



FOR IMMEDIATE RELEASE: 11 November 2015

Media Contact:

Peggy Malnati, SPE Auto. Div. Comm. Chair
Phone: +1.248.592.0765
eMail: media@speautomotive.com

SPE® AUTOMOTIVE DIV. NAMES WINNERS FOR 45TH-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 for its 45th-annual *Automotive Innovation Awards Competition*, the oldest and largest recognition event in the automotive and plastics industries. The Materials category winner was selected as this year's Grand Award winner, representing the year's *most innovative use of plastics* by a blue-ribbon panel of judges.

CATEGORY: Aftermarket

• TRANSPARENT LIGHTWEIGHT WIND DEFLECTOR

- **OEM Make & Model:** 2016 General Motors Co. Corvette Stingray convertible sports car
- **Tier Supplier/Processor:** Polytec FOHA Inc. / SABIC
- **Material Supplier / Toolmaker:** SABIC / Pace Machine Tool, Inc.
- **Material / Process:** Lexan 9043 PC with Exatec 900 coating / CNC-trimmed sheet
- **Description:** This is the first use of a self-mounted, transparent and frameless wind deflector for convertible cars that meets AS2 ANSI and ECE requirements. The steeply raked design minimizes air turbulence and noise when the top is down. Replacing glass with PC lowered mass 33% and allowed a contoured shape to be achieved that would have been difficult and costly in glass. A laser-etched monogram under the surface is unobtrusive to vision during driving, yet visible during inspection and meets regulatory requirements for glass marking. A plasma coating enhances scratch, chemical, and UV resistance for long use life.

-more-

CATEGORY: Body Exterior

• PUSH-TO-RELEASE EXTERIOR SERVICEABILITY FASTENER

- **OEM Make & Model:** 2015 Ford Motor Co. Ford Mustang sports car
- **Tier Supplier/Processor:** ITW Deltar Fasteners
- **Material Supplier / Toolmaker:** Ascend Performance Materials, LLC/ A&P Tool, Inc. & M&M Tool and Mold, LLC
- **Material / Process:** PA 6/6 / injection molding
- **Description:** Compared to other easy-service fasteners, which have twist heads to release, this injection-molded PA 6/6 fastener only requires that you push the center pin to the service position to remove. This fastener cannot back out or be removed from the installed position without deliberate actions by the customer. The pin and body are designed to not be easily separated; however, the fastener is reusable, unlike other push pins that become damaged in the process of removal. It meets EU lamp serviceability requirements, reducing the time needed to remove the fastener by 90% without tools.

CATEGORY: Body Interior

• REAR-SEAT FOLDING HEAD RESTRAINT

- **OEM Make & Model:** 2015 Ford Motor Co. Ford F-150 pickup
- **Tier Supplier/Processor:** Windsor Machine Group / Hawk Plastics Ltd.
- **Material Supplier / Toolmaker:** ExxonMobil Chemical Co. / IRC Engineering
- **Material / Process:** PP copolymer / injection molding
- **Description:** This rear seat, folding head restraint eliminates a welded steel structure and replaces it with a single-piece, living hinge plastic core as its main structural component. As a result, thickness is reduced 33 mm for improved comfort and rear visibility; mass is reduced 624 g/vehicle, manufacturing complexity is significantly reduced (eliminating the need for special tooling processes thanks to consolidation of 5 parts into 1); tooling costs are lowered; and piece price is reduced \$1.50 USD/vehicle, while still meeting or exceeding all global safety requirements.

CATEGORY: Chassis/Hardware

• FIBERGLASS/EPOXY COMPOSITE COIL SPRING

- **OEM Make & Model:** 2015 Audi AG Audi A6 Avant wagon
- **Tier Supplier/Processor:** S. Ara Composite S.A.S.
- **Material Supplier / Toolmaker:** Hexion Inc. / not stated
- **Material / Process:** Epikote epoxy + fiberglass /modified filament winding
- **Description:** This weight-saving epoxy/fiberglass composite coil spring is the first of its kind to be used in the suspension system of a series-production vehicle. Using a patented, modified filament winding process, the application replaced traditional steel coil springs, reducing weight 40% and enabling the suspension system to react more quickly to changing road surface conditions, thereby improving vehicle handling and NVH. Significant work was done on resin chemistry and resin/fiber interface to ensure efficient load transfer and long-term mechanical performance, as well as finding an efficient, cost-effective production method capable of meeting build volumes.

