

DuPont Automotive Polymers Used Inside and Out of Award-Winning Vehicles

2016 by the Numbers: One Winner, Four Finalists, Four Vehicle Systems

Detroit, Mich. ([PRWEB](#)) December 16, 2015 -- Four different [DuPont polymers](#) were featured in vehicle components that earned 2016 Society of Plastics Engineers (SPE®) Automotive Innovation Awards. The materials range from DuPont™ Delrin® homopolymer acetal and DuPont™ Crastin® PBT in critical mechanisms and housings for interior, exterior and chassis components to high-heat resistant DuPont® Zytel® PLUS nylon and DuPont™ Zytel® HTN PPA in powertrain parts.

"The SPE Automotive Division provides a great forum that allows hard-working automotive engineers to take the time to celebrate innovation for the past year," said Brian Fish, North American automotive development director for DuPont Performance Polymers. "This year as previously, DuPont collaborated on several awarded programs, but we experienced a diversity that shows how we can help customers make informed decisions about which material to work with because we offer the industry's broadest materials portfolio."

While this year's awarded programs feature a range of DuPont polymers, one material – [Delrin® homopolymer](#) – is used in 3 of the 5 honored components. "Homopolymer acetal is a unique and valuable material," said Lauren Coleman, regional Delrin® product manager, DuPont Performance Polymers. "The low-friction, high-wear resistance, stiffness and strength inherent with acetal polymers helps replace metal in structural and moving-parts applications. Using a homopolymer instead of a copolymer allows design engineers to make those components thinner and lighter with shorter molding cycles."

Powertrain Category Awards

[Winner](#) – Honda, Delphi and DuPont captured the "Most Innovative Use of Plastics" award in the Powertrain category for using the Delphi Multec® 3.5 Heated Tip Port Fuel Injector on Honda Fit and Honda City vehicles sold in Brazil to improve cold start in ethanol-fueled vehicles. Zytel® HTN PPA was selected to overmold the fuel injector because it offers lower melt viscosity and better elongation than competing PPAs to protect the sub-assembly during molding and withstand thermal cycling without stress cracking.

Finalist – The Cadillac CTS-V and Chevrolet Camaro come with performance engines (supercharged, 640-hp 6.2L V-8 for CTS-V, and 455-hp 6.2L V-8 for Camaro) that require an external mounting of the air/oil separator, which improves performance and reduces oil consumption. During high maneuvers, the oil is channeled back to engine via the tank, separator. Because the air/oil separator is outside the cam cover, it's exposed to 180 degrees C, which is too high for traditional nylon polymer. And, because the underhood packaging is so tight, the space required a shape too complex for metal. The team from General Motors, ElringKlinger and DuPont tapped Zytel® PLUS nylon, rated to 220 degrees, to make the 4-piece component, which they vibration- and spin-welded into a single part that fits tightly into the engine configuration without increasing the engine size.

Innovation Inside and Out

DuPont Performance Polymers also are used in [category finalists](#) for Body Interior, Body Exterior and Chassis/Hardware systems.

In the Body Interior finalist component, a seat-back mounted tablet docking station and charger used a variety of engineering polymers, including Delrin® homopolymer for critical inner mechanisms and interior mounting components. The design allows for smooth, one-handed loading/unloading of a tablet (or other 12 V-powered devices). The unit meets OEM head-impact requirements and has a range of automatic and synchronized convenience features that are totally new to the tablet holder market. When not in use, the holder rotates downward and stows tightly in the seat back.

In the Body Exterior finalist component, Delrin® homopolymer is used in gears and Crastin® for the housing in the emblem front-camera deployment mechanism. According to SPE, the front-mounted had to be hidden and deployed only when required to avoid blemishing the face of the vehicle with the mechanical appearance of an exposed camera. Several engineering plastics were used to replace bulky and heavy metallic housings and components typically used in deployable cameras to avoid fascia deformation and vibration during road loads.

In the Chassis/Hardware finalist component, Delrin® homopolymer is used in an articulating plastic door-edge protector that extends when the door opens, helping prevent damage to the door and other nearby vehicles. By reducing door dings and dents, \$1.5 million in warranty paint repairs can be saved plus another \$500,000 in indirect costs due to prevention of damage during shipping. It also helps maintain craftsmanship of the vehicle over its use life.

SPE's Automotive Innovation Awards program is the oldest and largest competition of its kind in the automotive and plastics industries.

DuPont offers more than 100 materials and product families for the global automotive industry. Through its global application development network, DuPont Automotive is committed to collaborating with customers throughout the value chain to develop new products, materials, components and systems that help reduce dependence on fossil fuels and protect people and the environment. For more information, visit <http://automotive.dupont.com>.

DuPont (NYSE: DD) has been bringing world-class science and engineering to the global marketplace in the form of innovative products, materials, and services since 1802. The company believes that by collaborating with customers, governments, NGOs, and thought leaders we can help find solutions to such global challenges as providing enough healthy food for people everywhere, decreasing dependence on fossil fuels, and protecting life and the environment. For additional information about DuPont and its commitment to inclusive innovation, please visit <http://www.dupont.com>.

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