

# DuPont™ Vespel® SCP Shapes Family of Products

## SCP AVAILABLE IN SHAPES



**DuPont™ Vespel® SCP grades provide the next level of performance and more options for your most demanding applications.**

The DuPont™ Vespel® SCP family of products delivers improved part life and 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.

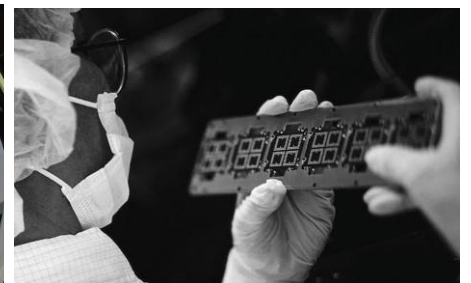


### **More ways to improve performance**

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 product availability
- Alternative to direct formed parts
- Dimensional flexibility
- Product consistency
- Quality certification
- 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.*



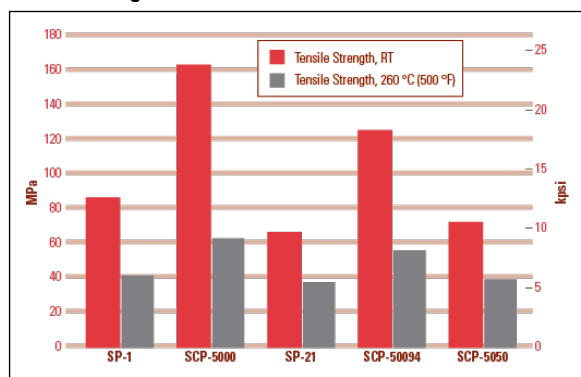
*The miracles of science™*

Typical Properties — DuPont™ Vespel® Isostatic Shape Grades

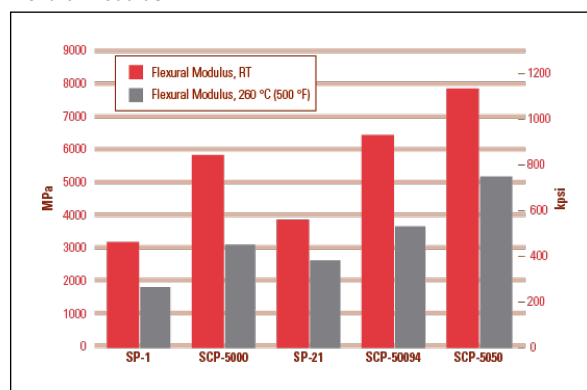
	ASTM Method	Units	Vespel® SP					Vespel® SCP			
			SP-1 Unfilled	SP-21 15% graphite	SP-22 40% graphite	SP-211 15% graphite and 10% Teflon®	SP-3 Vacuum Bearing Grade	SCP-5000 Unfilled	SCP-5009 Graphite filled	SCP-50094 Graphite Bearing Grade—Low fill	SCP-5050 Graphite Bearing Grade—High fill
<b>Mechanical</b>											
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)	116 (16.9)	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)	57 (8.4)	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	3.0	4.3	2.5
Elongation at Break, 260 °C (500 °F)	D1708/D638	%	6.0	3.0	2.0	3.0		49.0	9.7	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)	6231 (903)	6360 (923)	7790 (1130)
Flexural Modulus, 260 °C (500 °F)	D790	MPa (kpsi)	1720 (250)	2550 (370)	2760 (400)	1380 (200)	1860 (270)	3010 (436)	3560 (516)	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)	222 (32.2)	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	0.03	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	0.22	0.25	0.12
Coeff. of Friction at PV = 3.5 MPa m/s (25,000 psi-ft/min)*				0.12	0.09	0.08	0.17	0.15	0.14	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)			25K/0.22 (100K/0.14)	17.5 (500)	
<b>Other Properties</b>											
Coeff. of Thermal Expansion, 23–300 °C (73–572 °F)	E831	µm/m/K (10 <sup>-6</sup> in/in.°F)	54 (30)	49 (27)	38 (21)	54 (30)	52 (29)	47 (26)	44 (24)	43 (24)	29 (16)
Hardness	D785	Rockwell E	45–60	25–45	5–25	1–20	40–55	95	91	91	63
Water Absorption, 24 hr at 23 °C (73 °F)	D570	%	0.24	0.19	0.14	0.21	0.23	0.08	0.14	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



Visit us at [kalrez.dupont.com](http://kalrez.dupont.com) or [vespel.dupont.com](http://vespel.dupont.com)

Contact DuPont at the following regional locations:

**North America**  
800-222-8377

**Latin America**  
+0800 17 17 15

**Europe, Middle East, Africa**  
+41 22 717 51 11

**Greater China**  
+86-400-8851-888

**ASEAN**  
+65-6586-3688

**Japan**  
+81-3-5521-8484

The information set forth herein is furnished free of charge and is based on technical data that DuPont believes to be reliable and falls within the normal range of properties. It is intended for use by persons having technical skill, at their own discretion and risk. This data should not be used to establish specification limits nor used alone as the basis of design. Handling precaution information is given with the understanding that those using it will satisfy themselves that their particular conditions of use present no health or safety hazards. Since conditions of product use and disposal are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. As with any product, evaluation under end-use conditions prior to specification is essential. Nothing herein is to be taken as a license to operate or a recommendation to infringe on patents.

Caution: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, discuss with your DuPont customer service representative and read Medical Caution Statement H-50103-3.

Copyright © 2011 DuPont. The DuPont Oval Logo, DuPont™, The miracles of science™, Teflon®, Kalrez® and Vespel® are trademarks or registered trademarks of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved.

(02/10) Reference No. VPE-A11004-00-A1111 Previously K-21998-1



Curbell Plastics is a proud supplier of DuPont™ Vespel® Polyimide Shapes.

1.888.CURBELL  
www.curbellplastics.com

