

Advanced Processing of Long-Fiber Reinforced Polymers

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Abstract

Light weight automotive components are a major key in reducing CO2 emissions. Therefore composites are important materials to be considered in the automotive industry. The challenge is the development of suitable production technologies which enable large scale production of automotive composite components. Especially processes in which the materials are in-line compounded are growing rapidly because they offer the manufacturer flexibility in utilizing local material supply. Future applications for thermoplastic long fiber reinforced materials are no longer limited to semi structural applications. By local reinforcement of the LFT-D, structural applications can be realized. Therefore the equipment has to be modified and the material to be adapted. The paper will describe the increase in part performance by local continuous fiber reinforcements as well as the necessary process modifications.

Future applications for long-fiber reinforced thermosets are focusing on Class-A body panels. The presentation will give a short introduction about the state-of-the art in advanced SMC molding of the Class-A trunklid of the new Volkswagen EOS as well as an outlook in a new process development for in-line processing of thermoset composites.

Key Learning Points

- In-line compounding of longfiber reinforced composites
- One-Step manufacturing of long fiber composite parts
- Continuous fiber reinforced LFT - Tailored LFT for structural applications
- mechanical performance of LFT
- Advantages of compression molded composite parts