

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)



The miracles of science™

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 x 10 ⁻³ (74 x 10 ⁻¹⁰) 20.4 x 10 ⁻³ (282 x 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

Phone: 800-222-VESP (8377)

Fax: 302-999-2311

E-mail: web-inquiries.DDF@usa.dupont.com

Web: vespel.dupont.com

The data listed here fall within the normal range of properties, but they should not be used to establish specification limits nor used alone as the basis of design. The DuPont Company assumes no obligations or liability for any advice furnished or for any results obtained with respect to this information. All such advice is given and accepted at the buyer's risk. The disclosure of information herein is not a license to operate under, or a recommendation to infringe, any patent of DuPont or others. Since DuPont cannot anticipate all variations in actual end-use conditions, DuPont makes no warranties and assumes no liability in connection with any use of this information.

CAUTION: This product is not permitted to be sold for use in medical applications involving any implantation in the human body or where contact with internal body fluids or tissues will equal or exceed 24 hours. For applications involving contact of less than 24 hours, see "DuPont Medical Caution Statement" H-50102 or contact your DuPont sales representative.

Copyright © 2009 DuPont. The DuPont Oval Logo, DuPont™, The miracles of science™, and Vespel® are registered trademarks or trademarks of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved.

K-21992 (03/25/09) Printed in the U.S.A.



The miracles of science™