FOR IMMEDIATE RELEASE: 15 OCTOBER 2026
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SPE® AUTOMOTIVE NAMES FINALISTS FOR 55th ANNUAL AUTOMOTIVE INNOVATION AWARDS PROGRAM

TROY (DETROIT), MICH. – The Automotive Division of the Society of Plastics Engineers (SPE®) today announced the Finalists for its 55th annual ***Automotive Innovation Awards Program,*** the oldest and largest recognition event (established in 1970) in the automotive and plastics industries. Nominations were first subjected to a pre-qualification review and then were presented before a panel of industry experts on September 24 – 25, 2026. That panel sent forward the most innovative nominations (category finalists) to the Blue Ribbon judging round, which was held October 2, 2026. Category and Grand Award Winners selected during the Blue Ribbon judging round will be announced on the evening of November 4, 2026, during the 55th SPE Automotive Innovation Awards Gala at the Laurel Manor in Livonia, Michigan. Finalists from this year's competition are listed below in category and submission order:

CATEGORY: Body Exterior
Thermoplastic Truck Bed
OEM Make & Model: 2026MY Toyota Motor Corp. Toyota Tacoma
System Supplier: Vuteq Corporation
Material Processor: Vuteq Corporation & Cascade Engineering
Material Supplier: BASF Corporation
Resin: Ultramid B3ZG10 HSP UV CCYD5 BK30564 PA6
Tooling Supplier: HaidImair GmbH

Process: Injection Molding

This one-piece PA6 truck bed is considered the first injection-molded composite bed designed to compete with steel and thermoset beds. At roughly 30 kg per shot, it is also believed to be the largest injection-molded automotive part. BASF developed an impact-modified 50% glass-fiber PA6 for flow, stiffness, and 8 years of UV stability, while a 105-micron molded-in grain eliminates A-side paint. Composite cross members and steel compression limiters are overmolded in the same cycle. Toyota and Engel designed a gargantuan 12,000-ton press to handle the 125-ton, 36-drop mold. Compared with SMC, the bed saves 0.6 kg and about 7% in part cost despite higher tooling cost. The part contains chemically recycled material, and all manufacturing scrap is recyclable, supporting circularity.

CATEGORY: Body Exterior
Wave-Shape Silencer
OEM Make & Model: 2023MY Toyota Motor Corp. Lexus RX
System Supplier: Nifco America Corp.
Material Processor: Nifco America Corp.
Material Supplier: Prime Polymers Inc.
Resin: TSOP-PR6B PP
Tooling Supplier: Nifco America Corp.

Process: Injection Molding

Styling on the Lexus RX created a large rear body gap, letting road noise into the cabin, with a vent duct as a second path. A basic shielding plate cut cabin noise about 10% at 60 km/h but failed sensory evaluation because it reflected sound back through the duct. Nifco applied CAE/FEA to design a wave-shaped rib design tuned to control transmission near 800 Hz. The wave design reached a transmission loss of 10X vs. the basic plate, also beating double-rib, honeycomb, Helmholtz, and plate-plus-Thinsulate options. It blocks 92% of transmission, a reduction of more than 10 dB, with no specialty materials, added weight, or post-processing.

CATEGORY: Body Exterior

Full-LED Tail Lamp Architecture

OEM Make & Model: 2027MY General Motors Co. Chevrolet Silverado
System Supplier: Lumentis
Material Processor: Lumentis
Material Supplier: SABIC, Trinseo & Lotte Chemical USA
Resin: Lexan 141R PC, MI7 PMMA, & HP-1000XA PC/ABS
Tooling Supplier: Absolute Tool Technologies

Process: Injection Molding

Among the first known full-LED tail lamps built from only three molded components, this architecture replaces the typical seven or eight. A selectively metallized PC bezel integrates the stylistic appearance, reflector, and electronics carrier, so LED electronics mount directly to the bezel with precise location to the optics and no separate carrier. The single bezel serves stop, turn, side marker, backup, and rear reflex functions. An impact-modified PMMA outer lens and a PC/ABS housing complete the lamp. Compared with a full-LED tail lamp of similar size, the design saves 25% in mass and 45% in cost while matching the vehicle's design language.

CATEGORY: Body Exterior

Exterior Side Marker Lamp

OEM Make & Model: 2026MY Rivian Automotive, LLC Rivian R2
System Supplier: Forvia
Material Processor: Premier Engineering Limited
Material Supplier: Röhm GmbH & Americhem, Inc.
Resin: Plexiglas 8N PMMA
Tooling Supplier: Premier Engineering Limited

Process: Injection Molding (3K)

Rivian's badge, turn signal, and side marker lamp combine into one three-shot injection-molded PMMA lens with molded-in-color black, clear optical, and custom Rivian Yellow regions. A custom colorant developed with Americhem reaches 100% opacity at 1.5 mm, which eliminates the in-mold decorative film. Two earlier approaches failed: a two-shot lens with film showed severe light bleed and cosmetic read-through, and a two-shot molded-in-color version still leaked light and failed the pressure seal. The 3K design solved both problems and produced crisp molded-in lettering. Multiple iterations with the colorant supplier (Americhem) tuned the UV package. Consolidation cuts secondary operations, assembly steps, cosmetic rework, and scrap.

CATEGORY: Body Exterior

Hidden Antenna in Spoiler

OEM Make & Model: 2027MY General Motors Co. Chevrolet Silverado
System Supplier: Magna International Inc.
Material Processor: Magna International Inc.
Material Supplier: SABIC & LG Chem
Resin: Cycoloy XCY620S PC/ABS, Lexan 141R PC & Lupoy HI5002A PC/ABS
Tooling Supplier: Integrity Tool and Mold Inc.

