



Q: *“Is Moisture Absorption A Problem With Composite Bearings?”*

A: A common misconception with composite bearings is that they are prone to moisture absorption. This can be of special concern for applications that may not be sealed and may be subjected to simple environmental moisture.

The issue of moisture absorption is not a problem for the Polygon family of PolyLube™ composite bearings.

When PolyLube bearings are tested in a complete immersion chamber, their 2-hour water absorption is 0.12%; when the test is extended to 24 hours the water absorption is 0.16%.



This stands in stark contrast to injection molded thermoplastic bearings. This type of bearing material is subject to swelling when improperly sealed and exposed to environmental moisture. This swelling is in part inherent in the compositional structure of a sintered thermoplastic resin, but is also exacerbated by the fact that as a thermoplastic bearing is cycled; the lubricants migrate toward the surface to achieve film-transfer for the self-lubrication process. As this migration happens, the resulting resin matrix is left fully mechanically loaded in the bearing assembly, but without the lubricant media that was participating in the load dispersion.

With the lubricants migrating to the surface, the resulting voids create pockets where moisture can work into and be entrapped. This leads to swelling which drives geometric tolerance problems and inconsistent mechanical properties due to altered modulus values.

For additional information, contact a sales engineer at sales@polygoncompany.com or via telephone at 1-800-918-9261.

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