

## Photovoltaic mounting made of Ultramid®

### Case Study

The plastics processor Ensinger, Germany and BASF have entered into a joint undertaking with the Goldbeck Solar company to develop a modular mounting system for flat-roof solar installations in which the load-bearing elements are made of a BASF engineering plastic for the first time. Thanks to the new system, solar panels can be installed on flat roofs more easily and more quickly. The lightweight material employed here is Ultramid®, a member of the chemical company's polyamide product line. The entire substructure comprising support elements made of plastic and stamped metal parts was recently launched onto the market by Goldbeck Solar under the brand name SUNOLUTION.

### Easy to install – light in weight –gentle on the roof – highly integrated

The advantages of the new support elements made of this application-optimized thermoplastic include especially the fact that the roof membrane is not punctured or damaged during the installation work. The roof remains water-proof without the need for any additional sealing measures. Moreover, Ensinger was able to benefit from injection molding of thermoplastics, integrating numerous functions into the plastic structure. In a single manufacturing process, Ensinger has incorporated snap-on connections, ribs and cutouts for draining the water and laying the cables. All of this resulted in parts that are very lightweight and easy to mount. Up to now, substructure systems for photovoltaic installations on flat roofs had been made primarily of steel and aluminum.

The plastic Ultramid® lends itself optimally for use in outdoor applications since it has a very low tendency to creep, even at high temperatures (up to 80°C [176°F]), and since it exhibits extraordinary toughness and stiffness all the way down to temperatures of -30°C [-22°F]. Moreover, this highly fiberglass-reinforced polyamide is UV-resistant and weather-resistant. It is one of the engineering plastics that has successfully passed the battery of tests involving

outdoor exposure and for which a life service of 20 years has been substantiated in accordance with ISO 4892-2 Cycle No. 1. BASF's own computer-simulation tool Ultrasim® made it possible to optimize the components to meet photovoltaic-specific requirements such as exposure to snow and wind loads, and to achieve a low intrinsic weight.

