

## VESTANAT® PP for more efficient production of components from composite materials

- Innovative technology for automated production
- VESTANAT® PP enables simple process management and saves costs and material in production

High-strength and lightweight: glass and carbon fibers offer enormous potential in lightweight construction, and are therefore of particular interest in automotive and aircraft construction. It has so far not been possible to exploit such fibers to their full potential, however, because the production process for the composite material is complex and cost intensive. In VESTANAT® PP Evonik has now developed a technology that simplifies process management and also saves material and costs. Several projects have already been initiated with large car makers wishing to use the technology for production of their future models.

Klaus Engel, Chairman of the Executive Board of Evonik Industries, recently recognized the development with the company's Innovation Award for new products/new system solutions. "Innovations require our employees' creativity, commitment and courage," Engel noted. "The success of VESTANAT® PP illustrates that trust in an idea, perseverance, and the right amount of risk-taking and technological expertise pay off," Engel continued, referencing the significance of innovation as a strategic cornerstone for growth at Evonik. The specialty chemicals company plans to invest over €4 billion in research and development over the next decade. The focus of Evonik's strategic innovation will be on composite materials, membranes, animal nutrition, and medical technology.

One commonly used process for production of composite materials for lightweight construction is resin transfer molding (RTM), but this allows only batchwise, and not continuous, production of components. Production using prepregs, which are fibers pre-impregnated with resin and crosslinker, is continuous but not altogether simple. "Common prepregs have disadvantages—they can be stored only at -20 degrees Celsius and are very tacky," says

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Guido Streukens, senior manager of Business Development Crosslinkers at Evonik.

These disadvantages are eliminated with VESTANAT® PP: “Compared with other common matrix systems used in the production of composite materials from fibers, VESTANAT® PP makes subsequent production steps significantly simpler,” says Streukens. This behavior is the result of a chemical trick—a special combination of catalysts. The formulation ensures that prepregs are no longer tacky, and at the same time influences the cross-linking process of the material. At normal temperatures, it is dry and storage-stable; above 80 degrees Celsius it becomes thermoplastically formable but does not crosslink; and only at temperatures exceeding 140 degrees Celsius does crosslinking commence. With the use of VESTANAT® PP, moreover, cross-linking is particularly fast.

Other advantages of the new technology include the extremely good mechanical properties of the matrix system; these allow generation of the same component properties as with other systems, but with the use of less material.

In this way, the use of VESTANAT® PP can greatly simplify the production process from glass or carbon fibers to the finished component. It can also reduce costs, and ultimately contributes to more effective industrial utilization of the potential of the fibers.

#### **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.

#### **Company information**

Evonik, the creative industrial group from Germany, is one of the world leaders in specialty chemicals. Profitable growth and a sustained increase in the value of the company form the heart of Evonik’s corporate strategy. Its activities focus on the key megatrends health, nutrition, resource efficiency and globalization. Evonik benefits specifically from its innovative prowess and integrated technology platforms.

Evonik is active in over 100 countries around the world. In fiscal 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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