

Graphite Fiber-Reinforced Polytetrafluoroethylene (GFP55)

A reinforced graphite fiber PTFE material, **GFP55** is used in moderate to extreme service conditions. This material has excellent wear resistance in a wide range of speeds, in low to medium pressures and in high temperatures.

GFP55 performs well in water and other liquid solutions and has limited use in vacuum or inert gas applications. Dynamic surfaces in contact with a seal made from **GFP55** should have a hardness of Rc 40 or higher.

GFP55 is recommended for applications that require good wear resistance in liquids and humid conditions at temperatures from -320 °F to +500 °F (-196 °C to +260 °C), such as logging tools, dispensing systems, and laboratory equipment.

Chemical Compatibility

GFP55 has excellent chemical compatibility. This material is compatible with most fluids and gases, except some acids, such as sulfuric, nitric and hydrofluoric acids. For more details, reference Technical Report TR-60A in our online technical library at www.balseal.com.

FDA Compliance

GFP55 is not FDA compliant or compatible.

Mechanical Properties

The mechanical properties of **GFP55** at ambient temperatures are:

| | | |
|------------------|-----------|------------------------------------|
| Tensile strength | ASTM D638 | 2500 psi (176 kg/cm ²) |
| Elongation | ASTM D638 | 200% |

The following chart shows the wear rate of **GFP55** 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 20,000 P.V. | Wear Rate at 75,000 P.V. | | Wear Rate at 75,000 P.V. | |
| Speed (75 FPM) – pressure (267 PSI) | Speed (75 FPM) – pressure (1000 PSI) | Speed (300 FPM) – pressure (250 PSI) | Speed (75 FPM) – pressure (1000 PSI) | Speed (300 FPM) – pressure (250 PSI) |
| 61.2 x 10 ⁻¹⁰ (7.3 x 10 ⁻⁷) | 4.1 x 10 ⁻¹⁰ (0.49 x 10 ⁻⁷) | 2.0 x 10 ⁻¹⁰ (0.24 x 10 ⁻⁷) | 1.5 x 10 ⁻¹⁰ (0.18 x 10 ⁻⁷) | 1.3 x 10 ⁻¹⁰ (0.15 x 10 ⁻⁷) |

Color

Black

Advantages of GFP55

- Lower extrusion, creep, and wear than PTFE, G, and GC in air, water, and oil media.

Other Information

For additional information, please contact a Technical Sales Representative at (949) 460-2100. We maintain 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 M 54 Rev. A (623-59 and 623-64) 04-13-10