CATEGORY: Environmental

- **SEAT FABRIC FROM RECYCLED MATERIALS**

- **OEM Make & Model:** 2015 Ford Motor Co. Ford F-150 pickup
- **Tier Supplier/Processor:** Johnson Controls Inc. / Sage Automotive Interiors
- **Material Supplier / Toolmaker:** Unifi Manufacturing, Inc. / not stated
- **Material / Process:** Repreve PET / Multiple
- **Description:** The fiber used in this innovative seat fabric is made from a hybrid blend of 100% recycled materials, including post-industrial fiber and post-consumer water bottles. The fabric meets Ford design and comfort requirements without any compromise in quality, durability, or performance. The switch from virgin fiber was achieved at cost parity, while providing significant environmental benefits, including diverting over 5-million water bottles from landfills just this year. To help close the loop further, there are now PET bottle collection bins installed at the Ford Research & Engineering campus. The bottles are recycled to help form this fiber.

GRAND AWARD & CATEGORY: Materials

- **ULTRALIGHT CLASS A BODY PANELS**

- **OEM Make & Model:** 2016 General Motors Co. Chevrolet Corvette sports car
- **Tier Supplier/Processor:** Continental Structural Plastics
- **Material Supplier / Toolmaker:** Continental Structural Plastics / Century Tool & Gage, Paragon Die & Engineering Co.
- **Material / Process:** TCA Ultra Lite SMC / compression molding
- **Description:** A new 1.2 SG SMC eliminated 9 kg of body-panel weight after a running change from a mid-density grade, where no tooling changes were required. Suitable for Class A or structural components, the new composite offers 28% mass reduction vs. mid-density (1.6 SG) grades and 43% vs. conventional (1.9 SG) SMC. It provides greater benefits vs. metal, including reduced weight and tooling costs, enhanced design flexibility, corrosion and dent resistance, and superior surface finish. Key to achieving the ultralow density was replacement of CaCO₃ with hollow-glass microspheres and use of a proprietary surface treatment to improve the resin/reinforcement interface.

-more-

CATEGORY: Powertrain

• **HEATED-TIP FUEL INJECTOR**

- **OEM Make & Model:** 2015 Honda Motor Co. Honda Fit subcompact and City sedan
- **Tier Supplier/Processor:** Delphi Powertrain
- **Material Supplier / Toolmaker:** DuPont Automotive / Coltelleria Baldi
- **Material / Process:** Zytel HTN54G35EF BKB336 PPA / injection molding
- **Description:** An electrical heater within the injector is energized by the vehicle controller, rapidly heating the ethanol fuel and dramatically improving vaporization while reducing emissions. Ink materials used in construction of the heater, body design, the ink-printing process on the body, and overmolding with PPA (which was designed for flow, heat resistance, and electronic compatibility) were all key to the success of this application. The technology saved \$60 USD/vehicle as well as 8.8 kg, while improving cold starts on E100 fuel and eliminating the need for a redundant gasoline fuel system on the vehicle.

CATEGORY: Process/Assembly/Enabling Technologies

• **IMX INSTRUMENT PANEL**

- **OEM Make & Model:** 2014 Hyundai Motor Group Hyundai i20 supermini
- **Tier Supplier/Processor:** Hyundai-Mobis / HanilEhwa
- **Material Supplier / Toolmaker:** Hanwha L&C / Hyundai-Motor Co.
- **Material / Process:** Multiflex 3202 TPO / compression-injection molding
- **Description:** To eliminate scratches and a hard "plastic" feel, a 2-shot compression-injection soft IP was developed. The back-foamed TPO foil is compression-injected with the PP substrate, which in turn is integrally injection molded with the TPO passenger-side airbag door. All the work is done in a single tool. To increase foam softness and stability of the integral injection molding, the TRIZ method and design of experiments tools were used. The resulting part saves \$10 USD/vehicle and reduces mass 300 g.

