



Corporate

NEWS

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Contact: Jim HASELEY
Phone: +1 330-319-3967
Email: jim.haseley@dowcorning.com

**Koby Environmental chooses siloxane lubricant from Multibase to reduce friction
in its locking plugs for groundwater monitoring wells.**

Ultra-high-molecular-weight additive reduces force
required to adjust threaded wing-nut in glass-filled nylon device.

Copley, Ohio – February 12, 2010 – Koby Environmental, Inc., manufactures a line of Torquer® locking plugs to secure the access pipes in groundwater monitoring wells. The plugs are made in a variety of sizes to accommodate pipe diameters from one-half inch to eight inches. The devices are injection molded from glass-filled nylon to provide sufficient stiffness in operation, particularly for the larger sizes.

In an elegant design, a wing nut compresses an elastomeric gasket between top and bottom plates, creating a seal between the gasket and the inside of the access pipe. “There is nylon-to-nylon contact at the threaded lower compression plate and in a shallow recess that locates the unthreaded shoulder of the wing nut in the center of the top plate,” explains Tom Koby, president of Koby Environmental, Inc. “Without lubrication, friction at these points would make it next to impossible to turn the wing nut by hand.”

Powerful performance; simple processing

During product development, Koby tried replacing the glass-filled nylon with a lubricated version from the same supplier without success. Now the company adds 2% by weight of a Dow Corning® Siloxane Masterbatch from Multibase, Inc., to reduce the coefficient of friction at the surface of the parts. The additive is either tumbled with the other components at the start of batch preparation, or introduced at the press. “It’s as easy to add to our process as any of the colors we use,” says Tom Koby.

Ted Hays, America’s development manager for material and application engineering at Multibase, identifies the masterbatch used in this application as a 50% concentration of Dow Corning® siloxane in a matrix of

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thermoplastic resin. “This is an extremely long-chain polymer,” he points out, “with an ultra-high molecular weight.” Its viscosity is greater than 15 million centistokes (cSt), compared with 60,000 to 100,000 cSt for silicone oils. Consequently, the lubricant is present at the surface, but does not migrate to the surface and cover it, like lower-molecular-weight oils or waxes. “There is a high concentration of the nylon resin at the surface,” adds Hays, “so Koby can use pad printing to put its company logo on the plugs, along with operational instructions.”

Multibase compounds ultra-high-molecular-weight polydimethylsiloxane into a wide range of polymer matrices, producing a lineup of masterbatch products that enhance the processing or performance characteristics of many thermoplastic materials. Most of the products feature siloxane concentrations of 25 or 50%, but specialty grades can be formulated with as little as 5% siloxane.

Extended equipment life

The net 1% siloxane concentrations are in the range recommended by Multibase to customers who want to achieve processing benefits. While the main concern in this application is the control of surface friction, Tom Koby indicates that “we are seeing a significant increase in the lifespan of our equipment — tooling, screws, tips, barrels, everything — compared to hardware we use to mold other parts in glass-filled nylon.”

About Koby Environmental

Koby Environmental, Inc., designs, develops, and manufactures equipment and supplies used in the geological sciences and groundwater industry, including locking plugs for monitor wells. All of Koby’s products are conceived and manufactured at its facility in Clarence, New York. The company’s products are sold through authorized distributors worldwide. Additional product details are available at www.kobyenviro.com.

About Multibase

With our unique portfolio of thermoplastics and silicone solutions, Multibase offers an exceptional potential for value creation in the thermoplastic industry.

Multibase, a Dow Corning Company (www.multibase.com), provides compounded solutions that enrich, reinforce, and modify technical polymers in association with additives, mineral fillers, and silicones in order to extend their potential field of applications and their markets.

With four manufacturing sites located in the Americas, Europe, and Asia (India and now China), and with more than ten years of proven experience and external recognition through relevant ISO accreditation, Multibase can provide coordinated global coverage enhanced by local teams.

Editorial Contact:

Barry Wilson
Sales Account Manager, Americas
Multibase USA, A Dow Corning Company
3835 Copley Road
Copley, OH 44321
Tel: 330-730-9955
E-mail: barry.wilson@dowcorning.com

Product Information:

Ted Hays
Americas Development Manager, Material and Application Engineering
Multibase USA, A Dow Corning Company
3835 Copley Road
Copley, OH 44321
Tel: 330-319-1139
E-mail: ted.hays@dowcorning.com

Application Information:

Tom Koby, President
Koby Environmental, Inc.
10030 County Rd.
Clarence Center, NY 14032
Tel: 716-741-2780
E-mail: tom@kobyenviro.com

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NOTE: Photography of the locking plug and a caption can be found on the following page.



Caption: This locking plug for groundwater monitoring wells is molded in glass-filled nylon by Koby Environmental, Inc. Without a lubricant additive, friction would be so high at the surface that it would be very difficult to turn the wing nut, which creates the plug's seal (above, center). To reduce the coefficient of friction, Koby Environmental has chosen a Dow Corning® Siloxane Masterbatch from Multibase, Inc. Koby adds 2% by weight of the masterbatch, which itself is a 50% concentration of ultra-high-molecular-weight polydimethylsiloxane in a thermoplastic matrix.