

# DuPont™ Vespel® SCP Family of Polymers

## NOW AVAILABLE IN SHAPES



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

The DuPont™ 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.

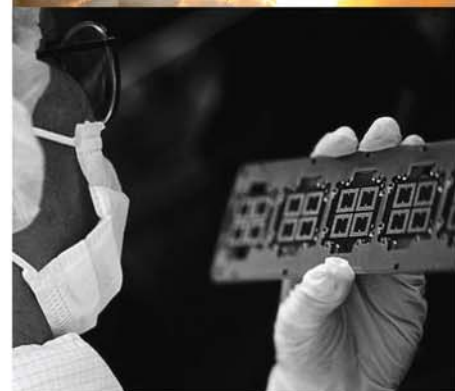
### More Ways to Improve Performance

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 product availability
- Value chain alternatives
- 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.**

For technical support,  
material samples, or  
a machining guide, call  
1-800-222-VESP (8377)  
[www.vespel.dupont.com](http://www.vespel.dupont.com)



*The miracles of science™*

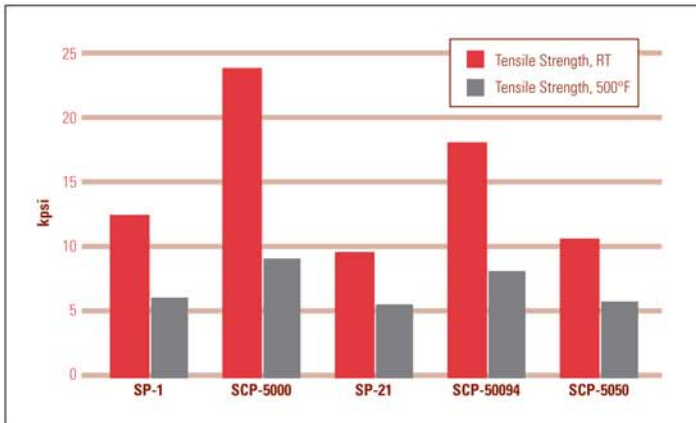
## Typical Properties — DuPont™ Vespel® Isostatic Shape Grades

|  | ASTM Method | Units                     | Vespel® SP |              |              |                            |                      | Vespel® SCP |                        |                        |
|--|-------------|---------------------------|------------|--------------|--------------|----------------------------|----------------------|-------------|------------------------|------------------------|
|  |             |                           | SP-1       | SP-21        | SP-22        | SP-211                     | SP-3                 | SCP-5000    | SCP-50094              | SCP-5050               |
|  |             |                           | Unfilled   | 15% graphite | 40% graphite | 15% graphite & 10% Teflon® | Vacuum Bearing Grade | Unfilled    | Graphite Bearing Grade | Graphite Bearing Grade |
| <b>Mechanical</b>                              |             |                           |            |              |              |                            |                      |             |                        |                        |
| Tensile Strength, 73°F                         | D1708/D638  | kpsi                      | 12.5       | 9.5          | 7.5          | 6.5                        | 8.2                  | 23.6        | 18.0                   | 10.5                   |
| Tensile Strength, 500°F                        | D1708/D638  | kpsi                      | 6.0        | 5.5          | 3.4          | 3.5                        |                      | 9           | 8.0                    | 5.6                    |
| Elongation at Break, 73°F                      | D1708/D638  | %                         | 7.5        | 4.5          | 3.0          | 3.5                        | 4.0                  | 7.5         | 4.3                    | 2.5                    |
| Elongation at Break, 500°F                     | D1708/D638  | %                         | 6.0        | 3.0          | 2.0          | 3.0                        |                      | 49          | 13                     | 5.3                    |
| Flexural Modulus, 73°F                         | D790        | kpsi                      | 450        | 550          | 700          | 450                        | 475                  | 836         | 923                    | 1,130                  |
| Flexural Modulus, 500°F                        | D790        | kpsi                      | 250        | 370          | 400          | 200                        | 270                  | 436         | 514                    | 740                    |
| Compressive Stress at 10% strain, 73°F         | D695        | kpsi                      | 19.3       | 19.3         | 16.3         | 14.8                       | 18.5                 | 33.4        | 31.9                   | 25                     |
| Deformation Under 2,000 psi Load               | D621        | %                         | 0.14       | 0.10         | 0.08         | 0.13                       | 0.12                 | .05         | .05                    | 0.03                   |
| <b>Friction</b>                                |             |                           |            |              |              |                            |                      |             |                        |                        |
| Coeff. of Friction at PV = 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 = 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)**                      |             | kpsi ft/min               |            | 350          | 350          | 100                        |                      |             | 500                    |                        |
| <b>Other Properties</b>                        |             |                           |            |              |              |                            |                      |             |                        |                        |
| Coeff. of Thermal Expansion, 73–500°F          | D696        | 10 <sup>-6</sup> in/in-°F | 30         | 27           | 21           | 30                         | 29                   | 26          | 24                     | 16                     |
| Hardness                                       | D785        | Rock E                    | 45–60      | 25–45        | 5–25         | 1–20                       | 40–55                | 95          | 91                     | 63                     |
| Water Absorption, 24 hr at 73°F, 100% RH       | D570        | %                         | 0.24       | 0.19         | 0.14         | 0.21                       | 0.23                 | 0.08        | 0.06                   | 0.04                   |

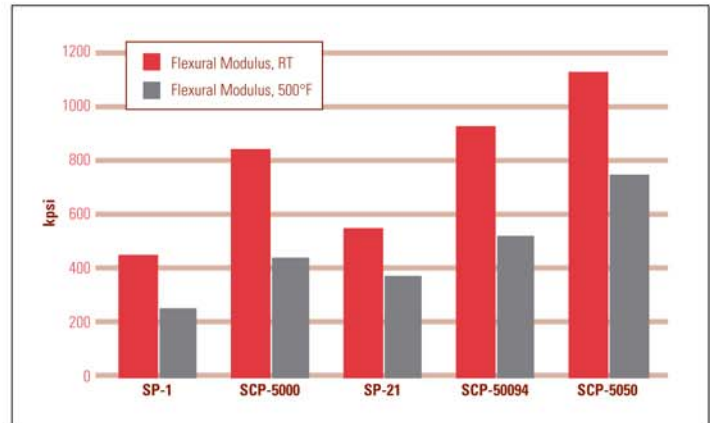
\* Versus carbon steel, steady state, unlubricated, in air, thrust bearing.

\*\* 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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