CATEGORY: Safety

• **FLOOR ROCKER REINFORCEMENT**

- **OEM Make & Model:** 2015 FCA US LLC Jeep Renegade SUV
- **Tier Supplier/Processor:** Proma Group / Redstamp
- **Material Supplier / Toolmaker:** SABIC / Redstamp
- **Material / Process:** Noryl GTX 910 MPPE/PA / injection molding
- **Description:** An optimized MPPE/PA 6 honeycomb geometry in a plastic/metal hybrid proved to be a very efficient energy-absorbing crash-box structure in this floor rocker reinforcement. Not only is the component E-coat capable, but it is very easy to assemble into the vehicle's BIW. Since the plastic honeycomb is integrally attached to 2 steel flanges during injection molding, no structural adhesives are needed. The mixed-material solution took 1 kg of weight out of the BIW, saved approximately 10%, and contributed tooling savings vs. previous steel solutions.

-more-

SPE Announces Winners of 45th Auto Innovation Awards Competition
5-5-5-5

Category and Grand Award winners selected from among these finalists during the Blue Ribbon judging by a group of journalists, academics, and retired industry chief engineers were announced at the **Automotive Innovation Awards Gala** on **November 11, 2015** at Burton Manor in the suburbs of Detroit.

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.

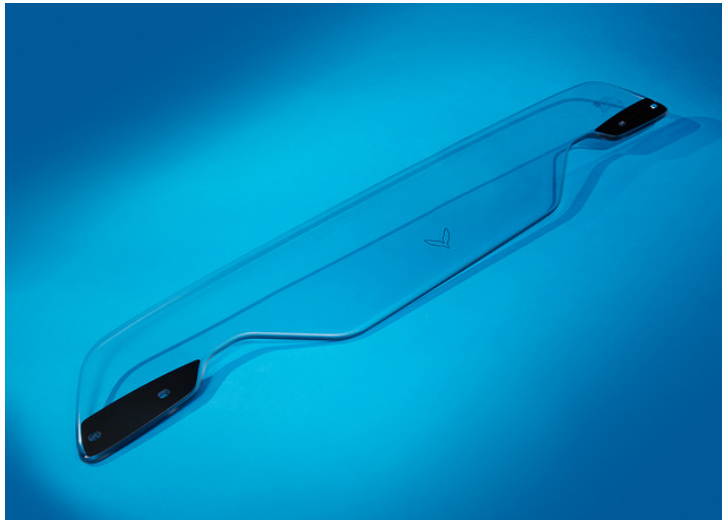
#

® SPE is a registered trademark of the Society of Plastics Engineers. All other trademarks are the property of their respective owners.

Attn. Editors: A large collection of SPE Automotive Division digital photography is available for download at <http://www.flickr.com/photos/speautomotive/collections>.

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:

<https://www.flickr.com/photos/17968829@N03/collections/72157660756291642/>.



FOR IMMEDIATE RELEASE: 11 November 2015

Media Contact:

Peggy Malnati, SPE Auto. Div. Comm. Chair
Phone: +1.248.592.0765
eMail: media@speautomotive.com

TROY, (DETROIT) MICH. – The Automotive Division of the Society of Plastics Engineers (SPE®) tonight announced the category winners for its 45th-annual **Automotive Innovation Awards Competition**, the oldest and largest recognition event in the automotive and plastics industries. In the **Aftermarket category**, the winner was the **Transparent Lightweight Wind Deflector** on the 2016 Corvette Stingray convertible sports car from General Motors Co. Tier supplier, Polytec FOHA Inc.; material processor and supplier, SABIC; and toolmaker, Pace Machine Tool, Inc. also were named on the award. The application featured Lexan 9043 PC with Exatec 900 coating and was produced via the CNC-trimmed sheet process. This is the first use of a self-mounted, transparent and frameless wind deflector for convertible cars that meets AS2 ANSI and ECE requirements. The steeply raked design minimizes air turbulence and noise when the top is down. Replacing glass with PC lowered mass 33% and allowed a contoured shape to be achieved that would have been difficult and costly in glass. A laser-etched monogram under the surface is unobtrusive to vision during driving, yet visible during inspection and meets regulatory requirements for glass marking. A plasma coating enhances scratch, chemical, and UV resistance for long use life.

