Polymer-Filled Polytetrafluoroethylene (SP-50)

SP-50 is a general-purpose material for use in vacuum, dry air, and inert gas applications in contact with surfaces made from 300 series stainless steel, aluminum, and other soft materials. SP-50 has low abrasion to mating parts.

The high PV (pressure-velocity) values of SP-50 make it suitable for sealing at high speeds and low pressures in dry environment applications. SP-50 is recommended for dry general service applications at temperatures from -320 to +475°F (-196°C to +246 °C).

Chemical Compatibility

SP-50 has excellent chemical compatibility. This material is compatible with most fluids and gases, but it is not recommended for use with sulfuric and nitric acids, alkali metals, chloride fluoride, lithium, potassium and sodium at high temperatures. (For more compatibility information, request report TR-60A, or go to [http://www.balseal.com/techlib. Select Technical Reports (Login Required), then select TR-60A Chemical Compatibility Guide](http://www.balseal.com/techlib).)

FDA Compliance

SP-50 is “FDA compatible.” (Request Research Report 50-640 for Bal Seal’s definition of FDA compliant).

Mechanical Properties

The mechanical properties of SP-50 at ambient temperatures are:

- Tensile strength: ASTM D638 2100 psi (148 kg/cm²)
- Elongation: ASTM D638 170%

The following chart shows the wear rate of SP-50 when it comes in contact with different media at various speeds and pressures.

<table>
<thead>
<tr>
<th>Speed (FPM) – pressure (PSI)</th>
<th>AIR</th>
<th>WATER</th>
<th>OIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wear Rate at 50,000 P.V.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wear Rate at 100,000 P.V.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed (75 FPM) – pressure (667 PSI)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.60 x 10^-10 (0.07 x 10^-7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed (100 FPM) – pressure (1000 PSI)</td>
<td>492 x 10^-10 (58.34 x 10^-7)</td>
<td>1500 x 10^-10 (177.88 x 10^-7)</td>
<td>0.20 x 10^-10 (0.02 x 10^-7)</td>
</tr>
<tr>
<td>Speed (1000 FPM) – pressure (1000 PSI)</td>
<td></td>
<td></td>
<td>0.40 x 10^-10 (0.05 x 10^-7)</td>
</tr>
</tbody>
</table>

Color

Grayish brown

Cost

$$$

Advantages of SP-50

- High PV values in vacuum and dry media applications
- Low abrasion to soft materials

Other Information

For additional information, please contact our Technical Sales Representative at (949) 460-2100. Bal Seal maintains a vast library of material references and testing information.