



Porsche AG relies on sound-insulating Basotect® foam in the engine compartment of the “Panamera”

Case Study

Under the hood: The right sound and lots of horsepower

Basotect®, a melamine resin foam from BASF, ensures the right sound effects under the hood of the Porsche “Panamera” Diesel. The foam is used for both sound and thermal insulation in the four-door “Gran Turismo’s” engine compartment, transmission tunnel, and paneling near the engine. In addition to its good acoustic properties and high thermal resistance, the low weight of the foam is what especially attracted developers from the Stuttgart-based maker of premium cars. Basotect® is used to absorb sound in vehicles wherever there are high operating temperatures over an extended period of time, such as in the separating walls between the engine compartment and the car interior, engine hood paneling, engine proximity shells, and transmission tunnels.

Lightweight and quiet – foam in the engine compartment

Basotect® is especially well-known for its outstanding acoustic properties. Thanks to its open-cell, fine foam structure, it has very good sound absorption values in the medium and high frequency ranges. Drivers and passengers in the “Panamera” can therefore enjoy the typical Porsche engine sound – without annoying accompanying noise. With a density of 9 kg/m³, Basotect® is lighter than the conventional insulating materials generally used in engine paneling. This reduces both fuel consumption and CO₂ emissions.

The foam’s very high thermal resistance properties also played an important role in its selection as a material. Basotect® offers long-term thermal resistance at 200 °C. Jürgen Ochs, manager NVH Body (Noise, Vibration, Harshness) at Porsche, explains that “with its 184 kW/250 HP six-cylinder diesel engine, the “Panamera’s” engine compartment is regularly sub-

jected to temperatures of up to 180 °C. And Basotect® withstands these extreme conditions.”

Basotect® can be used to make sophisticated three-dimensional components and customized elements for very tight spaces. The melamine resin foam can be precision-processed by blade and wire-cutting as well as by sawing and milling – enabling dimensions and contours of customized components to be easily and exactly produced. Basotect® is also suitable for thermoforming, although for this the foam has to be impregnated beforehand. Given these convincing material properties, Porsche is planning to use Basotect® for future component developments as well.

The “Panamera” was presented for the first time at the Shanghai Motor Show in 2009, as the fourth model series from Porsche. According to company figures, more than 28,000 of these “Gran Turismo” vehicles measuring nearly 5 m in length were sold in 2011. The model is now available in variants including Hybrid, Diesel, GTS, Turbo, and Turbo S.