#

® SPE is a registered trademark of the Society of Plastics Engineers. All other trademarks are the property of their respective owners.

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:

<https://www.flickr.com/photos/17968829@N03/collections/72157660756291642/>.



FOR IMMEDIATE RELEASE: 11 November 2015

Media Contact:

Peggy Malnati, SPE Auto. Div. Comm. Chair

Phone: +1.248.592.0765

eMail: media@speautomotive.com

TROY, (DETROIT) MICH. – In the *Body Exterior category*, the winner was the **Push-to-Release Exterior Serviceability Fastener** on the 2015 Ford Mustang sports car from Ford Motor Co. Tier supplier / material processor, ITW Deltar Fasteners; material supplier, Ascend Performance Materials, LLC; and toolmakers, A&P Tool, Inc. & M&M Tool and Mold, LLC also were named on the award. The application featured PA 6/6 and was produced via the injection molding process. Compared to other easy-service fasteners, which have twist heads to release, this injection-molded PA 6/6 fastener only requires that you push the center pin to the service position to remove. This fastener cannot back out or be removed from the installed position without deliberate actions by the customer. The pin and body are designed to not be easily separated; however, the fastener is reusable, unlike other push pins that become damaged in the process of removal. It meets EU lamp serviceability requirements, reducing the time needed to remove the fastener by 90% without tools.

#

® SPE is a registered trademark of the Society of Plastics Engineers. All other trademarks are the property of their respective owners.

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:

<https://www.flickr.com/photos/17968829@N03/collections/72157660756291642/>.



FOR IMMEDIATE RELEASE: 11 November 2015

Media Contact:

Peggy Malnati, SPE Auto. Div. Comm. Chair

Phone: +1.248.592.0765

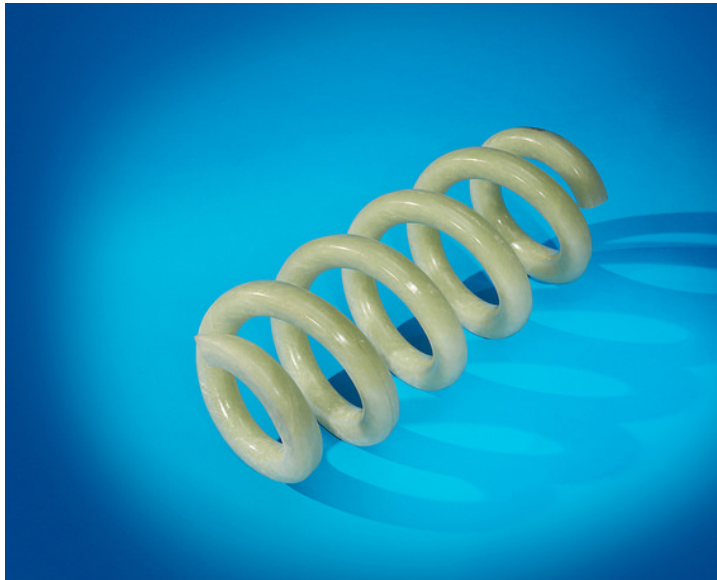
eMail: media@speautomotive.com

TROY, (DETROIT) MICH. – In the *Body Interior category*, the winner was the **Rear-Seat Folding Head Restraint** on the 2015 Ford F-150 pickup from Ford Motor Co. Tier supplier, Windsor Machine Group; material processor, Hawk Plastics Ltd.; materials supplier, ExxonMobil Chemical Co.; and toolmaker, IRC Engineering also were named on the award. The application featured PP copolymer and was produced via the injection molding process. This rear-seat, folding head restraint eliminates a welded steel structure and replaces it with a single-piece, living hinge plastic core as its main structural component. As a result, thickness is reduced 33 mm for improved comfort and rear visibility; mass is reduced 624 g/vehicle, manufacturing complexity is significantly reduced (eliminating the need for special tooling processes thanks to consolidation of 5 parts into 1); tooling costs are lowered; and piece price is reduced \$1.50 USD/vehicle, while still meeting or exceeding all global safety requirements.

