Press release

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Composites for economical lightweight construction

Covestro presents new material solutions at the JEC World 2018 trade fair

Fiber-reinforced composites are becoming increasingly important worldwide. This actually comes as no surprise, as the demand for lightweight materials with high strength is increasing in more and more industries. The number of new composite applications is correspondingly large, also as a replacement for conventional materials such as metal or wood. New properties also add to the range of possible applications.

Covestro has been involved in the development of material solutions for composite materials for many years. Be it miniaturized electronic products, thermally insulated facades or wind power plants: energy and resource-saving composites, together with efficient manufacturing technologies, are among the core components of Covestro's sustainability concept.

At the composite industry's international performance show, the JEC World 2018 from March 6 to 8 in Paris, the company will be presenting lightweight, rigid and aesthetic materials and efficient processes for their production at Stand C28 in Hall 5.

New high-tech material
Covestro has developed a completely new composite technology for the efficient production of particularly thin, lightweight, high-strength yet aesthetic parts. It is based on continuous fiber-reinforced thermoplastic composites (CFRTP) made of polycarbonate. Covestro produces tapes and sheets for further processing by customers and has now significantly expanded its production capacity at Markt Bibart to supply the world from there.

Especially in the electronics industry, the trend is towards thinner and thinner housings, e. g. for laptops and smartphones. Laptop lids can be manufactured from CFRTP plates in a single-stage process, enabling shorter cycle times and significant cost savings. Compared to magnesium alloys, they are around 15 percent lighter and can be equipped with aesthetic surface structures.

Wind power rotor blade nearly 60 meters long

The expansion of renewable energy sources such as wind energy continues to progress. Even more intensive use requires a more cost-efficient production of wind turbines.

Covestro has developed a special polyurethane infusion resin for rotor blades. In combination with reinforcing glass fibers and an efficient vacuum manufacturing process, it enables shorter cycle times and thus cost advantages. The resin developed in China has been awarded DNV-GL certification - a prerequisite for entering the Chinese wind power industry.

In China, a new prototype of a rotor blade with a blade length of 59.5 meters has now been produced. Covestro wants to produce more blades with even longer blade lengths in order to enable an even more efficient use of wind energy.

Composite material for facade insulation

In the BeNeLux region, strict specifications apply with regard to the thermal efficiency of the building envelope. Curtain-type ventilated facades are widespread, especially in office and industrial buildings there. With today's material solutions, the ever-increasing requirements can only be met with thicker insulation material or not at all.

For the regional situation, FISCO composite solutions company in Zusmarshausen, Germany, together with further partners, has now developed a new wall bracket that meets the requirements and which significantly facilitates the assembly process. The mounting system is part of the substructure for curtain-type ventilated facades and consists of two different elements: a core made of glass-fiber reinforced plastic (GFRP) which carries the load of dead weight and wind from the facade into the masonry, and a cylindrical insulation board which encloses the GFRP core and improves the insulating effect.

Fire-resistant polyurethane material

Due to its outstanding fire protection and good mechanical properties, FISCO composite solutions uses the Desmocomp® material from Covestro as matrix material for the GFRP core. The aliphatic polyurethane resin was developed primarily for outdoor applications, as it has very good weather resistance. The single-component system can be easily processed using the pultrusion process.

Waterborne polyurethane dispersions from the Baybond® line are used as film formers in glass and carbon fiber sizings for thermoplastic composite materials. The dispersions boast very good film formation, elasticity, adhesion and yellowing stability and ensure good mechanical stability of the composite. What's more, some Baybond® products are also approved for contact with foods. Covestro is also working on new products for thermosetting applications.

About Covestro:
With 2017 sales of EUR 14.1 billion, Covestro is among the world's largest polymer companies. Business activities are focused on the manufacture of high-tech polymer materials and the development of innovative solutions for products used in many areas of daily life. The main segments served are the automotive, construction, wood processing and furniture, and electrical and electronics industries. Other sectors include sports and leisure, cosmetics, health and the chemical industry itself. Covestro has 30 production sites worldwide and employs approximately 16,200 people (calculated as full-time equivalents) at the end of 2017.

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