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NEWS SERVICES

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GM and Ferris Work to Improve Quality of Plastic Parts

Big Rapids – Ferris State University’s Plastics Engineering Technology students and General Motors Manufacturing Center - GPPC engineers are working together to improve the quality of plastic parts by looking at ways to remove *flash* on automobile fascias – or bumper covers. Flash is a common problem encountered with injection molding thermoplastic parts and is a thin layer of plastic at the match line in the injection mold tool.

One common method of removing flash is a brief exposure to a controlled flame in order to insure a continuous surface and controlled morphology for painting. The parting line flame treatment process is influenced by materials and process factors to insure paint adhesion is maintained throughout complex fascia geometries.

The current project that Ferris and GM are working on is to identify which factors have the greatest influence on the combined molding and painting process, and to determine an optimum combination of factors to develop and implement practical manufacturing solutions. Kyle Sinko (St. Louis), and Brent Nixon (St. Louis), Plastic Engineering Technology juniors, are performing the study under the advisement of David Okonski and Elmer Santos, engineers for GM, to characterize the effects of injection molding machine set-up and surface treatments on the quality of painted plastic parts.

GM engineer Ron Daul says, “The resources at Ferris provide us an opportunity to extend and accelerate our thermoplastic material, thermoformed paint film and joining development interests.”

The team is using Design of Experiment methodology and conducting the research at Ferris in the National Elastomer Center on a Husky 90 Ton Injection Molding Machine with mold tooling developed by Proper Mold in Warren, Mich. The team is also working with coating experts at NB Coatings in Auburn Hills, Mich., to optimize adhesion promoter and topcoat systems.

Robert Speirs, professor and chair of Ferris’ Plastics and Rubber department says, industry sponsored projects, like the GM *flash* project are invaluable to our students. “They offer an opportunity to hone previously gained skills and knowledge with a real world problem,” said Speirs.

“The students are directly involved with senior engineers responsible to develop product and manufacturing engineering solutions,” added Daul.

Ferris plastics engineering technology students are also participating in summer internships at the GM Technical Center in Warren, Mich., to support the optimization of plastic material and process optimization for future Chevrolet EFlex Volt battery programs. “This current project affords the students to spend time with their intern mentors and allows them to be more effective prior to spending the summer at GM,” said Speirs.

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