#

® SPE is a registered trademark of the Society of Plastics Engineers. All other trademarks are the property of their respective owners.

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: <https://www.flickr.com/photos/17968829@N03/collections/72157660756291642/>.



FOR IMMEDIATE RELEASE: 11 November 2015

Media Contact:

Peggy Malnati, SPE Auto. Div. Comm. Chair

Phone: +1.248.592.0765

eMail: media@speautomotive.com

TROY, (DETROIT) MICH. – In the *Chassis / Hardware category*, the winner was the **Fiberglass / Epoxy composite coil spring** on the 2015 Audi A6 Avant wagon from Audi AG. Tier supplier / material processor, S. Ara Composite S.A.S.; and material supplier, Hexion Inc. also were named on the award. The application featured Epikote epoxy + fiberglass and was produced via the modified filament winding process. This weight-saving epoxy/fiberglass composite coil spring is the first of its kind to be used in the suspension system of a series-production vehicle. Using a patented, modified filament winding process, the application replaced traditional steel coil springs, reducing weight 40% and enabling the suspension system to react more quickly to changing road surface conditions, thereby improving vehicle handling and NVH. Significant work was done on resin chemistry and resin/fiber interface to ensure efficient load transfer and long-term mechanical performance, as well as finding an efficient, cost-effective production method capable of meeting build volumes.

#

® SPE is a registered trademark of the Society of Plastics Engineers. All other trademarks are the property of their respective owners.

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:

<https://www.flickr.com/photos/17968829@N03/collections/72157660756291642/>.



FOR IMMEDIATE RELEASE: 11 November 2015

Media Contact:

Peggy Malnati, SPE Auto. Div. Comm. Chair

Phone: +1.248.592.0765

eMail: media@speautomotive.com

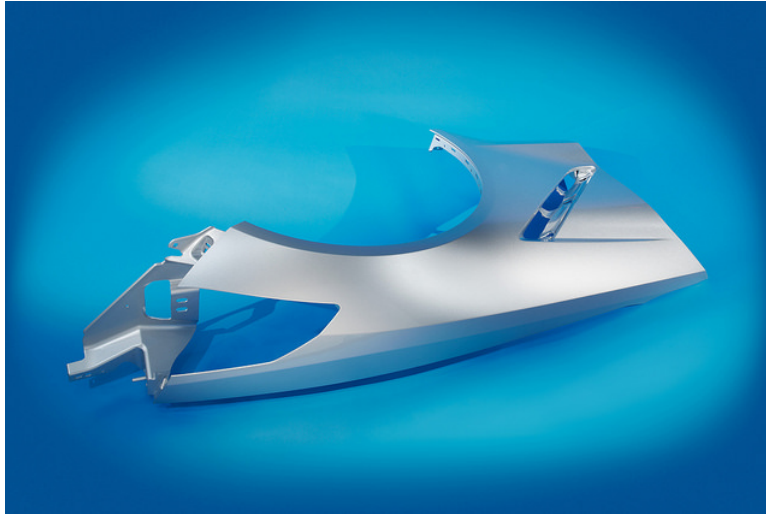
TROY, (DETROIT) MICH. – In the *Environmental category*, the winner was the **Seat Fabric from Recycled Materials** on the 2015 Ford F-150 pickup from Ford Motor Co. Tier supplier, Johnson Controls Inc.; material processor, Sage Automotive Interiors; and material supplier, Unifi Manufacturing, Inc. also were named on the award. The application featured Repreve PET and was produced via multiple processes. The fiber used in this innovative seat fabric is made from a hybrid blend of 100% recycled materials, including post-industrial fiber and post-consumer water bottles. The fabric meets Ford design and comfort requirements without any compromise in quality, durability, or performance. The switch from virgin fiber was achieved at cost parity, while providing significant environmental benefits, including diverting over 5-million water bottles from landfills just this year. To help close the loop further, there are now PET bottle collection bins installed at the Ford Research & Engineering campus. These bottles are recycled to help form the fiber.

