Press release

Efficient manufacturing and high quality PEEK seals made with micro granules from VESTAKEEP® 5000 HCM

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The High Performance Polymers Business Line within Evonik's Resource Efficiency Segment has recently developed VESTAKEEP® 5000 HCM, which is a new innovative Polyetheretherketone (PEEK) micro granules that increases the production efficiency of customized PEEK seals with resultant superior mechanical performance for the oil and gas industry.

Oil and gas seals made of PEEK in standard sizes and lengths are normally produced in three well established processes namely, injection molding, extrusion, and hot compression molding (HCM). If a customized product is needed then the HCM method is often selected because the associated costs for adapting the downstream manufacturing process are lower as compared to the injection molding or extrusion methods. With VESTAKEEP® 5000 HCM, the HCM process is further enhanced achieving higher yield and higher finished components quality.

For a highly efficient production process & finished quality

Being in the form of micro granules, VESTAKEEP 5000 HCM has been found to minimize or even eliminate air being trapped in the hot compression mold. On the other hand, traditional PEEK powders that are commonly applied in HCM are known to trap air easily in the mold that could leads to oxidation during processing. This would result in black spots appearing on the finished component. Presence of black spots can lead to additional reworking or even total yield loss for severe cases. In addition, the bulk density of VESTAKEEP 5000 HCM micro granules have been measured to be significantly higher than that of standard PEEK powder, resulting in better mechanical properties such as the elongation at break values.

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VESTAKEEP 5000 HCM micro granules open up new possibilities

Another advantage associated with the design of VESTAKEEP 5000 HCM micro granule is the elimination of the additional step of grinding granules into powder. This immediately opens up new possibilities for micro granule PEEK compounds to be developed with glass fiber reinforced or even with fluoropolymer additives for the hot compression molding. This has not been possible with the PEEK powder due to the grinding step that will destroy the beneficiary effects of the reinforcement or the additives.

Capture:
Micro granules from VESTAKEEP 5000 HCM shown in the middle as compared to granules or powders.

Discover more about the high performance polymers from Evonik at our stand 4117 in Hall 4 at FAKUMA in Friedrichshafen, Germany, from October 13 to 17.

About Resource Efficiency

The Resource Efficiency segment is led by Evonik Resource Efficiency GmbH and supplies high performance materials for environmentally friendly as well as energy-efficient systems to the automotive, paints & coatings, adhesives, construction, and many other industries. This segment employed about 7,800 employees, and generated sales of around €4 billion in 2014.

About Evonik

Evonik, the creative industrial group from Germany, is one of the world leaders in specialty chemicals, operating in the Nutrition & Care, Resource Efficiency and Performance Materials segments. The company benefits from its innovative prowess and integrated technology platforms. In 2014 more than 33,000 employees generated sales of around €12.9 billion and an operating profit (adjusted EBITDA) of about €1.9 billion.

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