News Release

LANXESS AG
Contact:
Michael Fahrig
Corporate Communications
Spokesperson Trade & Technical Press
50569 Cologne
Germany

Phone +49 221 8885-5041
michael.fahrig@lanxess.com

LANXESS at the VDI conference “Plastics in Automotive Engineering”, March 29 and 30, 2017, in Mannheim, Congress Center Rosengarten

Lightweight design with added value

- **First all-plastic brake pedal in large-scale series production**
- **Engine oil pan made from polyamide 6 instead of aluminum**
- **Polyamide 66 replaces steel in truck air filter mounts**

Cologne – “Quality lightens” is LANXESS's motto at this year's VDI conference “Plastics in Automotive Engineering” in Mannheim. “Our focus is on material and process solutions for car and commercial vehicle design that generate considerable weight savings and offer added value in terms of cost-effectiveness and component performance,” explains Martin Wanders, Head of Global Application Development in the High Performance Materials (HPM) business unit at LANXESS. The key topics of the specialty chemicals company’s stand include the lightweight design potential offered by Tepex-branded continuous-fiber-reinforced thermoplastic composites and the use of polyamide 6 to replace aluminum in the design of engine oil pans.

Series-tested – lightweight construction using composite semi-finished products

LANXESS's exhibits include some lightweight, nearly indestructible engine compartment trims, tank covers and center tunnel covers. These are already available as custom parts for production vehicles such as the Bentley Bentayga, which uses the same vehicle platform as the Audi Q7. The flat components consist of polypropylene-based low-weight-reinforced thermoplastics (LWRT) that are molded together with a 0.5-millimeter thick Tepex blank in a compression molding process. “The LWRT components have an outer layer of Tepex on the side facing the road, and this considerably boosts their strength, stiffness and above all toughness,” explains Henrik

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Plaggenborg, Head of Technical Marketing and Business Development TEPEX Automotive.

Another Tepex exhibit is the first all-plastic brake pedal produced in large-scale series production. This has so far been fitted in the Porsche Panamera and the Bentley Continental GT. The component is manufactured by using a one-shot hybrid molding process with short cycle times. The process integrates the shaping of a Tepex blank into the injection molding process. “This safety component is only about half the weight of a comparable steel structure, and meets the high load requirements thanks to the innovative multi-axial fiber layer construction of the Tepex blank,” explains Plaggenborg.

Large structural components with Tepex

LANXESS is also showcasing a module carrier for the Mercedes Benz S Class convertible that is just one millimeter thick. This is also produced by using the Tepex-based hybrid molding process. “The component is a prime example of how Tepex can be used to produce large structural components that are particularly thin and thus lightweight. They can also be fitted with numerous functions at the same time,” explains Plaggenborg.

Engine oil pan in polyamide 6 – aluminum out

The Durethan oil pan module for the new six-cylinder boxer engines of the Porsche 911 Carrera will also be on display at the LANXESS stand. This exhibit underlines how more cost-efficient polyamide 6 is at least just as suitable as polyamide 66 for replacing aluminum in the manufacture of engine oil pans. The component satisfies all the specific requirements imposed on the new-generation engine in terms of weight reduction, functional integration and cost-efficient production. “The weight of the oil pan could be reduced by more than two kilograms compared to the previous aluminum model,” says Tim Arping, Head of Application Development for the EMEA (Europe, Middle East, Africa) region at HPM.

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Truck air filter mounts – polyamide 66 makes them more lightweight

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The two air filter mounts that have been fitted in Mercedes Benz Actros since the start of the year are examples of exhibits from the commercial vehicle sector. These filters are made of Durethan AKV 50 H2.0. “Our polyamide 66 reinforced with 50 percent by weight glass fibers was chosen because it offers cost advantages compared to previous steel components, meets the high mechanical and dynamic requirements, and permits a weight saving of more than 50 percent,” explains Wanders.

Like the all-plastic brake pedal and the polyamide 6 engine oil pan, the air filter mounts will be the subject of presentations by the relevant LANXESS development partners at the VDI conference at the end of March.

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