#

® SPE is a registered trademark of the Society of Plastics Engineers. All other trademarks are the property of their respective owners.

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:

<https://www.flickr.com/photos/17968829@N03/collections/72157660756291642/>.



FOR IMMEDIATE RELEASE: 11 November 2015

Media Contact:

Peggy Malnati, SPE Auto. Div. Comm. Chair

Phone: +1.248.592.0765

eMail: media@speautomotive.com

TROY, (DETROIT) MICH. – In the *Materials category*, the winner was the **Ultralight Class A Body Panels** on the 2016 Corvette Stingray convertible sports car from General Motors Co. Tier supplier / material processor / material supplier, Continental Structural Plastics; and toolmaker, Century Tool & Gage & Paragon Die & Engineering Co. also were named on the award. The application featured TCA Ultra Lite SMC and was produced via the compression molding process. A new 1.2 SG SMC eliminated 9 kg of body-panel weight after a running change from a mid-density grade, where no tooling changes were required. Suitable for Class A or structural components, the new composite offers 28% mass reduction vs. mid-density (1.6 SG) grades and 43% vs. conventional (1.9 SG) SMC. It provides greater benefits vs. metal, including reduced weight and tooling costs, enhanced design flexibility, corrosion and dent resistance, and superior surface finish. Key to achieving the ultralow density was replacement of CaCO_3 with hollow-glass microspheres and use of a proprietary surface treatment to improve the resin/reinforcement interface. **This part also won the event's Grand Award.**

#

® SPE is a registered trademark of the Society of Plastics Engineers. All other trademarks are the property of their respective owners.

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:

<https://www.flickr.com/photos/17968829@N03/collections/72157660756291642/>.



FOR IMMEDIATE RELEASE: 11 November 2015

Media Contact:

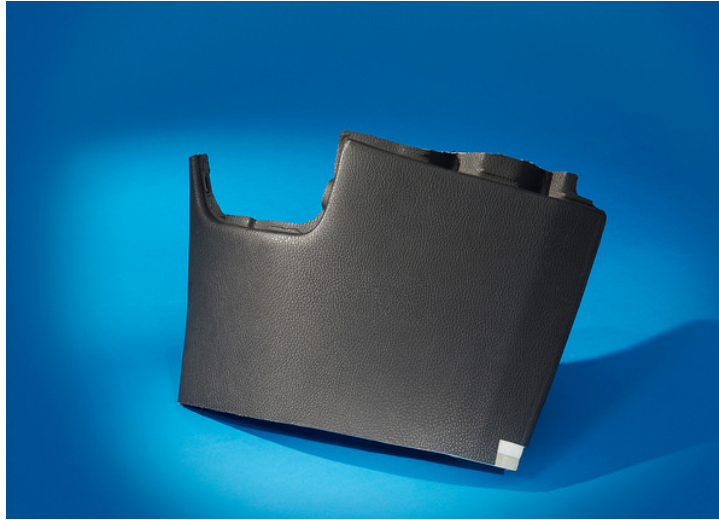
Peggy Malnati, SPE Auto. Div. Comm. Chair
Phone: +1.248.592.0765
eMail: media@speautomotive.com

TROY, (DETROIT) MICH. – In the *Powertrain category*, the winner was the **Heated-Tip Fuel Injector** on the 2015 Honda Fit subcompact and City sedan from Honda Motor Co. Tier supplier / material processor, Delphi Powertrain; material supplier, DuPont Automotive; and toolmaker, Coltelleria Baldi also were named on the award. The application featured Zytel HTN54G35EF BKB336 PPA and was produced via the injection molding process. An electrical heater within the injector is energized by the vehicle controller, rapidly heating the ethanol fuel and dramatically improving vaporization while reducing emissions. Ink materials used in construction of the heater, body design, the ink-printing process on the body, and overmolding with PPA (which was designed for flow, heat resistance, and electronic compatibility) were all key to the success of this application. The technology saved \$60 USD/vehicle as well as 8.8 kg, while improving cold starts on E100 fuel and eliminating the need for a redundant gasoline fuel system on the vehicle.

