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DuPont™ Authorized Distributor



DuPont™ Vespel® Parts and Shapes: SCP Family of Polymers

Benefits

- Product consistency
- Dimensional flexibility
- Alternative to direct formed parts
- Quick and easy global products availability
- Fast prototyping
- Improved economy of scale for lower volume custom parts

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DuPont™ Vespel® Parts and Shapes: SCP Family of Polymers



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samples, or a machining guide,
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Vespel® SCP grades provide the next level performance and more options for your most demanding applications.

The Vespel® SCP family of products deliver improved part life, reduced weight and costs. These benefits are delivered through increased temperature handling, greater strength, improved dimensional stability, broader chemical compatibility and greatly improved wear resistance. Whether you are machining parts from rods or bars, Vespel® SCP shapes provide yet more options to deliver superior performance. DuPont™ Vespel® is committed to delivering Big Science, part by part, faster than ever before.

More ways to improve performance

SCP-5000 is an unfilled polymer providing enhanced strength and dimensional stability.

SCP-5050 and SCP-50094 employ new filler technologies for lower friction and enhanced wear resistance.

Authentic Vespel® Shapes Offer:

- Quick and easy global products availability
- Alternative to direct formed parts
- Dimensional flexibility
- Product consistency
- Fast prototyping
- Improved economies of scale for lower volume custom parts



Vespel® SCP family built on proven experience of delivering solutions to industries that demand results

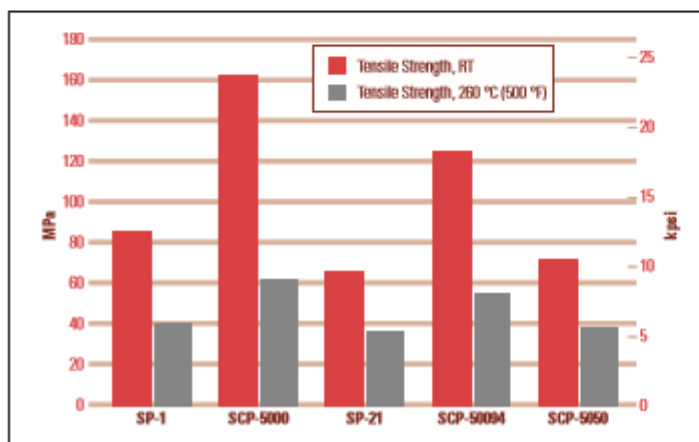
Typical Properties — DuPont™ Vespel® Isostatic Shape Grades

	ASTM Method	Units	Vespel® SP					Vespel® SCP		
			SP-1 Unfilled	SP-21 15% graphite	SP-22 40% graphite	SP-211 15% graphite & 10% Teflon®	SP-3 Vacuum Bearing Grade	SCP-5000 Unfilled	SCP-50094 Graphite Bearing Grade—Low Fill	SCP-5050 Graphite Bearing Grade—High Fill
Mechanical										
Tensile Strength, 23 °C (73 °F)	D1708/D638	MPa (kpsi)	86.2 (12.5)	65.5 (9.5)	51.7 (7.5)	44.8 (6.5)	56.5 (8.2)	163 (23.6)	124 (18.0)	72 (10.5)
Tensile Strength, 260 °C (500 °F)	D1708/D638	MPa (kpsi)	41.4 (6.0)	37.9 (5.5)	23.4 (3.4)	24.1 (3.5)		62 (9)	55 (8.0)	39 (5.6)
Elongation at Break, 23 °C (73 °F)	D1708/D638	%	7.5	4.5	3.0	3.5	4.0	7.5	4.3	2.5
Elongation at Break, 260 °C (500 °F)	D1708/D638	%	6.0	3.0	2.0	3.0		49.0	13.0	5.3
Flexural Modulus, 23 °C (73 °F)	D790	MPa (kpsi)	3100 (450)	3790 (550)	4830 (700)	3100 (450)	3280 (475)	5760 (836)	6360 (923)	7790 (1,130)
Flexural Modulus, 260 °C (500 °F)	D790	MPa (kpsi)	1720 (250)	2550 (370)	2760 (400)	1380 (200)	1860 (270)	3010 (436)	3540 (514)	5100 (740)
Compressive Stress at 10% strain, 23 °C (73 °F)	D695	MPa (kpsi)	133 (19.3)	133 (19.3)	112 (16.3)	102 (14.8)	128 (18.5)	230 (33.4)	220 (31.9)	172 (25)
Deformation Under 13.8 MPa (2,000 psi) load	D621	%	0.14	0.10	0.08	0.13	0.12	0.05	0.05	0.03
Friction										
Coeff. of Friction at PV = .875 MPa m/s (25,000 psi-ft/min)*			0.29	0.24	0.20	0.12	0.25	0.26	0.25	0.12
Coeff. of Friction at PV = 3.5 MPa m/s (100,000 psi-ft/min)*				0.12	0.09	0.08	0.17	0.15	0.07	0.08
Static Coeff. of Friction in Air*			0.35	0.30	0.27	0.20				
PV Limit (unlubricated)**		MPa-m/s (kpsi-ft/min)		12.3 (350)	12.3 (350)	3.5 (100)			17.5 (500)	
Other Properties										
Coeff. of Thermal Expansion, 23–300 °C (73–572 °F)	E831	µm/m/K (10 ⁻⁶ in./in.°F)	54 (30)	49 (27)	38 (21)	54 (30)	52 (29)	47 (26)	43 (24)	29 (16)
Hardness	D785	Rockwell E	45–60	25–45	5–25	1–20	40–55	95	91	63
Water Absorption, 24 hr at 23 °C (73 °F)	D570	%	0.24	0.19	0.14	0.21	0.23	0.08	0.06	0.04

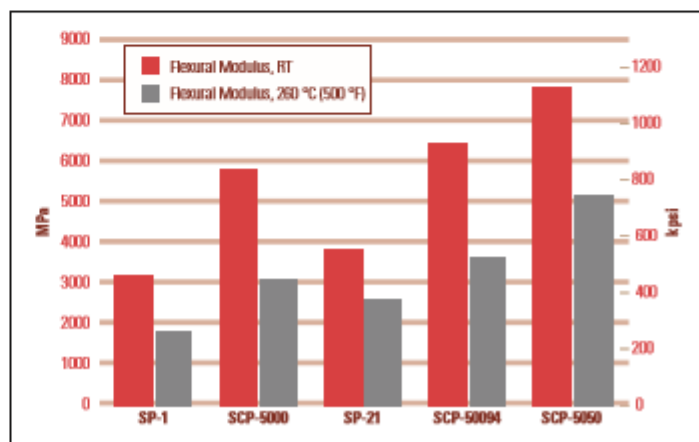
* Versus carbon steel, steady state, unlubricated, in air, thrust bearing.

** PV limits for any material vary with different combinations of pressure and velocity as well as other conditions.

Tensile Strength



Flexural Modulus



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