

## Ford cuts weight and costs in large interior part, brings home the gold

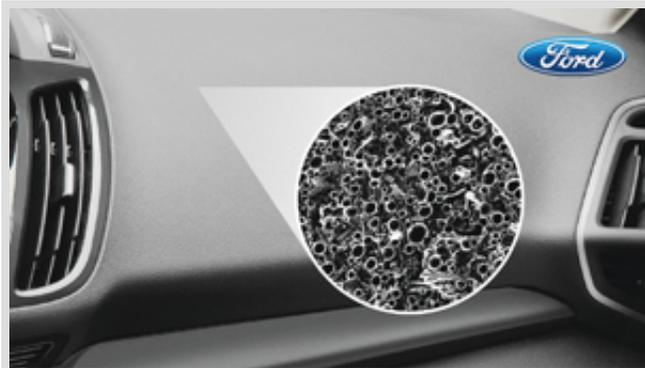
By Rhoda Miel

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PLASTICS NEWS STAFF

LIVONIA, MICH. (Nov. 10, 3 p.m. ET) -- When Chuck Rocco began looking into the potential of using Trexel Inc.'s microcellular foaming process for interior parts at Ford Motor Co., everyone told him the same thing. It couldn't be done.

The part he targeted was too big and too complex, people told Rocco, supervisor of body interiors for Dearborn, Mich.-based Ford. And while he now says bringing MuCell into interior part production was "one of the toughest things I've ever done" at Ford, it has also proved to be so successful that it will extend MuCell to other parts throughout the interior.



The first application of the MuCell process in an instrument panel debuts on the new Ford Escape. (Ford Motor Co. photo)

It also took home the top prize at the Society of Plastics Engineers' 2011 Automotive Innovation Awards and won its division for process, assembly and enabling technologies.

"This will migrate," Rocco said. "This is not a one-trick pony. It will cascade globally."

Rocco and Steve Braig, president and CEO of Wilmington, Mass.-based Trexel spoke about the use of MuCell within Ford during *Plastics News'* Plastics in Lightweight and Electric Vehicles conference Nov. 9 in Livonia, just hours before the part took home the top prize at the SPE awards gala.

At Ford, one of Rocco's jobs is finding ways to trim weight from interior parts. He first became interested in Trexel's MuCell during NPE 2009 in Chicago.

Foaming processes to reduce weight and improve cycle time are not new. MuCell itself has been well established for decades, and the auto industry has been looking at its potential since at least 2000.

Braig said it is ideal for reducing weight and resin use with increased dimensional stability, especially in parts over 8 millimeters in thickness, though it has been used successfully in even smaller parts. The key to getting the most out of it, however, is in bringing in the process early in the part development stage. Dropping MuCell into an existing program and tool can achieve weight savings of 6 to 8 percent, he said. Early collaboration can increase that to 12 percent.

Ford saw potential for weight savings, but Rocco noted that using MuCell is even saving the carmaker money — contrary to industry estimates that dropping weight costs more. It was not easy, though, and required up front development costs to do it right.

Attempts to test production at Automotive Components Holdings LLC — the Ford-owned parts group — did not work because neither the machines nor tools were optimized for foaming, and development tests interrupted the regular production flow.

Ford and Trexel then approached Proper Group International. The Warren, Mich.-based toolmaker had injection molding presses for product development and testing, and signed on to add MuCell equipment to a 3,000-ton press, giving the automaker the right place and right equipment to properly bring its plan into reality.

Bringing the part into production also brought in supplier Faurecia SA, polypropylene supplied by Sabic Innovative Plastics of Pittsfield, Mass., and Flint Hills Resources LP of Wichita, Kan., and injection mold tooling optimized for MuCell use, built by Lamko Tool & Mold Inc. of London, Ontario.

MuCell is being used on two parts for the instrument panel on the 2012 Ford Escape sports utility vehicle and the European-based Ford Kuga compact SUV, the substrate retainer and the topper.

The savings come not only from weight, but from the reduction of a pound of resin, a 15 percent cycle time improvement during production and a 45 percent reduction in clamp tonnage, which improves production costs and reduces wear on the tooling, Rocco said. All combined, that saves Ford about \$3 per vehicle.

Faurecia, with North American headquarters in Auburn Hills, Mich., has added MuCell to three of its production lines in Louisville, Ky., for the instrument panel production, while Trexel and Proper formed a strategic partnership using Proper's facility for product development using 3,000-ton and 1,100-ton presses.

Other suppliers are also gearing up MuCell use for other interior parts, and Rocco said he expects it to be used in a variety of parts — not just instrument panels. Production is limited now to parts that have a cover skin of some kind, because the process is not capable of turning out Class A surface quality parts yet, but that still leaves growth for many other spots.

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