

LANXESS expands Tepex flowcore composite range

- **Thermoplastic composites for the compression molding process**
- **Recyclable alternatives to sheet molding compounds (SMCs)**
- **High flexural strength and stiffness**
- **Focus on lightweight components for cars, sports equipment and consumer goods**

Cologne, March 21, 2022 – With Tepex, LANXESS is one of the leading manufacturers of fiber-reinforced thermoplastic composites for lightweight and highly mechanically resilient structural components. The specialty chemicals company offers a composite range called Tepex flowcore for numerous variations of the compression molding process. This product line has now been expanded and optimized. The new composites are designed as alternatives to thermoset sheet molding compounds (SMCs). Offering similar mechanical performance, they are much more ductile and, as thermoplastic systems, much easier to recycle than SMCs. They are easy to process because they are molded and shaped by thermal means only. “We are targeting Tepex flowcore primarily at large underbody paneling components and load compartment wells for cars, but also at components such as large casings and battery covers,” says Sabrina Anders, project manager for Tepex flowcore at LANXESS High Performance Materials business unit. Tepex flowcore has already proved its worth in series production, such as in a bumper beam for a mid-size sedan from a Japanese car manufacturer.

A versatile range

The new plate-shaped composites are offered with a matrix based on polypropylene, polyamide 6, polyamide 12, thermoplastic polyurethane or flame-retardant polycarbonate. The matrix is reinforced with long fibers rather than the continuous fibers found in Tepex dynalite. These are up to 50 millimeters long and distributed

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throughout the matrix as cut fibers of constant lengths. Tepex flowcore is offered with either glass- or carbon-fiber reinforcement.

Quasi-isotropic mechanical properties

In suitable processing conditions, components made from the new lightweight materials can exhibit almost the same flexural stiffness as their equivalents in the Tepex dynalite range, and they have much higher strengths than injection-molded materials, which are usually reinforced with short fibers. Depending on processing method and component design, the fibers can be arranged in one preferred direction or completely randomly. “The components can be designed such that they exhibit mechanical properties quasi-isotropically; in other words, almost identically in all directions,” explains Anders.

Numerous processing options

The new composites are extremely versatile in terms of how they can be processed. For example, they can be compression-molded with standard tools for long-fiber- or glass-mat-reinforced thermoplastics (LFTs and GMTs, respectively). They can also be used with existing SMC systems and tools. “They have such good flow characteristics that delicate areas of components, such as ribbed structures, can be reproduced with great precision, and walls can be made very thin,” says Anders. Tepex flowcore and Tepex dynalite can also be used together in compression molding processes, demonstrating excellent adhesion between each other due to their identical polymer matrix. “This opens up the opportunity to use Tepex dynalite to reinforce specific component areas under particularly heavy stress and, at the same time, to integrate features such as guides and mounts in a cost-saving way with Tepex flowcore. Another benefit is that the processor obtains all these composite semi-finished products from one place rather than having to combine materials from different manufacturers,” adds Anders.

The new composites – much like Tepex dynalite – are also well suited to the hybrid molding process. This involves them being formed in an injection molding tool and then being given features by

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News Release

means of injection molding in a single process. The production of the bumper support for the Japanese sedan went one step further. That structural component was made from Tepex flowcore and Tepex dynalite, overmolded and functionalized with a polyamide 6 compound from the Durethan brand.

You can find more information about the Tepex product line and lightweight designs from LANXESS at www.tepex.com and <https://lightweight.lanxess.com>.

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Images



No additional injection-molded material was used to produce the ribbing on the demonstrator model. It is made entirely from compression-molded Tepex flowcore.

Photos: LANXESS

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