

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, chlorine 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](#))

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/cm ²)
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.

"K" Wear Factor In ³ -min./ft-lb-hr x 10 ⁻¹⁰ ("K" Cm ³ -min./Kg-m-hr x 10 ⁻⁷)				
AIR	WATER		OIL	
Wear Rate at 50,000 P.V.	Wear Rate at 100,000 P.V.		Wear Rate at 100,000 P.V.	
Speed (75 FPM) – pressure (667 PSI)	Speed (100 FPM) – pressure (1000 PSI)	Speed (1000 FPM) – pressure (100 PSI)	Speed (100 FPM) – pressure (1000 PSI)	Speed (1000 FPM) – pressure (100 PSI)
0.60 x 10 ⁻¹⁰ (0.07 x 10 ⁻⁷)	492 x 10 ⁻¹⁰ (58.34 x 10 ⁻⁷)	1500 x 10 ⁻¹⁰ (177.88 x 10 ⁻⁷)	0.20 x 10 ⁻¹⁰ (0.02 x 10 ⁻⁷)	0.40 x 10 ⁻¹⁰ (0.05 x 10 ⁻⁷)

Color

Grayish brown

Cost

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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.

It is essential that the customer run evaluation testing under actual service conditions with a sufficient safety factor to determine if the proposed, supplied, or purchased, Bal Seal Engineering products are suitable for the intended purpose and to confirm expected results. Bal Seal Engineering makes no warranty, express or implied, regarding Bal Seal Engineering products or of the information contained herein, including but not limited to, warranties of merchantability, performance, and fitness for a particular use or purpose. Bal Seal Engineering shall not be liable for any loss or damage of any kind or nature that may result from the use of, reference to, or reliance on, the information contained herein, including, but not limited to, consequential, special (including loss of profits) direct, indirect, incidental, or similar damages, even if Bal Seal Engineering has been advised of the possibility of such damages. © 2010 M16 (623-15 and 623-64) 04-13-10

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