



FOR IMMEDIATE RELEASE: 9 November 2016

Media Contact:

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SPE® AUTOMOTIVE DIV. NAMES WINNERS OF 46TH-ANNUAL AUTOMOTIVE INNOVATION AWARDS COMPETITION

TROY, (DETROIT) MICH. – The Automotive Division of the Society of Plastics Engineers (SPE®) tonight announced the category and Grand Award winners of its 46th-annual *Automotive Innovation Awards Competition*, the oldest and largest recognition event in the automotive and plastics industries. The announcement was made November 9, 2016 during the 46th *SPE Automotive Innovation Awards Gala*, held at Burton Manor in Livonia, Mich., U.S.A. The Body Interior category winner was also the year's Grand Award winner. This year's winners were:

CATEGORY: Aftermarket

- **CARBON FIBER COMPOSITE SPOILER**

- **OEM Make & Model:** 2016 General Motors Co. Chevrolet Corvette sports car
- **Tier Supplier/Processor:** deBotech, Inc.
- **Material Supplier / Toolmaker:** Solvay / deBotech, Inc.
- **Material / Process:** Solvay MTM 57 epoxy
- **Description:** This 1-piece aftermarket epoxy/carbon fiber spoiler provides a premium carbon composite appearance and enables the same aerodynamic performance as production 3-piece spoilers with different aero variants while also reducing mass by 40%. The spoiler's unique design and proprietary tooling combines solid wickerbills and an open cavity blade plus integral threaded inserts to facilitate manufacturing and assembly. The 1-piece construction offers a cleaner appearance due to reduction of fasteners. The spoiler is offered in both clear coat with exposed weave and painted in carbon flash metallic paint.

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CATEGORY: Body Exterior

• STRUCTURAL FRONT END MODULE WITH ACTIVE GRILLE SHUTTER

- **OEM Make & Model:** 2016 Ford Motor Co. Ford SuperDuty pickup
- **Tier Supplier/Processor:** Shape Corp.
- **Material Supplier / Toolmaker:** Celanese Corp. / Not stated
- **Material / Process:** Celstran 40-20 black long-fiber thermoplastic (LFT) polypropylene (PP) / injection molding
- **Description:** This all-composite design without metallic reinforcement is the first active grille shutter (AGS)-capable, injection-molded LFT-PP front-end module (FEM) bolster used on a heavy-duty pickup platform. Replacing steel and plastic/metal hybrids at a 3 lb/1.4 kg and \$3 USD savings/vehicle, the design offers parts consolidation with locating features that aid fit & finish, improves airflow, while meeting structural requirements for part deflections of <1mm on this 8,500 lb/3,856 kg class vehicle.

GRAND AWARD & CATEGORY: Body Interior

• COMPOSITE SUSPENSIONS FOR UPPER AND LOWER BACKS

- **OEM Make & Model:** 2017 Ford Motor Co. Lincoln Continental luxury sedan
- **Tier Supplier/Processor:** Leggett & Platt Inc. & Magna International / Summit Plastic Molding & Century Plastics
- **Material Supplier / Toolmaker:** BASF Corp., Advanced Composites, Inc., DuPont Automotive / Summit Plastic Molding & Mega Mold
- **Material / Process:** Ultramid B3ZG7 OSI polyamide (PA); Ultramid B3EG3 PA; ADX 5017 thermoplastic polyolefin (TPO); Delrin 100 polyoxymethylene (POM) / Multiple
- **Description:** Thanks to integrated composite designs, this "perfect position seat" suspension system delivers tuned suspension to optimize occupant comfort by cradling the upper back and providing side-torso support, which flexes to accommodate various occupant sizes. Special attachment features facilitate assembly and service time. The design also creates a robust dynamic crash-energy management system for rear-impact protection. Molded-in-color is used for A surfaces and craftsmanship. The system, for which 83 patents have been filed, reduces total seat weight by 8% and cost by 15% despite adding more features.

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CATEGORY: Chassis/Hardware

- **STRUT MOUNT**

- **OEM Make & Model:** 2016 General Motors Co. Cadillac CT6 luxury sedan
- **Tier Supplier/Processor:** ContiTech North America, Inc.
- **Material Supplier / Toolmaker:** BASF Corp. / Not stated
- **Material / Process:** Ultramid A3WG10CR 50% GR PA 6/6 / injection molding
- **Description:** This is the first use of a glass-reinforced (GR) PA material for strut-mount housings on all 4 corners of a vehicle and the first application of polyamide housings on the front and rear suspension systems. The injection molded parts integrate common components for both front and rear mounts, and employ a special thread assembly method with a locking feature. They reduce mass 30% vs. typical steel and aluminum parts and reduce noise transmission through the suspension system. Thanks to modular assembly, the design also offers greater tuning flexibility.

