

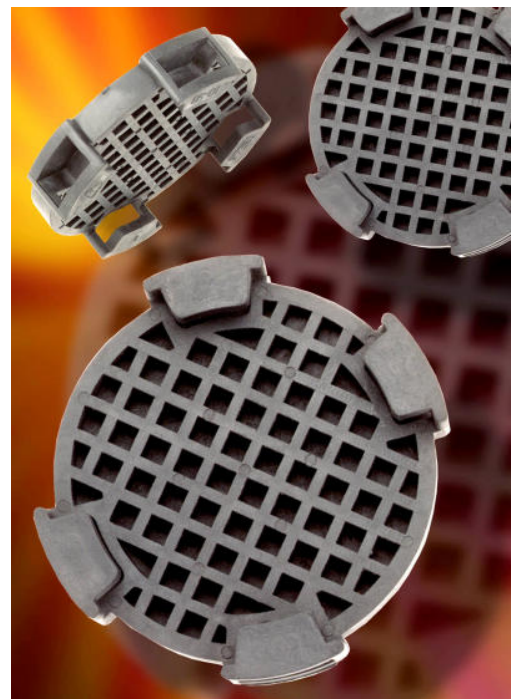
Molded Materials, Inc. Protects OEM Windshields Using Santoprene Thermoplastic Elastomer For Shipping Application

Innovative Application Receives OEM Quality Award

Plymouth, Mich. (July 15, 2000) -- Due to a newly engineered back rest pad, developed by Molded Materials, Inc., Visteon Corporation's windshield assemblies for Ford Motor Company now make their voyage from Nashville to St. Louis with greatly reduced incidents of breakage. Visteon, a Tier 1 supplier to Ford, discovered through comprehensive testing, that breakage occurred from severe and repetitive impacts on the windshield containers during shipping and handling. Visteon engineers simulated the impact on the containers and used high speed video to record the tests. The engineers found that the existing polyethylene backrest pads compressed fully as the weight of the shifting windshields moved forward in the container. Breakage resulted as the polyethylene pads compressed, leaving a steel swivel plate to absorb the force of the shifting windshields.

Time was critical since testing was already underway at Visteon. To replace the previously used foamed polyethylene pads, Molded Materials, Inc (MMI) chose two materials; cast polyurethane and Santoprene thermoplastic elastomer (TPE). Santoprene 101-73 TPE was specifically chosen over polyurethane due to cost savings and for its compression set which aided in absorbing the energy of the shifting windshields. MMI was able to engineer, design and produce a single cavity injection mold within 48 hours, so the Santoprene pad could be tested. The Santoprene backrest pads were able to absorb the energy of sudden and repetitive impacts of the 65 windshields.

The windshields were separated by spacers and installed in a shipping container. The total weight of the 65 windshields rests on two pads of Santoprene mounted to a backrest bar. The shipping container was impact tested at two, four and six miles per hour. At two mph the container using the polyethylene pad yielded six breaks per pack of 65 windshields. MMI partnered with Visteon to engineer, design and produce a backrest pad to compliment Visteon's swivel backrest design. The result was a proprietary swivel-plate design on which a "clip on" Santoprene pad is placed. The container was impact tested at six mph with no windshield breakage. Consequently,



breakage related to this packaging application was reduced to 0 cases in 1999. MMI was part of the Visteon “Windshield Package Improvement Team”, which received the Customer Driven Quality Award (CDQA) from Ford Motor Company for their proactive work in improving the performance of windshield containers. Visteon has adopted the part as its new dunnage standard for windshield containers.

The non-stick properties of Santoprene TPEs also made it easy for windshields to be mounted into the support bracket, yet maintained gripping properties to hold the windshields in place. Santoprene TPEs also did not leave marks on the windshields due to its non-marring qualities. MMI also chose Santoprene TPE because of its UV stability and the ability for the part to be molded without release agents.

For assistance with your material handling applications, call MMI at 800-825-2566