

D-LFT

Bringing the Benefits of PA66 Technologies to D-LFT

Mobius™ PA66-based technologies by INVISTA bring compounding and processing of direct long fiber-reinforced thermoplastics to the next level.

At INVISTA, we have unlocked the science of PA66 and created a family of advanced materials ideal for compression and injection molding, bringing the functional benefits of PA66 to D-LFT. Offering superior durability, higher thermal and particulate abrasion resistance for parts.

PROCESSABILITY

- Fast cycle times
- Low process complexity

STRENGTH & DURABILITY

- Large, thin-walled parts are possible
- Rigidity and toughness that rivals metal
- Accommodate up to 60% glass fiber content by weight
- Excellent creep and aging behavior

FLAME RETARDANCY

- Excel in thermal runaway tests including shrapnel abrasion test
- Offer outstanding flame retardancy while maintaining excellent mechanical properties for DLFT thermoplastics

RECYCLABILITY

- The thermoplastic PA66-based material provides inherent recyclability, therefore a more environmentally beneficial replacement for thermoset polymers

THERMAL RUNAWAY SHRAPNEL TEST



Flip this page to read more about the benefits of using Mobius technologies for thermoplastic parts in EVs, or visit mobius.invista.com for more data and information about our family of PA66-based material.

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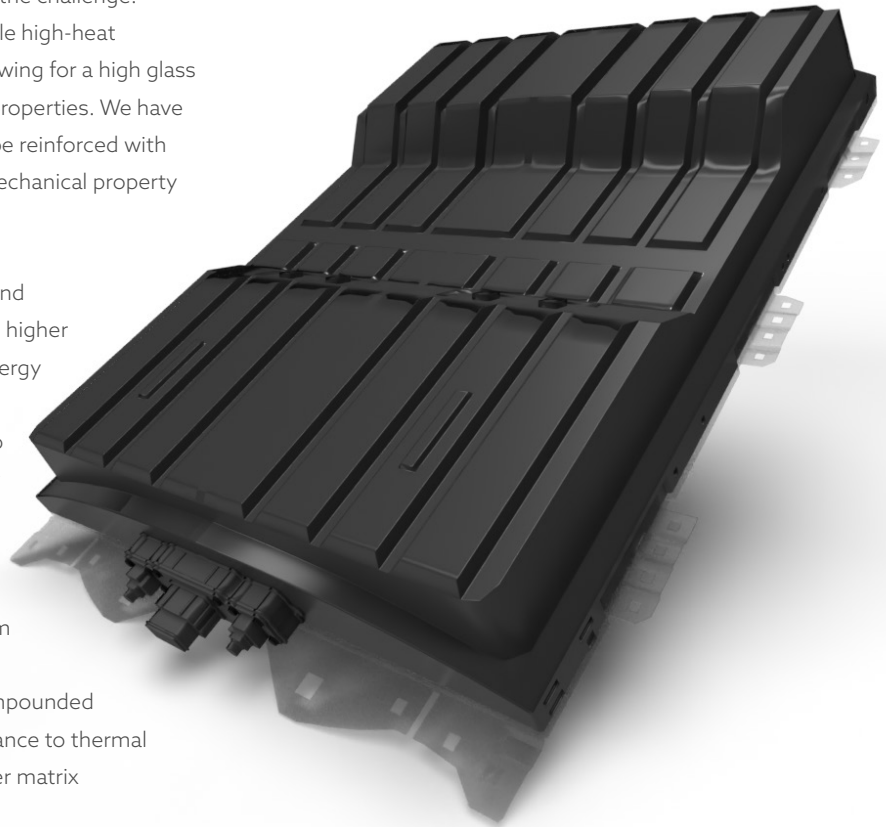
Rising to the Challenge of High-Heat Applications

The D-LFT process is an economical method for creating large form factor components critical to automotive manufacturing, such as vehicle underbodies, wheel wells and dashboards. With the rapidly increasing electric vehicle market, the demand for flame-retardant plastics that can handle the heat generated by lithium batteries, like battery housings and covers, becomes even more critical.

Mobius™ technologies, developed by INVISTA, are ready for the challenge. Our materials are built on advanced polymers that can handle high-heat applications and lend themselves to the D-LFT process, allowing for a high glass fiber content while retaining excellent flow and processing properties. We have a flame-retardant formulation tested to UL 94 V-0 that can be reinforced with up to 60% glass fiber by weight, maintaining an excellent mechanical property profile.

When compared to other thermoplastic polymers like PA6 and polypropylene, Mobius PA66-based materials can withstand higher mechanical loads under challenging aging conditions. As energy density continues to increase in EVs (bigger batteries in more confined spaces), operating environments continue to get hotter. Mobius may provide a futureproof solution today for the demands of tomorrow.

In the past, thermoplastics have struggled with thermal runaway associated with lithium-ion batteries, and aluminum alternatives are still susceptible to damage by battery explosions. But tests conducted against thermoplastics compounded from Mobius polymers have demonstrated enhanced resistance to thermal runaway, attributed to the unique Mobius glass-fiber polymer matrix technology.



Performance Criteria	Mobius PA66-DLFT	SMC	PA6 DLFT	PP-DLFT	Aluminum
Strength	High	High	High	Medium	High
Durability	High	High	Medium	Low	Medium
Impact Property*	High	High	Low	Low	N/A
Recyclability	High	Low	High	High	High
Processing Cost/Complexity	\$	\$\$\$	\$	\$	\$\$\$

*: UL 94-V0 Formulation

Mobius technologies are an emerging solution for battery shielding in critical areas of EVs. Learn more about what sets our PA66 material apart from PA6, polypropylene and other alternative materials, and download our data at mobius.invista.com.