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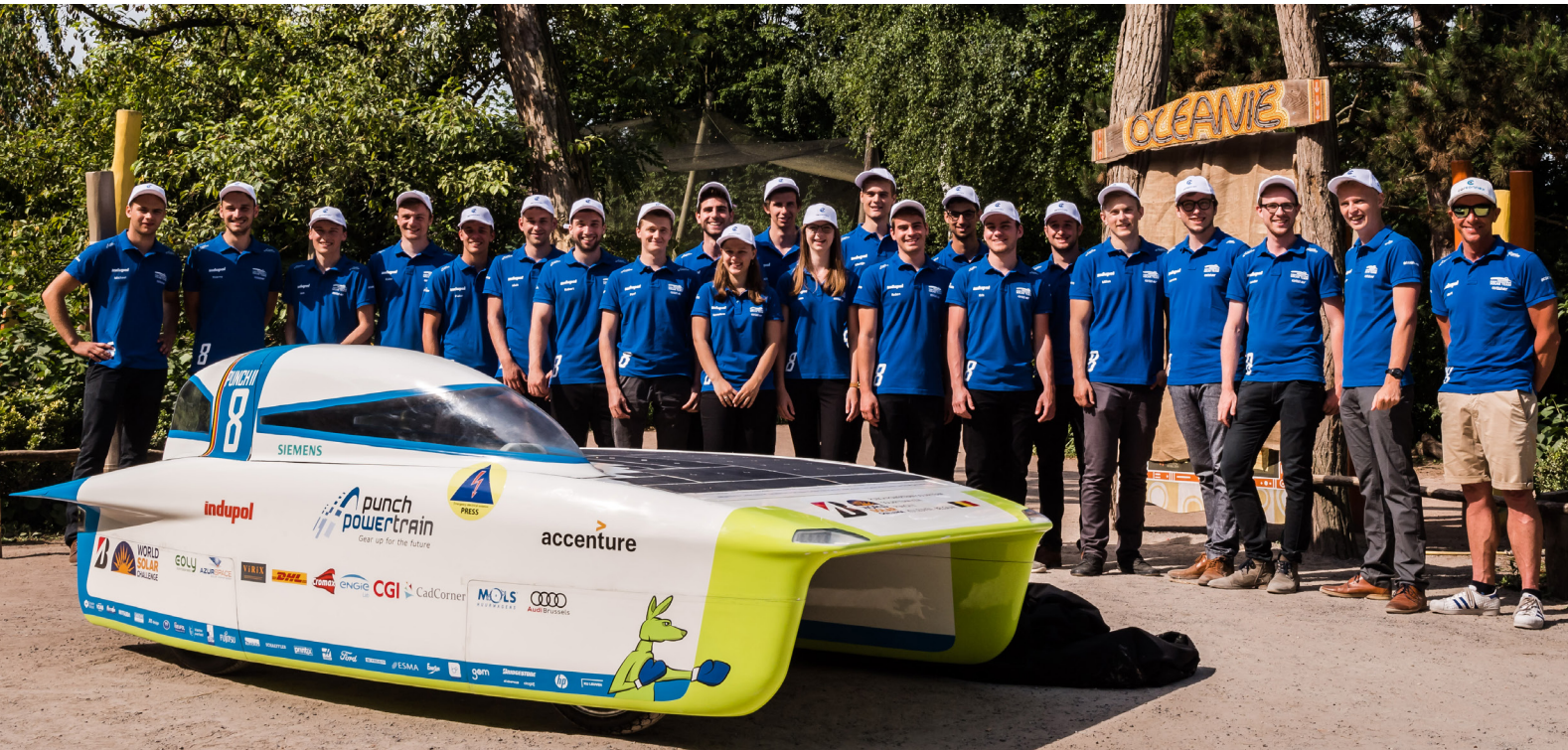
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CASE STUDY - PUNCH 2

With their minds fixed on the goal of winning the world championships for solar cars in 2017, the Punch Powertrain Solar Team worked non-stop for 12 months to design and build a new and optimized car powered solely by the sun. On June 21, 2017, the team could finally reveal the new car to the world, and on October 8, 2017, the team began the race for the world championship.

A race against time

In July 2016, the Punch Powertrain Solar Team began the race against time to finish their new solar car "Punch 2". The team is comprised by 21 students from various fields of engineering studies such as electro-mechanical, electronic and chemical. Powered by enthusiasm for engineering and the constantly developing field of renewable energy, the team has worked tirelessly to complete all design and construction in just 12 months.

To win the 2017 Bridgestone World Solar Challenge - the world championship for solar cars - the car would have to be as energy efficient as possible. Thus, the car had to be as small and lightweight as possible, as wind resistance and weight are two of the main energy loss factors. However, the car must still needed to be robust and able to contain all necessary components. This sums up the main challenges for all teams participating in the world championship.

World Class Plexus Materials

ITW Performance Polymers is proud to have been a small part of the process by supplying Plexus adhesive materials to the team. During construction, various complications required specialized adhesive products to make the construction as efficient as possible and ensure an optimized result. Production responsible, Lander Hollevoet, explained one of the issues:

To make the structure of the car strong and stiff enough, we have to add reinforcing ribs. In the past, these ribs were laminated into the carbon structure of the car. This made applying the vacuum extremely complex and time consuming.

To make the production process simpler, we produced the ribs separately and then used Plexus adhesives to integrate the ribs inside our solar car.

To glue the ribs to the structure of our car, the good gap filling of the plexus adhesives is a very useful property when compared to other adhesives. This is important as all the ribs are hand-made and it is very difficult to make the ribs fit exactly in the car.

The patented Plexus® Core Shell Technology enables extreme tensile strength and flexibility in one adhesive!

The road to the world championships

After successfully presenting a fully functioning and streamlined solar powered car in June, the team began preparations for the upcoming 2017 Bridgestone World Solar Challenge.

On October 8, 2017, the day of the world championships finally arrived, and the 21 students from Belgium had come to Australia to compete with the best. Punch 2 had to travel 3021km through the Australian desert, which put the self-built car to the ultimate test.

Punch 2 was held together by Plexus MA830 and MA832, which proved to be a great solution for the team. The team was more than happy with the surprisingly durable Plexus solutions and afterwards, they said:

The Plexus products proved to be astonishingly good during the race. We experienced no issues during the 3021km harsh trip through the desert.

After 5 days of racing, Punch 2 made it to the finish line and claimed the bronze medal. An absolutely amazing effort from the Belgium solar team and the fruit of 15 months of hard work.

We, at ITW Performance Polymers are always happy to hear about new and exciting projects with our materials. We are extremely proud of the Punch Powertrain team and their fantastic result at the 2017 Bridgestone World Solar Challenge.

To read more about the products used for this project, please go to our website www.itwplexus.co.uk

