Flexible, light and safe: Novel engine covering made from flexible PU integral foam with the one-shot process

Case Study

BASF has now developed a flexible polyurethane integral foam that can be used to produce lightweight engine coverings with the one-shot process, i.e. with one material in one process step. The so-called soft cover, made from Elastofoam® I 4603, is manufactured by the Austrian company POLYTEC Car Styling and fitted as standard in various car models with petrol engines of the Swedish automobile manufacturer Volvo. The sound-absorbing material for the flexible visible part is characterized by a low component density of 140 kg/m³, is dimensionally stable, media-resistant as well as resistant to thermal aging up to 150°C.

The tailor-made PU foam Elastofoam® I makes it possible to produce engine covers that are characterized by good sound absorption and thermal engine encapsulation. While the part has an open-cell foam structure on the bottom surface, the material on the front side forms a coherent skin with an attractive surface appearance. The surface is accurate in every detail and is printable. The part can absorb a lot of energy on account of the open-cell foam structure, thus increasing passive safety for pedestrians in the event of impact against the hood.

In comparison to conventional engine covers made of two materials, the elastic soft cover foamed in the cost effective one-shot process is able to integrate acoustic and mechanical properties in one part. This saves process steps during production, and better use can be made of the available space around the engine.

With this novel component, BASF is supporting the automotive industry in reconciling the – often contrary – objectives of lightweight construction, functional integration and compliance with safety standards.