

Photovoltaic roof construction by SCHOTT Solar with a multi-functional pan made from Ultramid® B High Speed

Case Study

SCHOTT Solar and BASF are presenting a new roof-integrated photovoltaic concept based on the SCHOTT ADVANCE Series. The concept employs only two parts: a specially developed, multi-functional pan made from the BASF resin Ultramid® B High Speed and a frameless double-glazed module from SCHOTT. The product has been designed for large roof areas on industrial or agricultural buildings and is very light and easy to install. The one-piece plastic pan, which can be installed directly on the roof sub-structure of a building in place of conventional roofing, combines several functions and employs a new fastening method.

To ensure safe handling of the double-glazed module, handles that are also made from Ultramid® are provided on the back. The approximately 1.2 m x 2.0 m plastic pan presented a challenge for the engineering resin (polyamide) and the part design: the long flow paths and sometimes thin walls require an easy-flowing resin in order to produce the part by means of conventional injection molding. For this reason, the application development engineers at BASF recommended Ultramid® B High Speed, one of the new especially easy-flowing grades in the polyamide 6 range. The good flow characteristics of the resin, in conjunction with the opening in the pan, also help to reduce manufacturing costs: it can be processed on injection molding machines with a lower clamping force.

An additional benefit of the special Ultramid® grade for this part is its toughness. To withstand the strong solar radiation, the resin must furthermore exhibit high strength even at elevated temperatures as well as exceptional UV resistance and resistance to weathering. In terms of fire behavior, Ultramid® B High Speed satisfies the criteria required for such construction applications (material class B2).

