

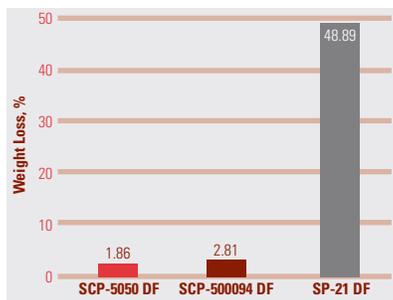
DuPont™ Vespel® SCP Parts Step Up to Take More Heat and Fight Wear

You can extend part life, reduce weight and cut costs by replacing metal parts and assemblies with new DuPont™ Vespel® SCP-5050 and SCP-50094 direct-formed (DF) parts that can work in more demanding temperature wear environments than traditional polyimide components.



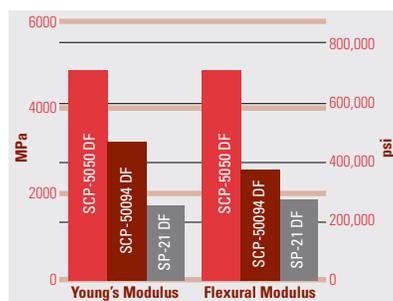
Superior heat stability

Fig. 1: Thermal oxidative stability, 100 hours at 371°C (700°F), 4.76 atm (70 psia)



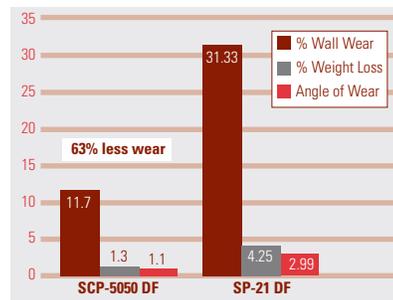
Stiff when hot

Fig. 3: Young's and flexural modulus at 260°C (500°F)



More hot wear resistance

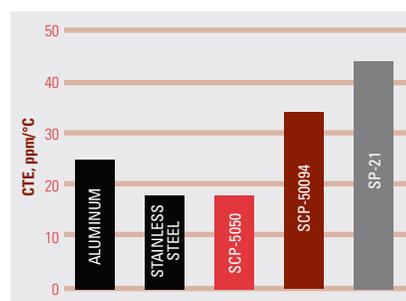
Fig. 2: Wear*, 500,000 cycles at 343°C (650°F)



*Oscillating wear tests of bushings with both axial and cantilevered loads

Metal-like dimensional stability

Fig. 4: Coefficient of thermal expansion



When the going gets hot...

Now there's an alternative to metal in aerospace and industrial applications where even traditional polyimides fall short on high temperature properties. New Vespel® SCP-5050 and SCP-50094 parts combine a new polyimide polymer with advanced filler technology. The new polymer provides higher temperature resistance and a lower coefficient of thermal expansion than traditional polyimides. The new filler technology reduces friction and dramatically improves wear resistance versus Vespel® SP-21 parts.

Extended part life

Thanks to their superior thermal oxidative stability (Figure 1) and wear resistance at elevated temperature (Figure 2), Vespel® SCP-5050 and SCP-50094 parts can last longer than traditional polyimides in high temperature wear environments.

Lighter weight

Vespel® SCP-5050 and SCP-50094 parts allow you to save weight by replacing metal in more high temperature environments. Both are much stiffer than traditional filled polyimides at elevated temperature (Figure 3). Their low coefficient of thermal expansion (Figure 4) allows closer fits and easier-to-manage tolerance stackups for your designs. The CTE of SCP-5050 parts is a near match for that of stainless steel.

Reduced costs

Replacing metal with Vespel® SCP-5050 or SCP-50094 parts can save on both initial and lifetime costs.

- Lower initial cost than hard-faced or specially treated metal wear parts for parts like bushings.
- Less wear on mating high-value components—jet engine stators for example—can sharply cut maintenance costs.



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continued

What to make of them

DuPont™ Vespel® SCP-5050 and SCP-50094 parts can deliver major benefits in aerospace and other industries.

Jet engines: Leading global manufacturers are already using Vespel® SCP-5050 and SCP-50094 parts installed in engine applications, upgrading the wear performance of traditional polyimide parts and replacing metal parts in high temperature environments where traditional polyimides have not been used because of previous temperature limitations. Typical applications include wear pads and strips, thrust washers, bushings, bearings, bumpers and more.

Other aerospace uses. The outstanding wear performance of Vespel® SCP parts can also provide benefits in aerospace uses where temperatures are less severe than engines. Examples include control linkage components, door mechanisms, bushings, bearings, bumpers, wear pads and thrust washers.

Other industries. Vespel® SCP-5050 and SCP-50094 parts are delivering cost and performance benefits in vehicles, as well as industrial equipment requiring higher temperature capabilities, wear

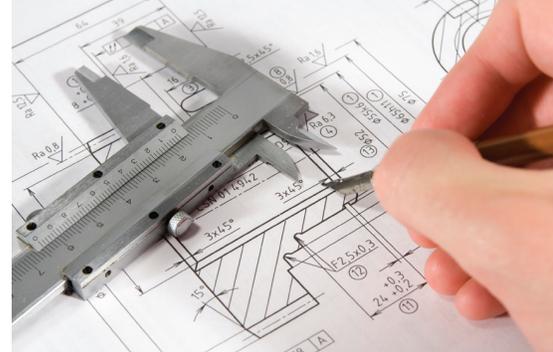
resistance and dimensional stability than traditional polyimides and metal bearings. In glass manufacturing, for example, they open possibilities for guide and holder components used in even hotter process areas and/or equipment where longer life components and improved uptime deliver benefits over the currently used graphite components.

For seals, insulators and more

An unfilled grade in the SCP series, Vespel® SCP-5000 uses the same base polyimide as SCP-5050 and SCP-50094. It delivers major benefits in applications such as insulators requiring dielectric properties or seals and valve seats needing enhanced high-temperature performance and chemical compatibility. To learn more, please visit <http://dupont.vespel.com> or contact the nearest DuPont location listed here.

Let's talk

We have the right materials, technology and technical resources to help you design and manufacture superior parts and systems. Please contact the nearest DuPont representative for your country.



Our application specialists stand ready to assist you in designing your part.

Americas

DuPont™ Vespel®
Pencader Site
Newark, DE 19714-6100
Tel: 800-222-VESP (222-8377)
Fax: (302) 733-8137

DuPont do Brasil, S.A.
Alameda Itapecuru, 506
06454-080 Barueri, SP Brasil
Telephone +55 11 4166 8542
Fax +55 11 4166 8720

Asia Pacific

DuPont (China) Research &
Development Management Co., Ltd
Zhangjiang Hi-Tech Park
600 Caliu Road
Pudong New District
Shanghai 201203, China
Tel: 86 21 28921122
Fax: 86 21 28921234

DuPont Kabushiki Japan
Sanno Park Tower
11-1 Naguta-cho 2-chome
Chiyoda-ku, Tokyo, 100-6111
Japan
Tel: +81-3-5521-2773
Fax: +81-3-5521-2777

Europe / Middle East / Africa

DuPont de Nemours
(Belgium) BVBA-SPRL
Engineered Parts Center
A. Spinoystraat 6
B-2800 Mechelen
Belgium
Tel: ++32 15 441384
Fax: ++32 15 441408

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