

Tough performers

- **LANXESS composite material Tepex for underbody paneling component in Chinese SUVs**
- **Around 30 percent lighter than steel design**
- **Highly resistant to penetration**
- **Tepex offers major potential in hybrid, electric and fuel cell vehicles**

Cologne, October 17, 2022 – The Tepex dynalite branded continuous-fiber-reinforced thermoplastic composite materials (CFRTP) from LANXESS are proving themselves worldwide in the automotive industry as a lightweight material solution for highly effective and mechanically stable underbody paneling components. The most recent applications can be found in the models Li L9 and the newly launched Li L8 from Li Auto Inc., a Chinese carmaker offering vehicles with alternative drive technologies. Both of these six-seater premium family SUVs are plug-in hybrid vehicles and are equipped with underbody paneling components to protect the tank. The large panels consist of a robust, thermoplastic composite structure. They are manufactured using the compression molding process with a reinforcing insert made of the high-performance composite Tepex dynalite and a DLFT (Direct Long Fiber Thermoplastic) mass.

Higher energy absorption

“The underbody paneling component is around 30 percent lighter than the comparable steel design. Compared to other material concepts – such as pure DLFT – the Tepex reinforcement makes the paneling component stronger as well as more rigid and energy-absorptive. This means that it is much more resistant to stone impacts or other damages when the vehicle underside hits objects on the road surface,” says Deniz Guerkan, a LANXESS expert in the field of technical marketing and sales for Tepex in Hong Kong.

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Efficient production process

The underbody paneling component is around 1.5 meters long, 1 meter wide and just 3 to 4 millimeters thick. It is manufactured with a 1 mm thick insert made from Tepex dynalite 104-RG600 and an additional extruded DLFT mass. Both materials are heated and plasticized and then placed in a compression tool, where they are molded together in just one single step. The matrix of the Tepex insert consists of polypropylene and is reinforced with 47 volume percent of continuous-glass-fiber-rovings. The polypropylene DLFT mass contains 40 weight percent of long glass fibers. This material combination reliably fulfills the high mechanical requirements and shows in particular a high level of resistance to penetration. The underbody paneling component can be manufactured on a conventional compression molding tool. "This ensures efficient production. The fact that DLFT can be manufactured economically as a direct extrudate and makes up the majority of the component also helps to improve cost-efficiency," says Guerkan.

Lightweight and robust alternative to metal

LANXESS believes that underbody paneling components featuring a Tepex composite design offer enormous potential in vehicles equipped with new drive technologies because they are a lightweight alternative to equivalent steel and aluminum components. The Tepex composite parts help to increase energy efficiency resp. the range of the car. Thinking ahead, Guerkan says: "For example, batteries of electric vehicles are especially vulnerable because they are usually installed in the floor panel. Therefore, we are looking at underbody paneling components which protect the batteries against stone impacts or other damages when the vehicle underside gets hit. In the same way, the lightweight Tepex underbody paneling components could be used in hydrogen-powered vehicles to protect the tanks and fuel cells."

You can find more detailed information about LANXESS products and technologies for the fields of new mobility and Tepex at

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<https://lanxess.com/en/Products-and-Brands/Focus-Topics/LANXESS-e-Mobility> and www.tepex.com.

Images



Tepex dynalite from LANXESS is proving itself worldwide in the automotive industry as a lightweight material solution for highly effective and mechanically stable underbody paneling components. The most recent applications can be found in the models Li L9 and the newly launched Li L8 from Li Auto Inc.

Photos: Li Auto Inc.

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News Release

LANXESS is a leading specialty chemicals company with sales of EUR 6.1 billion in 2021. The company currently has about 13,200 employees in 33 countries. The core business of LANXESS is the development, manufacturing and marketing of chemical intermediates, additives and consumer protection products. LANXESS is listed in the leading sustainability indices Dow Jones Sustainability Index (DJSI World and Europe) and FTSE4Good.

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