Polymer Dynamix

EverGlide® SG

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EverGlide® SG is a patent-pending technology based on a reactively modified polysiloxane. The reactive modification makes for a uniquely shaped particle-like additive that has unique features like a solid and a liquid. Compounds made with EverGlide® SG have excellent lubricity, wear and abrasion resistance even in very harsh and demanding environ-

EverGlide® SG Technology Offers:

- Excellent thermal stability (400°C+)
- High wear resistance
- Low usage level required
- Excellent performance in extreme conditions
- No discoloration
- Cost savings

Lubricating Plastic

Many materials have been used over the years to lubricate plastic, from PTFE to low molecular weight waxes and each has undesirable side effects. The low molecular weight waxes have limited thermal stability and migrate to the surface causing issues during processing and only lasting for a short period until the wax has been worn away. PTFE, in contrast, is a permanent lubricant that will not melt or migrate during processing, however to achieve the desired lubrication, 15-20% PTFE is generally required. This high loading of PTFE can significantly hurt the mechanical properties of a resin as well as increase cost. EverGlide® SG is a "super" lubricant which does not migrate, offers higher durability and performance than PTFE. Compounds made with EverGlide® SG provide a significant improvement in wear resistance over traditional additives while giving a significant cost savings, more freedom in formulation and often better physical properties.

Unrivalled Wear Performance in Any Polymer

For comparison, a compound EverGlide® SG was evaluated against 20% PTFE filled compounds of PPS and PEEK. The materials were evaluated using LPV (limiting pressure velocity) and wear factor.

LPV is run by keeping velocity constant at a designated speed and increasing pressure until the sample fuses or fails. Hence the LPV value is reported as pressure multiplied by the velocity at failure, therefore the higher the number, the better the performance.

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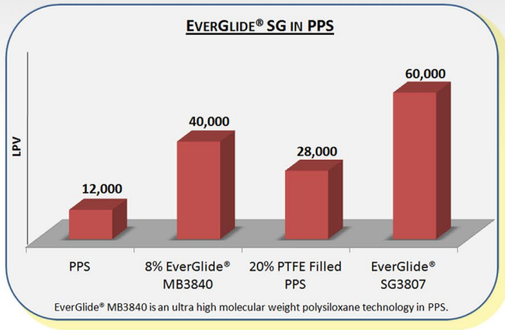
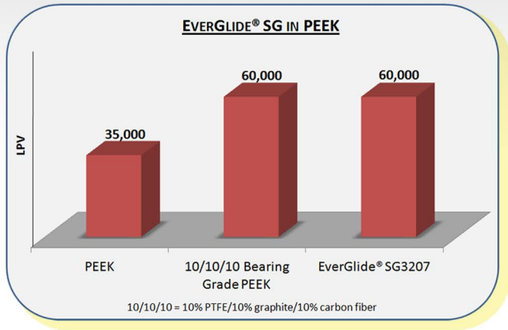
Nice to Have Benefits:

- Greater efficacy
- Approved for FDA and EU food contact applications
- Paintable and printable
- Non-migratory
- Available in most polymers
- Improved processing
- Improved surface appearance
- Available in compound or masterbatch
- Can be combined with other technologies

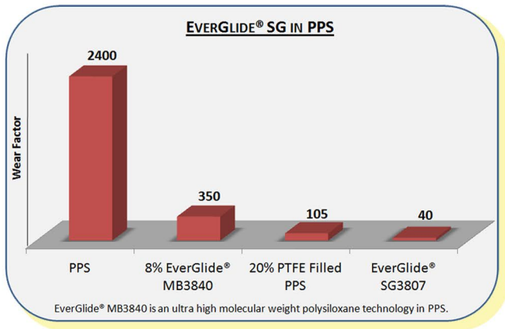


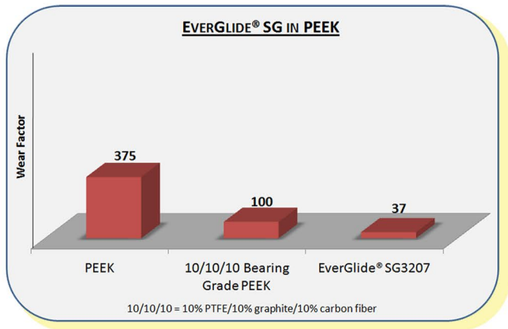


As the charts demonstrate the EverGlide® SG technology not only out performs the incumbent wear technology, but it offers synergies with other technologies to allow for compounds with far superior wear properties.

The results of the LPV test for initial evaluation demonstrated that the EverGlide® SG technology offers a substantial increase in the overall performance of the plastic. We continued our evaluation by testing wear factor in conformance with ASTM D3702. This standard sets a constant velocity and pressure and runs continuously until failure or completion of the duration (seven days). During this test, weight and volume loss as well as rate of each is monitored and used to calculate the wear factor.

Wear factor, having units $(in^3\ min)/(ft\ lb\ hr)x10^{-8}$, is determined using a formula from ASTM D 3702. This number takes into account the size of the sample, pressure, velocity and time where the resulting number is indicative of the wear performance of the plastic. The lower the number, the greater the wear resistance, of the plastic.





The result of the wear test for PPS demonstrates that the EverGlide® SG offers almost 7x the wear performance of PPS itself and more than 2x the wear properties of the incumbent technology. When we evaluated the EverGlide® SG in PEEK, the technology improved the wear properties 10x while offering almost 3x the performance of the incumbent technology.

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formulations that *free* your imagination

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