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SPE[®] AUTOMOTIVE DIVISION ANNOUNCES WINNERS OF 41ST AUTOMOTIVE INNOVATION AWARDS COMPETITION

TROY, (DETROIT) MICH. – The Automotive Division of the Society of Plastics Engineers (SPE[®]) tonight announced the winners of its 41st-annual *Automotive Innovation Awards Competition*, the oldest and largest recognition event in the automotive and plastics industries. Winners survived a pre-qualification round, as well as presentations before a panel of industry experts on September 29-30; finalists from that round presented again on October 10 before a Blue Ribbon panel of judges where category and Grand Award winners were selected; winners were announced tonight at the 2011 *SPE Automotive Innovation Awards Gala*. The *Process / Assembly / Enabling Technologies* category winner was also selected as the event's *Grand Award* winner for the *Most Innovative Use of Automotive Plastics* in 2011.

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SPE Announces Winners of 41st Auto Innovation Awards Competition
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CATEGORY: Body Exterior

• • **RAM BOX ASSEMBLY WITH LID**

- **OEM Make & Model:** Chrysler Group LLC 2012 MY Dodge® Ram® pickup
- **Tier Supplier/Processor:** Penda Corp. / Penda Corp. (lid), Evco Plastics (bin), River Bend Industries (end caps)
- **Material Supplier / Toolmaker:** Asahi Kasei Plastics North America Inc. / Cavalier Tool & Mfg. Ltd. (injection-molded bin); Tooling Technology LLC (thermoformed lid)
- **Material / Process:** Thermylene® P8-40FG-4611 (box), P6-15FG-0741 (lid); P6-15FG-0754 (end caps) PP / Twin-sheet thermoforming
- **Description:** Twin-sheet thermoforming replaces blow molding to create the structure and ribbing of this tough storage box with lid. The result is a more uniform, more dimensionally accurate part whose length was increased from 5 ft 7 in. to 6 ft 4 in., requiring greater emphasis on the "heavy-duty" nature of the structure's design and materials of construction. A special new grade of GR-PP eliminated the need to upgrade to heavier and more costly PA 6/6, avoiding a 9% weight and 20% cost increase.

CATEGORY: Body Interior

• **OVERMOLD-CUSHION SUSPENSION**

- **OEM Make & Model:** Ford Motor Co. 2012 MY Ford® Escape® SUV & Kuga® CUV
- **Tier Supplier/Processor:** Flex-O-Lators Div. of Leggett & Platt Inc.
- **Material Supplier / Toolmaker:** Washington Penn / Advanced Mold Engineering Inc.
- **Material / Process:** PPC5UF0 PP / Injection molding
- **Description:** The injection-molded PP design reduces part count from 5 to 1 / seat, piece cost \$0.56 USD per seat, tooling costs \$288,000 USD, and per-vehicle mass by 1.93 kg vs. the previous design. The single-piece design provides wire harness routing and retention, seat-cushion and back-trim retention, and climate-control system retention – functionality that previously required 6 parts to achieve. Now there are 5 fewer parts to manage, control, and install and fewer opportunities for potential failure modes.

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CATEGORY: Chassis / Hardware

• **POWER-WINDOW MOTOR OUTPUT GEAR & SHAFT**

- **OEM Make & Model:** Ford Motor Co. 2011 MY Ford® All Focus® compact cars (globally)
- **Tier Supplier/Processor:** Brose Fahrzeugteile GmbH & Co. KG / Mitsuba Corp.
- **Material Supplier / Toolmaker:** DuPont Automotive / Camoplast Inc.
- **Material / Process:** Hytel® TPC-ET polyester / Injection molding
- **Description:** This power-window motor changed from a steel output pinion to a new injection-molded polyester one for a quieter/lighter motor to meet customer targets while still complying with window velocities. It is industry's first plastic output pinion that ensures functionality. Additionally, the design allows for regulator plug-'n-play capability into the power drum for better motion control. Packaging of the involute onto the spline gear to the accommodating drum spline was critical to the customer. The application saved \$450,000 USD direct and \$250,000 indirect cost savings annually.

CATEGORY: Environmental

• **RENEWABLY SOURCED PA FOR BIODIESEL FUEL LINES**

- **OEM Make & Model:** Fiat S.p.A. 2011 MY Fiat® Diesel engines, various models
- **Tier Supplier/Processor:** Hutchinson
- **Material Supplier / Toolmaker:** DuPont Automotive / Not Stated
- **Material / Process:** Zytel® RS 1610 PA 10/10 / Extrusion
- **Description:** This is the first automotive use of PA 10/10 and the first bio-based PA 10/10 application. It is used in a diesel fuel line replacing PA 12. The bio-based resin provides superior temperature and chemical resistance, as well as heat-aging performance in biodiesel fuel blends vs. PA 12. This specific composition also contains a minimum of 60% bio content by weight for a more sustainable solution.