#

® SPE is a registered trademark of the Society of Plastics Engineers. All other trademarks are the property of their respective owners.

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: <https://www.flickr.com/photos/17968829@N03/collections/72157660756291642/>.



FOR IMMEDIATE RELEASE: 11 November 2015

Media Contact:

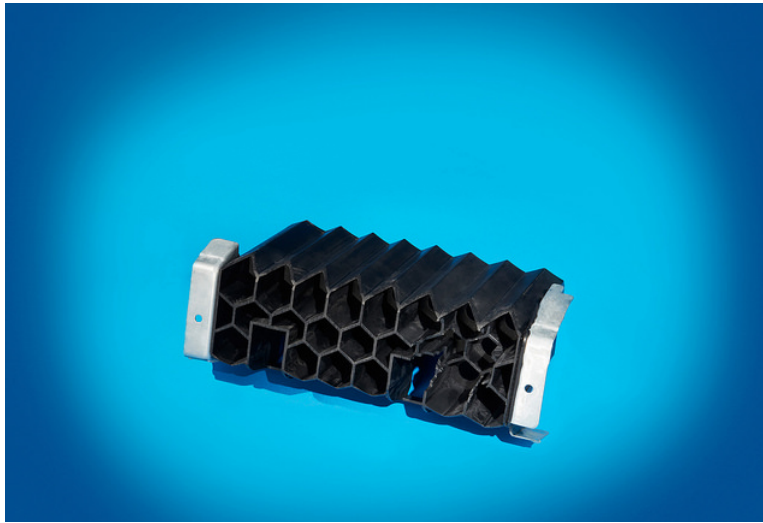
Peggy Malnati, SPE Auto. Div. Comm. Chair
Phone: +1.248.592.0765
eMail: media@speautomotive.com

TROY, (DETROIT) MICH. – In the *Process / Assembly / Enabling Technologies category*, the winner was the **IMX Instrument Panel** on the 2014 Hyundai i20 supermini from Hyundai Motor Group. Tier supplier, Hyundai-Mobis; material processor, HanilEhwa; material supplier, Hanwha L&C; and toolmaker, Hyundai-Motor Co. also were named on the award. The application featured Multiflex 3202 TPO and was produced via the compression-injection molding process. To eliminate scratches and a hard "plastic" feel, a 2-shot compression-injection soft IP was developed. The back-foamed TPO foil is compression-injected with the PP substrate, which in turn is integrally injection molded with the TPO passenger-side airbag door. All the work is done in a single tool. To increase foam softness and stability of the integral injection molding, the TRIZ method and design of experiments tools were used. The resulting part saves \$10 USD/vehicle and reduces mass 300 g.

#

® SPE is a registered trademark of the Society of Plastics Engineers. All other trademarks are the property of their respective owners.

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:
<https://www.flickr.com/photos/17968829@N03/collections/72157660756291642/>.



FOR IMMEDIATE RELEASE: 11 November 2015

Media Contact:

Peggy Malnati, SPE Auto. Div. Comm. Chair

Phone: +1.248.592.0765

eMail: media@speautomotive.com

TROY, (DETROIT) MICH. – In the *Safety category*, the winner was the **Floor Rocker Reinforcement** on the 2015 Jeep Renegade SUV from FCA US LLC. Tier supplier, Proma Group; material processor, Redstamp; material supplier, SABIC; and toolmaker, Redstamp also were named on the award. The application featured Noryl GTX 910 MPPE/PA and was produced via the injection molding process. An optimized MPPE/PA 6 honeycomb geometry in a plastic/metal hybrid proved to be a very efficient energy-absorbing crash-box structure in this floor rocker reinforcement. Not only is the component E-coat capable, but it is very easy to assemble into the vehicle's BIW. Since the plastic honeycomb is integrally attached to 2 steel flanges during injection molding, no structural adhesives are needed. The mixed-material solution took 1 kg of weight out of the BIW, saved approximately 10%, and contributed tooling savings vs. previous steel solutions.

#

® SPE is a registered trademark of the Society of Plastics Engineers. All other trademarks are the property of their respective owners.

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:

<https://www.flickr.com/photos/17968829@N03/collections/72157660756291642/>.