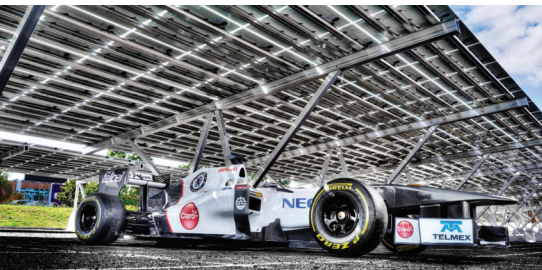


# Industry collaboration drives innovative mounting for PV – How silicone bonding can enhance optimized BoS costs

## Case Study: Oerlikon Solar Car Port



### THE PROJECT

- Officially opened on 17<sup>th</sup> September 2012, the Sauber F1 Team's Oerlikon Solar Car Port is one of the largest of its kind in Switzerland and permits a sustainable contribution of electricity production for the local community
- The car port was installed very quickly due to optimized system combination. It covers an area measuring 2,249 square meters and is constructed from 1,573 technically advanced photovoltaic modules. In addition, a factory roof has also been fitted with these solar modules to boost energy supply
- The installation delivers 155,600 kilowatt hours of electricity production per year which is equivalent to the electricity needs of 44 households
- This aesthetically pleasing structure and the benefits it brings is visible at all times, due to a large display panel which shows information on the system's current output and energy produced for that particular day
- Dow Corning® PV-8301 Fast Cure Sealant was specified for use in conjunction with an innovative module mounting interface for photovoltaic modules developed in collaboration with Oerlikon Solar

### THE CHALLENGE

Sauber F1 Team is not only a successful competitor on the racing circuit but is also an innovator in the way they focus on conservation of natural resources and environmental impact of their company headquarters and manufacturing facilities. It therefore comes as no surprise that the performance specification for a new solar car port at their offices contained a number of stipulations, in line with the company's responsible approach to incorporating the use of renewable energy components wherever possible.

Meeting their strict criteria in an economically feasible way involved the formation of a special industry team led by Sauber F1 Team's partner Oerlikon, who were tasked with the objective of proposing a highly efficient, cost-effective solar system solution for the roof of their brand new car port.

### THE SOLUTION

Photovoltaic panels are typically mounted onto a building structure using clips or clamps. While this system provides satisfactory results, it was foreseen that improvements in speed, cost of installation as well as safety could be realized. With this in mind, Oerlikon Solar, a manufacturer of production equipment for thin film silicon solar modules, developed a new technical solution for mounting of solar modules, the

#### City / Country

Hinwil / Switzerland

#### Application

Silicone pad bonding  
on thin film solar modules

#### Product

Dow Corning PV-8301  
Fast Cure Sealant

#### Building Owner

Sauber Motorsport AG

#### Solar Manufacturer

Oerlikon Solar

module mounting interface (MMI®) which uses *Optibond*® pads from Schletter GmbH, to replace mechanical fixation. However, a bonding interface was needed between the module and the MMI pad.

Recognized for their extensive silicone expertise, the Dow Corning Solar Solutions team began work alongside Oerlikon Solar to resolve this mounting problem, providing engineering advice based on finite element calculations. These collaborative efforts resulted in the specification of a two-component structural adhesive, *Dow Corning* PV-8301 Fast Cure Sealant. This sealant meets all the necessary adhesive properties and helps to simplify the installation thus reducing cost and minimizing the risk of damage to the glass/glass modules. As well as meeting the stringent IEC norms, *Dow Corning*® PV-8301 meets the most relevant construction industry requirements. *Dow Corning* PV-8301 Fast Cure Sealant also exhibits outstanding long-term durability.

This silicone bonding adhesive enabled the car port solar system's frameless design to withstand the required wind and snow load conditions. It also protects the photovoltaic modules from stress which can help to ensure the anticipated electricity production over the lifetime of the installation. Due to the innovative and cost-effective method of module fixation, it took just six weeks to complete the construction of the solar car port.

"The Oerlikon Solar Module Mounting Interface saves 23% of balance of systems costs compared to a conventional mechanical fastened mounting system with clamps and screws. We very much appreciated the support Dow Corning contributed to realize this project," commented Peter Tinner, head of sales and marketing at Oerlikon Solar.

"To address the fundamental challenge of the PV industry to further reduce the levelized cost of energy, an industry wide collaboration with a total system approach is needed," stated Axel Giesecke, global marketing manager – solar at Dow Corning. "Oerlikon Solar's MMI, based on bonding technology, is an impressive example of how a total system approach can help to significantly improve the cost competitiveness of PV electricity."

"Thanks to the innovative approach of Oerlikon Solar and their openness, we were able to support their MMI development with the Dow Corning innovative bonding technology and our technical expertise. This collaboration resulted in a smart and cost-effective system solution," said Dr. Jörg Kersten, key account manager at Dow Corning.

Dow Corning is proud to collaborate with this prestigious and trusted development team who, through their commitment to innovation, have demonstrated the advancement that can be achieved for the mutual benefit of the environment and the community.

### **DOW CORNING® PV-8301 FAST CURE SEALANT**

The product is a two-component silicone adhesive which is ideally suited for pad and rail bonding. By eliminating the need for screws or clamps, *Dow Corning* PV-8301 Fast Cure Sealant can enhance performance by providing protection from moisture, environmental attack, thermal and mechanical shock, breakage and vibration. It is fast-curing and minimizes module stress thus reducing the risk of component breakage and has the potential to decrease installation time on site.



### **LEARN MORE**

Dow Corning has sales offices and manufacturing sites, as well as science and technology laboratories, around the globe. For more information, please visit [dowcorning.com/solar](http://dowcorning.com/solar) or e-mail [solar.solutions@dowcorning.com](mailto:solar.solutions@dowcorning.com).

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