

DuPont™ Vespel® SP-2515

POLYIMIDE DIRECT FORMED (DF) PARTS

TYPICAL DF PROPERTIES

Parts made from DuPont™ Vespel® SP-2515 offer a low coefficient of thermal expansion (CTE), excellent wear against both aluminum and steel alloys, and a low coefficient of friction in both dry and lubricated conditions. These properties make Vespel® SP-2515 parts ideal for applications such as seal rings, thrust washers, and bushings where high energy efficiency and dimensional stability, over a broad range of temperatures, are a requirement.

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

Mechanical Property	Temperature	Pressure	ASTM Method	SI (English) Units	Typical Values
Tensile Strength	23°C (73°F) 260°C (500°F)	—	D-638 E-8 Specimen	MPa (kpsi)	39 (5.7) 25 (3.6)
Tensile Elongation	23°C (73°F) 260°C (500°F)	—	D-638 E-8 Specimen	%	1.9 2.1
Young's Modulus	23°C (73°F) 260°C (500°F)	—	D-638 E-8 Specimen	MPa (kpsi)	6,340 (920) 2,260 (328)
Flexural Strength	23°C (73°F) 260°C (500°F)	—	D-790	MPa (kpsi)	61 (8.8) 38 (5.5)
Flexural Modulus	23°C (73°F) 260°C (500°F)	—	D-790	MPa (kpsi)	5,560 (807) 3,820 (554)
Compressive Strength	23°C (73°F) 260°C (500°F)	—	D-695	MPa (kpsi)	105 (15.3) 71 (10.3)
Compressive Modulus	23°C (73°F) 260°C (500°F)	—	D-695	MPa (kpsi)	2,080 (302) 1,840 (266)
Deformation Under Load • 10 minutes • 24 hours	23°C (73°F)	14 MPa (2 kpsi)	D-621	% deformation	0.09 0.11
Thermal Property	Temperature	Pressure	ASTM Method	SI (English) Units	Typical Values
Coefficient of Thermal Expansion • Perpendicular • Parallel	50 – 150°C (122 – 302°F)	—	E-831	m/m·°C or m/m·K (in/in·°F)	23 x 10 ⁻⁶ (13 x 10 ⁻⁶) 54 x 10 ⁻⁶ (30 x 10 ⁻⁶)
Thermal Conductivity	50°C (122°F) 100°C (212°F)	—	F-433	W/m·K (Btu/hr·in·°F)	2.05 (0.10) 2.04 (0.10)
Specific Heat	60°C (140°F)	—	E-1269	J/kg·°C (Btu/lb·°F)	895 (0.214)



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DuPont™ Vespel® SP-2515 Typical DF Properties *continued*

Wear Property	Sliding Speed	Pressure	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	—	0.21 0.33
Wear Factor, 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	mm-sec/MPa-m-hr (in ³ -min/ft-lb-hr)	5.4 × 10 ⁻³ (74 × 10 ⁻¹⁰) 20.4 × 10 ⁻³ (282 × 10 ⁻¹⁰)
Other Property	Temperature	Time	ASTM Method	SI (English) Units	Typical Values
Specific Gravity	—	—	D-792	—	1.73
Water Absorption	23°C (73°F)	24 hours	D-570	% weight change	0.3

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