Press Release

Leverkusen,
February 19, 2019

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Used in the world's toughest solar car race

Adhesive endurance test

Cooperation between Team Sonnenwagen, Covestro and Sika

A team of students from RWTH Aachen University and FH Aachen plan to enter their self-constructed, solar-powered electric car in perhaps the world's toughest solar car race: the Bridgestone World Solar Challenge 2019. After the successful premiere at the previous year's race, Team Sonnenwagen will attempt for the second time to be the fastest to complete the 3,000-kilometer route in Australia without a single drop of fuel.

Covestro shares the students' enthusiasm and supports the project with different materials and technical service, and as the team's main sponsor. The partners hope to demonstrate that concepts for the future of mobility are already possible today – taking into account aspects such as lightweight construction, electromobility and photovoltaics. At the European Coatings Show 2019 from March 19–21, Covestro will present the Sonnenwagen from the first race at its "City of Sustainnovation", booth number 528 in hall 4A of NürnbergMesse.

Adhesive bonding is the best solution

The team that wants to be the first to cross the finish line in Adelaide will need a vehicle that is fast, and therefore lightweight. Different materials are used to build such a vehicle, including high-quality plastics as well as composite materials and metals. The best method for permanently fastening different substrates together is adhesive bonding; it is also a key technology in the automotive industry.

Joining the parts of a solar car by hand, however, has its own challenges. This includes preparing the surfaces as well as improving the adhesive strength of different substrate surfaces. The primary concern, however, is the lasting quality

of the bond when the adhesive is dry. The Sonnenwagen will be subjected to extreme conditions on its journey through the Australian Outback: high temperatures, extreme aridity, but also constant and at times heavy vibrations will put the adhesive to the test.

The adhesive is tough

For its new solar car, the Sonnenwagen Team relies on two-component polyurethane adhesives from Sika Automotive, which are based on the polyurethane raw materials of the Desmodur® and Desmophen® product lines from Covestro. The products from the SikaForce® product line feature excellent mechanical stability and flexibility. They are ideal for bonding complex parts, such as carbon-fiber-reinforced plastics, and are tailor-made for such ultra-lightweight, high-strength designs.

“Thanks to this adhesive, we were able to build this year’s Sonnenwagen in the shape we wanted,” says Severin Kobus, Co-Chairman of the Sonnenwagen Aachen team. “We used different adhesives – from flexible to highly elastic – in order to meet the requirements in terms of the design, components and substrates.”

Pascal Obringer, Global Head of Product Management at Sika Automotive, adds: “Polyurethane adhesives are a perfect fit for the innovative concepts of future mobility. The Sonnenwagen project is an ideal example of the role our adhesives can play in the future.”

The race is tough

The Bridgestone World Solar Challenge is considered the toughest solar race in the world and takes place in Australia every two years. Teams from around the world compete with self-constructed vehicles to be the fastest to overcome the more than 3,000-kilometer route from Darwin to Adelaide – powered only by solar energy.

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.

This press release is available for download from the Covestro press server at www.covestro.com. Photos are available there for download as well. Please acknowledge the source of any pictures used.

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