

Trostel mixes new recipe for EPDM rubber

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LAKE GENEVA, Wis.—Trostel Ltd. has developed an ASTM-compliant antifungal EPDM rubber bellow compound that can replace rubber as a sealant in some applications, with washing machines at the top of the list.

Trostel said the compound was developed specifically to be used in situations where rubber is called on to operate in a high-humidity, high-ambient temperature environment, such as door seals on front-loading washing machines.

Basically, it's a change in the recipe for EPDM rubber, according to Greg Vassmer, who joined the company two years ago as chief technology officer.

As the popularity of front-loading washing machines increases, many customers have complained about mold and mildew developing on door seals, the firm said, principally because of the combination of soil from dirty clothes, cotton residues and the warm, humid environments of the machines.

"We set out to solve one of the important problems facing consumer appliances today—the creation of a safe, durable, fungus-resistant, injection-moldable rubber," Vassmer said. He cited the work on the project done by Trostel's "team of talented material compounding scientists who really stepped up" to deal with the issue.

Vassmer said he's eager "to take advantage of our sophisticated manufacturing process to get products made from this compound into the market." He noted that the material has been tested and developed to the point that the Lake Geneva-headquartered company now can begin getting it specified into customers' products.

It can be used for any kind of appliance, he said, although it was initially developed as a way to handle the washing machine seal problem.

Vassmer anticipates appliance manufacturers have a big need for Trostel's compound—at least the washing machine industry.

Sales likely will start slowly within the appliance market but should improve after companies begin to recognize the product is beneficial, he said.

Trostel's scientists synthesized more than 20 iterations of the compound, the firm said, completing extensive testing each time, before finding the right mix.

Once they finalized the antifungal compound, they put together four versions of recipes before determining the most effective one to survive functional and fungal tests, according to the manufacturer of precision seals, custom molded rubber products and compound mixes for the appliance, automotive and general industrial markets.

The testing process for the new antifungal EPDM compound was extensive, said Vassmer. Tests included ASTM standard G21—an industry standard test for seals covering resistance of synthetic polymer materials to fungi—that requires the EPDM compound to be held at 28-30°C with 85 percent relative humidity for four weeks.

At the same time, the company said, the compound was exposed to aspergillus brasiliensis, penicillium funiculosum, chaetomium globosum, trichoderma virens and aureobasidium pullulans in a nutrient-rich environment, basically simulating the worst conditions for mold buildup inside a front-loading washing machine.

After four weeks of exposure, Vassmer said, the new EPDM exhibited no fungal growth per ASTM international standards and demonstrated it prevents

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mold issues.

Trostel's compound was subject to durability tests to simulate real world

applications, the firm said. Seals made of the compound were placed in two different front loading washing ma-

chines—one with an off-balance load and the other with terry cloth towels simulating a laundry environment most conducive to mold buildup—and each was run continuously for seven months.

The seals showed no signs of mold, wear, leakage or objectionable odors, the company said.

In addition, the antifungal properties were achieved without detrimental effects to human health, according to Trostel.

The firm has manufacturing, compounding, and research and development facilities in Whitewater, Wis.; McAllen, Texas; and Reynosa, Mexico, in addition to its operations in Lake Geneva.