

Press Release



Leverkusen,
September 29, 2015

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Covestro develops PUR system for composites in HP-RTM process

Carbon fiber composite for robust vehicle parts

Efficient production, high occupant safety

Carbon fiber-reinforced polyurethane (PUR) composites offer huge potential for reducing vehicle weight and thus also CO₂ emissions. Covestro, formerly Bayer MaterialScience, has developed a new Baydur[®] matrix system for carbon fiber structural components that has three times the energy absorption potential of comparable resins. It is therefore able to provide an extremely high level occupant safety in the event of a collision. Automakers and direct suppliers also benefit from high productivity, because the components are manufactured efficiently using the state-of-the-art high-pressure resin transfer molding (HP-RTM) process.

“We developed the polyurethane system with high-profile partners in the automotive industry and optimized it for the latest requirements,” explained Detlef Mies, expert for RTM composites at Covestro. “Our partner ThyssenKrupp used it to manufacture prototypes at its state-of-the-art Composites Technical Center in Dresden. These have performed extremely well in material testing.” Carbon fiber content is approximately 54 percent by volume. Material data are available on request. Covestro will be showcasing prototypes at Fakuma in Friedrichshafen from October 13 to 17, 2015.

The HP-RTM process has proved very effective for manufacturing robust composite parts in volumes in the low hundreds of thousands. Wovens or fabric with oriented carbon fibers are first laid in the open mold, which is then closed. In the space of a few seconds, the low-viscosity PU system is injected into the closed mold under high pressure. Thanks to the high reactivity of the PU system, the composite cures rapidly and fully (Snap Cure), and the component can be demolded and processed after a short time. Cycle times are just a few minutes, with consistently high quality.



Various polyurethane matrix materials from Covestro are already being used successfully to manufacture composite materials via RTM, the pultrusion process and other process technologies.

About Covestro:

With 2014 sales of EUR 11.7 billion, Covestro is among the world's largest polymer companies. Business activities are focused on the manufacture of high-tech polymer materials and the development of innovative solutions for products used in many areas of daily life. The main segments served are the automotive, electrical and electronics, construction and sports and leisure industries. The Covestro group has 30 production sites around the globe and employed approximately 14,200 people at the end of 2014. Covestro, formerly Bayer MaterialScience, is a Bayer Group company.

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