

Case Study

Body reinforcement using CORE Products CBS Technology with carriers made of Durethan® BKV 35



Figure 1 Arrangement of body reinforcement elements

CORE Products, a member of the L&L Products group of companies, has been a key partner of the automotive industry for years in the fields of sealing, acoustics and reinforcements for body in white.

In the area of reinforcements, **CORE Products** makes structural inserts referred to as “Composite Body Solutions” (CBS) that comprise metal, thermo-plastic and high-density structural foam. The CBS is creating a macro-structure together with the car body structure by the expansion of the foam and the bonding to the body in white during the drying process once cathodic dip coating is complete. This innovative technology was designed in response to demands from the automotive industry. Suppliers were asked to come up with a solution to meet the more stringent crash requirements, improve safety and processing, and reduce the weight and cost of the vehicles.

The Citroën C4 Picasso, which was unveiled in October 2006, is equipped with the latest generation of structural inserts. CORE Products used the LANXESS plastic Durethan® BKV 35 H2.0, a glass

Material: Durethan® BKV 35 H2.0
Producer: CORE Products, France
OEM: PSA Peugeot Citroën
Industry: Automotive

fiber-reinforced polyamide 6, in the structural elements of this vehicle (see Fig. 2).

The body reinforcement components are placed in the lower section of the A pillar, the lower and upper sections of the B pillar, and in the crossmember above the rear axis, where they replace the conventional heavy reinforcements (see Fig. 1). Nine reinforcement elements can reduce the weight of a vehicle by up to 12 kg.



Figure 2 Injection molded composite body solution with carrier made of Durethan® BKV 35 H2.0 (black), foam (red) and metal parts.

The reinforcements are designed to increase the load-bearing capacity of the body in case of accidents. The CBS improves the stiffness of the car body and absorbs part of the energy from the impact. This minimizes the deformation of the passenger compartment, thereby providing a higher level of protection for the occupants.

The product was developed in close cooperation between CORE Products and LANXESS. Key elements in this project included the CORE Products CBS expertise as well as LANXESS expertise in the Durethan[®] material characterisation and simulation techniques, using in the engineered structural solutions to withstand high mechanical loads and the operating figures required for this process.

CORE Products and LANXESS work together to make an innovative contribution towards helping automotive manufacturers to

- simplify the development of the body in white
- achieve more cost-effective series production
- increase the safety of end customers
- reduce fuel consumption
- improve driving dynamics

Durethan[®] is a registered trade name of LANXESS Deutschland GmbH

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