CATEGORY: Materials

• **VOLCANIC-FILLER PILLAR TRIM**

- **OEM Make & Model:** Hyundai-Kia Automotive Group 2011 MY Kia® Pride subcompact & Optima® mid-size sedan and Hyundai® Elantra® compact car
- **Tier Supplier/Processor:** Plakor Co. Ltd.
- **Material Supplier / Toolmaker:** Hyundai EP Co. Ltd. / Not Stated
- **Material / Process:** Supol® HL345CL PP / Injection molding
- **Description:** This lightweight, injection-molded PP pillar trim provides the texture and appearance of more costly fabric-wrapped trim through use of a unique filler combination consisting of volcanic rock, fiber pile, and glass spheres replacing talc-filled PP and fabric-wrapped PP. No special tooling was required but process control was important so as not to crush the glass spheres and to distribute the fiber pile evenly during compounding and molding. A 10% weight and a 50% direct cost savings was achieved. Other benefits gained from using the volcanic mineral are that it emits negative ions (to reduce pollutants) and far-infrared energy.

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CATEGORY: Powertrain

• **BATTERY PACK**

- **OEM Make & Model:** General Motors Co. 2011 MY Chevrolet® Volt® extended-range EV
- **Tier Supplier/Processor:** General Motors Co. / MANN+HUMMEL GmbH
- **Material Supplier / Toolmaker:** BASF Corp. / Omega Corp.
- **Material / Process:** Ultramid® 1503-2F PA 6/6 33% GF, HS / Injection molding
- **Description:** Thermoplastic battery frames are an integral part of electric-vehicle thermal management, channeling coolant to and from the cells. The use of injection-molded hydrolysis-resistant PA 6/6 for thermal-cycling management is a lightweight enabling material for this design, which required exacting manufacturing consistency and high levels of repeatability and reproducibility.

GRAND AWARD & CATEGORY: Process / Assembly / Enabling Technologies

• **MUCELL® INSTRUMENT PANEL**

- **OEM Make & Model:** Ford Motor Co. 2012 MY Ford® Escape® compact SUV & Kuga® compact SUV
- **Tier Supplier/Processor:** Faurecia
- **Material Supplier / Toolmaker:** SABIC Innovative Plastics & Flint Hills Resources / Lamko
- **Material / Process:** Stamax® EXRP-49 30YK270 & AP3335-HF long glass / 30% talc-filled PP / Microcellular injection molding
- **Description:** This is the largest automotive component molded in the patented MuCell injection-molding process and the first instrument panel to be molded in this process. By creating the part in microcellular foam, weight is reduced over 1 lb, mechanicals are improved, cycle time is reduced 15%, and clamp tonnage is reduced 45%, saving an estimated \$3 US / vehicle vs. solid injection molding.

CATEGORY: Safety

• **REINFORCED AIRBAG LID IN FOAM (RALF)**

- **OEM Make & Model:** Ford Motor Co. 2011 MY Ford® Focus® compact car
- **Tier Supplier/Processor:** Faurecia Interior Systems
- **Material Supplier / Toolmaker:** Not stated / Not stated
- **Material / Process:** PET & PUR / Not stated
- **Description:** RALF technology is an optimized instrument panel / passenger airbag door system that uses a reinforced structural 3D-skeleton of PET mesh textile and polyurethane foam lid. RALF replaces the traditional metal or plastic airbag lid door and offers much improved airbag lid positioning with less risk of windshield breakage. It offers significant weight savings over traditional foam-in-place airbag construction and is cost-neutral.

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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 600 to 800 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 for 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***, please visit the ***SPE Automotive Division*** website at <http://speautomotive.com/inno> and <http://speautomotive.com/awa>, or contact the group at +1.248.244.8993, or write SPE Automotive Division, 1800 Crooks Road, Suite A, Troy, MI 48084, USA. For more information on the ***Society of Plastics Engineers*** or other society events, visit the ***SPE*** website at www.4spe.org, or call +1.203.775.0471.

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ATTENTION EDITORS: High-resolution digital part photography for all of the 2011 nominations may be found at <http://www.flickr.com/photos/speautomotive/collections/72157627886707996/>.