



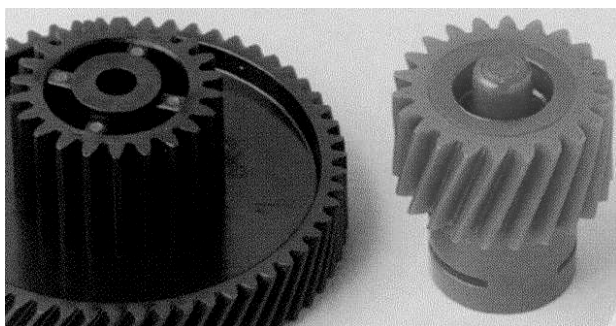
Fluoroguard[®]

polymer additive

Fluoroguard[®]/Acetal Benefits

Fluoroguard[®] incorporation in acetal improves properties of the compounds. The major improvements* are

- Reduced melt viscosity
- Increased wear resistance
- Increased flex fatigue resistance
- Reduced coefficient of friction
- Increased thermal stability



These property enhancements will provide a competitive edge for acetal/Fluoroguard[®] compounds over the currently available materials for polymer gear and bushing.

Melt Viscosity

Fluoroguard[®] improves the flow properties of polymer compounds. The melt viscosity of acetal/Fluoroguard[®] compounds was examined using a capillary rheometer at 210°C (410°F). It has been observed that Fluoroguard[®] reduces the melt viscosity of acetal resins. For example, 1% Fluoroguard[®] reduces the shear viscosity of Delrin[®] 100P and Delrin[®] 500P by 35% and 16%, respectively, at 1000 s⁻¹ shear rate.

* These observations are based on preliminary tests. The study is ongoing for further verification

Coefficient of Friction

Fluoroguard[®] reduces the coefficient of friction (COF) of acetal. COF of acetal was found to reduce depending on the Fluoroguard[®] loading. For example, 1% Fluoroguard[®] loading in acetal (Delrin[®] 500P) reduces the static COF by 30% and dynamic COF by 20%, when the contact surfaces were acetal and metal.

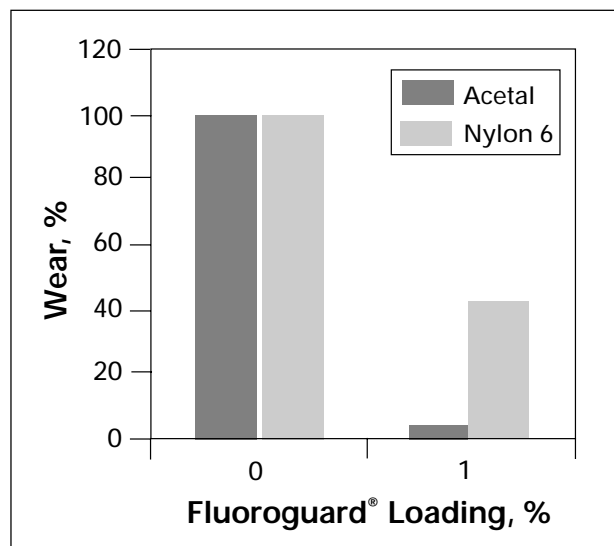
Flex Fatigue

It has been found that Fluoroguard[®] increases the flex fatigue resistance of Delrin[®]. For example, Fluoroguard[®] compounds (0.5 or 1% Fluoroguard[®]) withstood flex cycles more than 2.5 million, whereas control withstood only about 2.0 million when the applied bending stress was 4,500 psi. Similar trend was also observed for applied bending stress of 5,000 psi.

Wear

Fluoroguard[®] significantly improves the wear resistance of polymer compounds. It has been observed that the addition of 1% Fluoroguard[®] reduces the wear (ASTM 3702 vs. 1018C Steel at 40 psi, 50 ft/min) of acetal by 97% and nylon 6 by 58% (**Figure 1**).

Figure 1. Polymer/Fluoroguard[®] Wear



For more information or technical assistance,
call the Fluoroguard® hot line at:

(800) 424-7502

or visit us on the Worldwide Web at:

<http://www.fluoroguard.com>

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