No electric car without plastic: Multifunctional structural body parts made of Ultradur®

Case Study

The BMW i3's carbon body contains PBT (polybutylene terephthalate) structural parts between the inner and outer shell. The largest component and the first of its kind is a so-called integral component located in the rear side area between the carbon fiber body shells. Apart from its load-bearing function in the event of a crash, it also serves to keep the two body shells apart and forms the rear opening for the side window. The PBT Ultradur® B4040 G6 from BASF is ideal for this since it is dimensionally stable irrespective of surrounding climate conditions and offers the necessary buckling resistance.

The simulation provided by BASF's engineers has made a major contribution here to low-warpage production and the glass fiber orientation suitable for the occurring loads. The injection-molded component comprises several smaller components planned in the past thus reducing complexity and costs. More than two dozen smaller Ultradur® components with a combined weight of around nine kilograms are integrated in other areas of the vehicle's body where they provide reinforcement and achieve the desired acoustics.