

DuPont Automotive

Innovation Spotlight: DuPont™ Zytel®



2017 SPE AUTOMOTIVE
INNOVATION AWARDS FINALIST
CHASSIS/HARDWARE CATEGORY

Glass Fiber-Reinforced Nylon Engine Bracket

Application

An engine mount bracket engineered using glass fiber-reinforced nylon, replacing the cast aluminum incumbent material. Developed by Daimler AG and supplied by ElringKlinger AG for use on the 2017 Mercedes-Benz M264 E-Class coupe.

Unmet Need

Improving NVH behavior on today's vehicles requires viable alternatives to traditional metal engine mount brackets.

Challenge

- Component must be able to endure significant load stresses through a range of temperatures.

Solution

The glass fiber-reinforced nylon engine mount bracket was designed using MoldFlow® analysis to establish the joint lines and fiber orientation. Displacement and component stresses dependent on fiber orientation were simulated and the component was modified according to simulation results. Advanced CAE and material characterization techniques correlated well with physical testing to reduce the investment risk and accelerate the development time of this bracket.

The engine bracket:

- Significantly improves NVH behavior
- Reduces weight
- Reduces thermal conduction
- Facilitates recyclability
- Reduces costs through functional integration

DuPont Material Chosen and Why

- High strength
- Broad temperature toleration
- Stiffness and fatigue resistance over a wide range of temperatures, chemicals and moisture exposure



For more information on the Assisted Positive Locking Junction Box and other SPE award winners and finalists, visit the [SPE Automotive Innovation Awards website](#).

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