News Release

(Modified on August 22, 2016)

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New process for continuous-fiber-reinforced thermoplastic composites Tepex from LANXESS

Ultra-thin, decorated composite components in a single processing step

- **Separate coating step unnecessary**
- **Improved cost-efficiency because components require no reworking**

Cologne – LEONHARD KURZ Stiftung & Co. KG and Bond-Laminates GmbH, a wholly owned subsidiary of specialty chemicals company LANXESS, have developed a new material combination and the associated mold technology to produce decorated housing parts with extremely thin walls in a single processing step. “We start with a semi-finished thermoplastic composite with the trade name Tepex dynalite. This is formed by closing an injection mold, back-injected, and decorated inline using an In-Mold Decoration integration process specially developed for this purpose, an advancement over KURZ's existing in-mold process. It involves the use of a transfer coating system,” explains Andy Dentel, project manager at Bond-Laminates. ENGEL AUSTRIA GmbH in Schwertberg engineered a highly automated manufacturing cell for the new material combination that is suited to large-scale production. The new manufacturing process from Kurz and Bond-Laminates will be demonstrated live for the first time at Engel's stand at K 2016 in Düsseldorf. The demo product is a housing component, which both companies will have on display.

High strength and stiffness

The Tepex dynalite material is reinforced with continuous fibers, embedded free of air inclusions in a thermoplastic matrix. “The advantage of our composite material is its very high strength and stiffness, combined with good toughness. These properties are what

enable us to reduce the wall thickness so much, without compromising on the mechanical performance of the decorated components," says Dentel. Because the component is coated directly in the injection molding process, using a dry coating technology developed by KURZ, an additional coating process step can be eliminated. The result is substantial savings on costs, logistics, energy consumption and resources. "You don't have to invest in a coating line, and you don't have to separately store, transport, clean or pre-treat the injection-molded parts prior to coating. In other words, all the many processing steps required to coat composite components can be eliminated, since they are now integrated into the In-Mold Decoration process. In addition, you don't have any coating waste due to overspray," Dentel continues.

Function integration cuts costs

Integrating functions via the injection molding process reduces costs even further. For example, the demo part has an integrally molded frame around the edges made of plastics with short glass fibers reinforcement. Snap connections and screw bosses are also integrated into the part.

For more detailed information on Tepex properties, applications and processing technologies, go to www.bond-laminates.com.

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Cologne, June 28, 2016
mfg/rei (2016-00058e)

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