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## The Natural Choice

Mixing natural fibers like hemp and kenaf with thermoplastics put FlexForm on the map—and in the door panels of Chrysler's Sebring convertible. However, the combination of rising oil prices and exterior applications could drive its utilization even higher.

By [Christopher A. Sawyer](#), Executive Editor

A natural fiber composite may not be the most advanced material around, especially when it has been used as a substrate for automotive interiors almost since the day operations were commercialized in October 1999. Yet, FlexForm Technologies (Elkhart, IN;

[www.flexformtech.com](http://www.flexformtech.com)) hasn't been sitting still. Interior applications will continue to provide the bulk of uses for the material, but exterior applications also are on the horizon. "Companies want to displace the glass fiber reinforcements currently used in underbody shields and wheelwell protection panels," says Harry Hickey, sales manager, FlexForm

Technologies, "especially since there are issues with the urea formaldehyde used in the production of glass fiber mat since it has been targeted for elimination by the EPA as a potential carcinogen. Also, glass mat is heavy and difficult to handle due to its propensity to cause skin irritation." OEMs are looking for lighter, more environmentally friendly materials for exterior applications, according to Hickey, and like the fact that FlexForm's material can be recycled. Still, performance, price and quality are issues that must be addressed."



FlexForm compacts 22 layers of offset material into a 15-mm substrate weighing 1,600 g/m<sup>2</sup> for the Chrysler Sebring convertible's door panels. The part has a 4-in. draw.

In addition to the underside of the vehicle, FlexForm is also looking to produce vehicle load floors, headliners, seatbacks, instrument panel top covers, knee bolsters, and trunk liners. The headliner—which is bound with a cover material in a single process—may be the most difficult of these to get to market. "In automotive," says Hickey, "the standard to beat is zero sag at 110°C. We can carry the load, but have work yet to do on deflection characteristics. It'll take a bit more heat stability in our product to hit that target without secondary stiffeners."

In the meantime, the company is moving forward with applications for truck trailer side panels—10-ft x 53-ft laminated panels finished with UV-cured automotive-quality paint finishes that are lighter and stronger than current designs—as well as products for the marine, aerospace, and office products markets. Yet, it's in automotive that Hickey sees the greatest potential for growth. "Unlike our competition, as oil prices rise," he says, "our high natural fiber content helps keep costs under control. And we all know how important costs are in this industry right now."