

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/cm ²)
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.

"K" Wear Factor <i>ln³-min./ft-lb-hr x 10⁻¹⁰ ("K" Cm³-min./Kg-m-hr x 10⁻⁷)</i>				
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)
2500 x 10 ⁻¹⁰ (296 x 10 ⁻⁷)	1000 x 10 ⁻¹⁰ (119 x 10 ⁻⁷)	Not suitable	400 x 10 ⁻¹⁰ (47 x 10 ⁻⁷)	Not suitable

Color

White

Cost

\$

Advantages of PTFE

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

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 RT-26 (108-2); M6 Rev. C (623-5 and 623-64) 04-13-10