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FIRST PLASTIC ENCAPSULATED WINDOWS NAMED 2024 SPE® AUTOMOTIVE “HALL OF FAME” WINNER

Troy, (DETROIT) MICH. – The industry’s first Plastic Encapsulated Windows – fixed rear quarter windows used on the 1978 General Motors Company A-Body Chevrolet, Pontiac, Oldsmobile and Buick Wagons; have been named the 2024 Hall of Fame Winner by the Automotive Division of the Society of Plastics Engineers (SPE®). This innovation, now used on vehicles worldwide, will be celebrated by honoring the technology and the companies and people affiliated with this application during SPE’s 53rd annual Automotive Innovation Awards Gala on Nov. 13, 2024 at the Laurel Manor in Livonia, Michigan.

GM body engineers were looking for a way to “glaze” fixed windows that would improve acoustics and water penetration (better sealing), aesthetics (a cleaner less obtrusive appearance), and costs (labor and piece price). The solution was provided by tier molders Donnelly Mirror and Lamar Plastics who developed an injection molding process where a plastic molded “gasket” was directly applied to the window glass. These rather large fixed windows had a UV-stable, PVC gasket frame molded around the glass edges.

Encapsulation involves the injection molding of a polymer trim, shaped precisely to fit the vehicle body to the periphery of the glazing. It also provides the opportunity to incorporate within the molding additional styling features, fixing mechanisms and even hinges for opening windows in minivans and estate cars. The typical encapsulation process uses injection and RIM molding. The window is set in a mold, the mold clamps the glass, generally a few mm from the edges, and an elastomeric resin is injected to form the glazing seal/gasket. A Butyl sealant is applied at the assembly plant that installs the window assembly.

Plastic Encapsulated Window technology has made a significant impact on the auto industry including:

- Replacing rubber gaskets with plastics (both thermoplastic and thermoset)
- Improved window aesthetics, size tolerances, reduced noise, enabled “flush” glazing, lower drag coefficients
- Improved window forming contours (less edge “off form” needed for injection molding)
- Introduced PVC, PU Rim, and TPE for window molding
- Enabled both tempered and laminated glass encapsulation
- Reduced OEM labor and piece price costs

To be considered for a Hall of Fame (HOF) Award, an automotive plastic or composite component must have been in continuous service in some form for 15 years or more, made a significant and lasting contribution to the application of plastics in automotive vehicles, and broadly adopted and/or expanded upon in the automotive industry. Additional HOF award criteria includes that the nomination be: game changing; very successful worldwide; innovative in materials, process and application; and still being used. This application certainly qualifies as Encapsulated Windows are now an industry standard globally and the technology has expanded to use on windshields (PU RIM Molded), backlites (fixed or lift type back windshields), and sunroofs.

Established in 1970, the SPE Automotive Innovation Awards is the oldest and largest competition of its kind in the world. Dozens of teams made up of OEMs, tier suppliers, and polymer producers submit nominations describing their part, system, or complete vehicle and why it merits the claim as the Year's Most Innovative Use of Plastics. This annual event typically draws over 800 OEM engineers, automotive and plastics industry executives, and media. As is customary, funds raised from the event are used to support SPE educational programs and technical conferences, which help to secure the role of plastics in the advancement of the automobile.

Major Sponsors of the 2024 SPE Automotive Innovation Awards Gala to date include: Celanese, BASF Corporation, American Chemistry Council – Plastics Division, Sabic, and INEOS Styrolution America.

The mission of SPE is to promote scientific and engineering knowledge relating to plastics worldwide and to educate industry, academia, and the public about these advances. SPE's Automotive Division is active in educating, promoting, recognizing, and communicating technical accomplishments in all phases of plastics and plastic-based composite developments in the global transportation industry. Topic areas include applications, materials, processing, equipment, tooling, design, and development.

For more info on the SPE Automotive Innovation Awards Competition and Gala go to: <https://speautomotive.com/spe-automotive-div-innovation-awards/>.

For more info on the SPE Automotive Division go to: <https://speautomotive.com/>.

For more info on the Society of Plastics Engineers go to: <https://www.4spe.org/>.