Virgin Polytetrafluoroethylene (PTFE)

PTFE is a general-purpose material used in applications where low friction and chemical compatibility are important. PTFE performs well in low temperatures and has the lowest coefficient of friction of any solid material.

PTFE is usually limited to light duty service in vacuum and inert gases because it is subject to cold flow and exhibits high wear in water and other aqueous solutions. Recommended for general service applications, PTFE may be used in cryogenic services and food contact applications at temperatures from -450 °F to +450 °F (-268 °C to +232 °C).

Chemical Compatibility

PTFE has excellent chemical compatibility. The material is compatible with all fluids, except fluorinated fluids and alkali metals. (For more compatibility information, request report TR-60A, or go to http://www.balseal.com/techlib. Select Technical Reports, then select TR-60A Chemical Compatibility Guide.)

FDA Compliance

PTFE is an "FDA compliant" resin for use in food contact applications. (Request Research Report 50-640 for Bal Seal's definition of FDA compliant).

Mechanical Properties

The mechanical properties of PTFE at ambient temperatures are:

- Tensile strength: ASTM D638 - 4000 psi (281 kg/cm²)
- Elongation: ASTM D638 - 260%

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

<table>
<thead>
<tr>
<th>Speed (75 FPM) – pressure (667 PSI)</th>
<th>Speed (100 FPM) – pressure (1000 PSI)</th>
<th>Speed (1000 FPM) – pressure (100 PSI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR Weat Rate at 50,000 P.V.</td>
<td>WATER Wear Rate at 100,000 P.V.</td>
<td>OIL Wear Rate at 100,000 P.V.</td>
</tr>
<tr>
<td>2500 x 10^-10 (296 x 10^-7)</td>
<td>1000 x 10^-10 (119 x 10^-7)</td>
<td>Not suitable</td>
</tr>
<tr>
<td>Not suitable</td>
<td>400 x 10^-10 (47 x 10^-7)</td>
<td>Not suitable</td>
</tr>
</tbody>
</table>

Color

White

Cost

$ -

Advantages of PTFE

- Inert to nearly all chemicals
- Non-sticking
- Lowest coefficient of friction of any solid in air
- Low cost

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.