

# DuPont™ Vespel® Parts and Shapes: SCP Family of Products

## Vespel® SCP grades provide the next level performance and more options for your most demanding applications.

The Vespel® SCP family of products enable improved part life and reduced weight and costs. These benefits are delivered through:

- Increased temperature handling
- Greater mechanical strength
- Improved dimensional stability
- Broader chemical compatibility
- Greatly improved wear resistance.

For your next generation innovation development, Vespel® SCP parts and shapes provide more options to deliver superior performance.

### More ways to improve performance

- SCP-5000 is an unfilled polymer providing enhanced strength and dimensional stability.
- SCP-5009 has excellent combination of physical properties, such as high compressive strength and low tendency to creep, even under extreme conditions.
- SCP-50094 has the highest PV limit of any grade. Excellent combination of physical properties, wear resistance and temperature resistance.
- SCP-5050 has the lowest CTE with unsurpassed wear resistance and thermal stability.



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

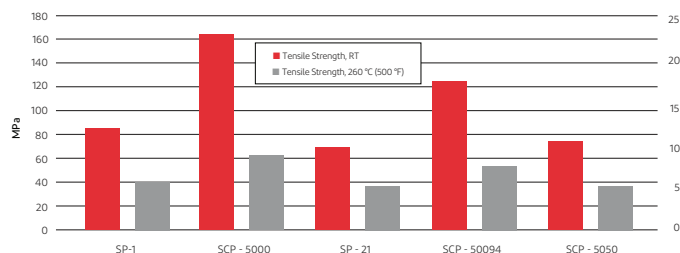
## Typical Properties – DuPont™ Vespel® Isostatic Shape Grades

	ASTM Method	Units	Vespel® SP					Vespel® SCP		
			SP-1 Unfilled	SP-21 Enhanced wear resistance	SP-22 Maximum creep resistance	SP-211 Lowest static friction	SP-3 Vacuum Bearing Grade	SCP-5000 Unfilled	SCP-50094 Highest PV limit grade	SCP-5050 Lowest CTE
<b>Mechanical</b>										
Tensile Strength, 23 °C (73 °F)	D1708/D638	MPa (kpsi)	86.2 (12.5)	65.5 (9.5)	61.7 (7.5)	44.8 (6.5)	56.5 (8.2)	1603 (23.6)	47 (26)	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)	95	39 (5.6)
Elongation at Break, 23 °C (73 °F)	D1708/D638	%	7.5	4.5	3.0	3.5	4.0	7.5	0.08	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 Modules, 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 Modules, 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% stain, 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
<b>Friction</b>										
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	
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	
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)	
<b>Other Properties</b>										
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

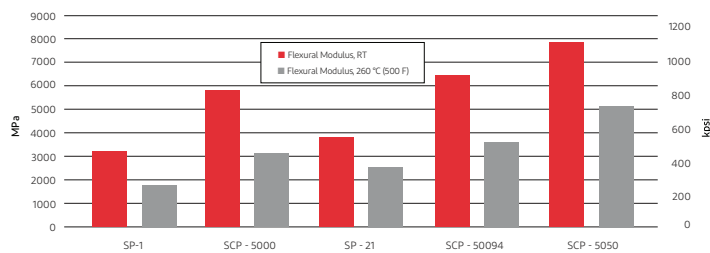
\* Versus carbon steel, steady state, unlubricated, in air, thrust bearing.

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

### Tensile Strength



### Flexural Modules



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