

JEC 2016 Innovation Awards in Atlanta

Award goes to intelligent lightweight construction technology

Cologne – LANXESS subsidiary Bond-Laminates GmbH, the Fraunhofer Institute for Production Technology and HBW-Gubesch Thermoforming GmbH together received an award in the “Processes” category at the JEC 2016 Innovation Awards in Atlanta, United States. The winning development involves the addition of local tape reinforcements to Tepex-brand thermoplastic composite sheets in order to optimize mechanical performance, material thickness and weight.

Optimizing standardized CFRTs

Continuous fiber reinforced thermoplastic composites (CFRT), also referred to as composite sheets, have good potential for use in lightweight construction and are very easy to process. They can be manufactured continuously, have an unlimited shelf life and thus offer tangible economic advantages. Conventional fabrics with a 0°/90° fiber alignment are ideal for most reinforced structures, such as components in motor vehicles, and also housings on electronic devices and athletic equipment. The balanced fabric supports a variety of applications that can significantly reduce weight compared to metal or other plastics.

However, for special load situations, and to further optimize the flow of forces, reinforcements can be integrated using multiaxial Tepex, a recent advancement at Bond-Laminates. With this method, different fiber alignments can be selected for the layers of the composite structure. Referred to density, significantly enhanced performance can be achieved. The method makes designing components subject to heavy loads, such as brake pedals and seat structures, very easy and efficient.

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For special applications requiring even further local reinforcement of load paths, high-performance structures can be optimized using this E-Profit approach, in which the precise number of unidirectional high-performance reinforcements, called “tapes”, are used that correspond to a given load path. This enables the load to be optimized in a similar manner to using different sheet thicknesses or reinforcements, but at a considerably reduced weight. Dirk Bonefeld, head of Research and Development at Bond-Laminates in Brilon said: “The method we developed rounds out the high-end range of our Tepex-brand performance thermoplastic composites. The partners on this research project engineered an innovative method for cleverly combining different types of semi-finished composites. It demonstrates the development potential of our fiber composite technology.”

JEC Innovation Awards Program

The evaluation criteria in this international competition are outstanding technical solutions, collaboration between development partners, market potential and the originality of the product or process. In attendance at the award ceremony on May 4 in Atlanta was Megan Jennings, account manager in the United States for the Tepex product in the LANXESS High Performance Materials business unit, who said: “We are proud to receive an award in this major competition in the composites industry. It's a very gratifying form of recognition of our know-how in the field of composite materials.”

The E-Profit project was funded by the German Federal Ministry for Education and Research (BMBF) as part of its framework concept “Research for the Production of Tomorrow,” and overseen by the Karlsruhe Research Center (PTKA). The author is responsible for the content of this publication.

LANXESS is a leading specialty chemicals company with sales of EUR 7.9 billion in 2015 and about 16,200 employees in 29 countries. The company is currently represented at 52 production sites worldwide. The core business of LANXESS is the development, manufacturing and marketing of chemical intermediates, specialty

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News Release

chemicals and plastics. Through ARLANXEO, the joint venture with Saudi Aramco, LANXESS is also a leading supplier of synthetic rubber. LANXESS is listed in the leading sustainability indices Dow Jones Sustainability Index (DJSI World) and FTSE4Good.

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Forward-Looking Statements.

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