</sup> (23.7 x 10 <sup>-6</sup> )
Thermal Conductivity	50°C (122°F) 100°C (212°F) 150°C (302°F) 200°C (392°F) 250°C (482°F) 300°C (572°F)	—	F-433	W/mK (Btu/hr in°F)	0.59 (0.03) 0.66 (0.03) 0.59 (0.03) 0.59 (0.03) 0.57 (0.03) 0.58 (0.03)
Specific Heat	60°C (140°F)	—	E-1269	J/kg-°C (Btu/lb-°F)	9.2 x 10 <sup>5</sup> (0.22)
Wear Property	Velocity	Pressure	ASTM Method	SI (English) Units	Typical Properties
Coefficient of Friction, Unlubricated, Air					
25K PV	0.7 m/s (134 fpm)	1.3 MPa (187 psi)	Falex		0.25
100K PV	2.0 m/s (400 fpm)	1.7 MPa (250 psi)			0.07
300K PV	3.0 m/s (585 fpm)	3.5 MPa (500 psi)			0.11
Wear Factor, Unlubricated, Air					
25K PV	0.7 m/s (134 fpm)	1.3 MPa (187 psi)	Falex	mm-sec/MPa-m-hr (in <sup>3</sup> -min/ft-lb-hr)	1.7 x 10 <sup>-3</sup> (24 x 10 <sup>-10</sup> )
100K PV	2.0 m/s (400 fpm)	1.7 MPa (250 psi)			0.8 x 10 <sup>-3</sup> (11 x 10 <sup>-10</sup> )
300K PV	3.0 m/s (585 fpm)	3.5 MPa (500 psi)			1.2 x 10 <sup>-3</sup> (17 x 10 <sup>-10</sup> )

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