CATEGORY: Environmental

- **CLOSED-LOOP RECYCLING OF BOTTLES**

- **OEM Make & Model:** 2016 General Motors Co. (GM) Chevrolet Equinox & GMC Terrain cross-over utility vehicles (CUVs)
- **Tier Supplier/Processor:** Exo-s / Rogers Foam Co.
- **Material Supplier / Toolmaker:** Wm. T. Burnett & Co. / Not stated
- **Material / Process:** Recycled polyethylene terephthalate (PET) nonwoven fleece / Multiple
- **Description:** This innovative, multi-stakeholder, cost-neutral recycling project protects the environment, grows local economies, creates jobs, and helps people in a sustainable manner. Water bottles collected at GM operations and from the Flint, Mich., U.S.A. area are directed into a supply chain that recycles the material into nonwoven fleece for specific applications including engine manifold cover insulation, insulation for coats that convert to sleeping bags for the homeless that are made by formerly homeless women as part of a jobs program, and air filters that purify the air at numerous GM and other manufacturing operations. Already 3.5-million water bottles have been repurposed.

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CATEGORY: Materials

• VACUUM BRAKE TUBES

- **OEM Make & Model:** 2016 General Motors Co. Chevrolet Silverado & GMC Sierra pickups
- **Tier Supplier/Processor:** Cooper Standard
- **Material Supplier / Toolmaker:** DSM Engineering Plastics / Not stated
- **Material / Process:** Arnitel CM622 thermoplastic polyester elastomer (TPC-ET) /Not stated
- **Description:** A high-performance thermoplastic was needed for vacuum brake tubing to replace reinforced rubber. It needed broad temperature performance (-40-150°C), chemical resistance, burst strength to 60 bar minimum and flexural strength to 50 N minimum. It also had to resist vacuum collapse after 2 hr @ 150°C and provide impact retention after 336 hr @ 150C. The design was changed to use a smaller diameter, thinner wall to simplify engine / undercarriage routing and eliminate heat shields plus allow quick connects. A TPC-ET elastomer with high thermal oxidative stability was developed. It is 30% lighter, less costly, and eliminates brackets.

CATEGORY: Powertrain

• AIR INTAKE MANIFOLD

- **OEM Make & Model:** 2015 Volkswagen AG EA21 1.6L engines
- **Tier Supplier/Processor:** Hua Tao Ltd.
- **Material Supplier / Toolmaker:** SABIC / Not stated
- **Material / Process:** SABIC G3135X PP / injection molding
- **Description:** This is the first air-intake manifold launched in China using 35% GR-PP to replace PA 6/6. The application provides 25-30% cost reduction and 15-20% molded-part weight reduction while retaining properties at high temperatures and improving weld strength, plus NVH levels by 5 dB. Unique technology involving finer glass fibers and special sizing helps meet performance requirements. Parts are vibration welded.

CATEGORY: Process/Assembly/Enabling Technologies

• ROBOTIC LASER CUTTING AND WELDING OF TPO FASCIA

- **OEM Make & Model:** 2017 General Motors Co. Chevrolet Camaro ZL1 sports car
- **Tier Supplier/Processor:** Magna Exteriors, Inc. / Magna Exterior - DexSys
- **Material Supplier / Toolmaker:** LyondellBasell / Jenoptik AG
- **Material / Process:** Hifax TYC1168X TPO / injection molding
- **Description:** Hydraulic punch and sonic welding operations were replaced by robotic laser cutting and welding of a Class A exterior fascia. Unlike other welding processes, it is not necessary to thicken wallstock in weld areas to prevent readthrough with robotic laser welding of brackets on the backside of the part, and that reduces weight slightly. It also eliminates the need for contoured horns and punches. Clean cuts can be made in 1 sec on the painted side of the part. The dual-function process provides greater flexibility between programs and reduces floor space and tooling costs.

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CATEGORY: Safety

• **SEAT CUSHION FRAME AND STORAGE DOOR**

- **OEM Make & Model:** 2016 Ford Motor Co. Ford Super Duty pickup
- **Tier Supplier/Processor:** Royal Technologies Corp.
- **Material Supplier / Toolmaker:** Celanese Corp. / Vortec Tooling Solutions, Inc.
- **Material / Process:** Celstran GF40-20 LFT-PP / injection molding
- **Description:** For the first time, a polymer composite has replaced magnesium in a structural seat-cushion frame and under-seat storage lid for a front center 20% seat with integrated restraint system. The application is weight neutral and lower cost (~\$4 USD/unit), and satisfies all safety and crashworthiness requirements. Its flexible architecture allows for updates with future enhancements. Injection molded 40% LFT-PP is used to mold the frame, which also features an expanded polypropylene (EPP) antisubmarine foam block and a lockable ergo-latch. The assembly represents a significant reduction in carbon footprint vs. magnesium and has yielded 2 awarded and 2 pending patents.

SPE's Automotive Innovation Awards Program 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 700 OEM engineers, automotive and plastics industry executives, and media. As is customary, funds raised from this event are used to support SPE educational efforts and technical seminars, which help educate and secure the role of plastics in the advancement of the automobile.

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 information about the ***SPE Automotive Innovation Awards Competition and Gala*** see <http://speautomotive.com/inno> and <http://speautomotive.com/awa>. For more information on the ***Society of Plastics Engineers***, see www.4spe.org.

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Attn. Editors: Photos of all of the parts nominated for this year's SPE Automotive Innovation Awards Competition (including these category and Grand Award winners) will be found here sorted by category:
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