Process: Injection Molding

Regarded as the first pickup truck application featuring antennas hidden in the spoiler, this design moves AM/FM, SiriusXM, cellular, and GNSS functions out of the roof-mounted shark fin and fender-mounted mast. Its two modules are the first known to combine high- and low-frequency antennas in one unit. The painted PC/ABS spoiler provides impact, weathering, and scratch resistance, while a high-flow antenna housing offers RF transparency. Engineers avoided conductive primer to protect signal performance. The plant installs two fewer parts and three fewer fasteners, and the dealer-installed mast disappears, for 24% lower manufacturing cost. Closed spoiler sides also reduce drag.

CATEGORY: Body Interior
Display Housing and Mounting Bracket
OEM Make & Model: 2027MY Ford Motor Co. Ford Bronco
System Supplier: Sharp Electronics Corporation USA
Material Processor: Sunningdale Precision Tech (ChuZhou) Co., Ltd.
Material Supplier: Covestro
Resin: Bayblend T85XF PC/ABS
Tooling Supplier: Sunningdale Precision Tech (ChuZhou) Co., Ltd.

Process: Injection Molding

Ford engineers found the thermal tape between the display and its stamped steel bracket had negligible thermal effect, which raised a bigger question: was the bracket needed at all? The answer was a single injection-molded PC/ABS part combining the display housing and mounting bracket. Consolidation eliminates 11 fasteners, the stamped steel bracket, one assembly operation, and the associated stack-up, stripping, and ESD risks. Thicker mounting tabs maintain structural and harmonic performance, with first-mode frequency well above requirement. The drop-in design needs no vehicle assembly changes. Results include 21% weight reduction, 50% fewer parts, and savings of $3.84 per vehicle, about $600,000 a year.

CATEGORY: Body Interior
Structural Console Bracket
OEM Make & Model: 2027MY General Motors Co. Chevrolet Bolt EV
System Supplier: US Farathane
Material Processor: US Farathane
Material Supplier: Washington Penn
Resin: PRC100G2.5M1.5 PP + PIR
Tooling Supplier: Delta Tooling, Inc.

Process: Injection Molding

A single injection-molded bracket replaces a three-piece welded steel assembly as the structural bridge between the front and rear sections of a two-piece floor console. The bracket ties both sections to the lower body structure, controlling cross-car sway, cupholder shake, and rattle while meeting a 900 N abuse load. Optimized rib architecture in a 25% glass-fiber, 15% mineral-filled PP homopolymer with 60% recycled content raises console modal frequency from 26.5 Hz to 27.37 Hz. Piece cost falls 83% and mass drops 45.8%, from 520.5 g to 282.0 g. Tooling lead time shrinks from 36 to 12 weeks, and eliminating multi-point welding removes weld-quality risk.

CATEGORY: Body Interior
High Voltage Power Outlet Delete Plug
OEM Make & Model: 2025MY General Motors Co. Cadillac Optiq & Vistiq
System Supplier: ADDMAN Group (Forecast 3D)
Material Processor: DyeMansion GmbH
Material Supplier: HP Inc.

Resin: HP 3D High Reusability PA12
Tooling Supplier:

Process: Multi Jet Fusion

When an Australia and New Zealand regulation banned exposed high-voltage power outlets shortly before start of production, GM needed delete caps for several programs, locations, and interfaces, at only 300 to 700 pieces per program life. Multi Jet Fusion printing in HP high-reusability PA12 avoided tooling entirely. DyeMansion post-processing matches two GM textures, MINA and BAHIA, a first at GM and likely an industry first for a Class-A 3D-printed interior part. Snap tabs retain each cap without tools, and attachment to the internal wiring prevents squeak and rattle. Avoiding tooling saved $300,000 to $450,000, cut total cost 40- to 100-fold, and shortened lead time by six weeks.

CATEGORY: Body Interior
Ingress-Egress Grab Handle
OEM Make & Model: 2026MY Ford Motor Co. Ford Bronco
System Supplier: US Farathane
Material Processor: US Farathane
Material Supplier: Trinseo
Resin: Pulse 2000EZ PC/ABS
Tooling Supplier: AarKel Tooling Technologies

Process: Injection Molding (2K)

The missing upper grab handle became the top customer complaint on the Bronco, yet the ideal A-pillar and roof location is crowded by removable-top architecture and the side-curtain airbag. The two-shot solution pairs a PC/ABS structural substrate with a soft-grip cover molded in one operation from a TPO hard shot and a 70 Shore A TPE-S soft shot. The substrate matches metal stiffness at up to 27% lower mass, with no corrosion and lower tooling cost, and deforms in a controlled way to meet head-impact requirements. A custom UV stabilizer protects color. The handle meets pull, trim retention, and airbag deployment requirements, and owners praise its secure feel.

CATEGORY: Chassis/Hardware
Air Baffle Zig-Zag Feature
OEM Make & Model: 2022MY General Motors Co. Chevrolet Silverado
System Supplier: US Farathane
Material Processor: US Farathane
Material Supplier: Ravago
Resin: Enflex V1067A TPV
Tooling Supplier: Delta Tooling, Inc.

Process: Injection Molding (2K)

A TPV zig-zag feature lets a single air baffle attach to both the condenser, radiator, fan module (CRFM), and the body, replacing a two-baffle design whose interface leaked air. Relative movement between the two subsystems reaches about ±7 mm, and up to ±15 mm on some architectures, enough to crack a rigidly mounted baffle. The 65 Shore A EPDM+PP zig-zag feature, two-shot molded with a 20% talc-filled PP structure, absorbs this displacement while holding the seal and minimizing load transfer. Part numbers and tools drop from two to one, tooling cost falls 15%, sealing area grows, and air leakage falls from more than 20% to under 10%.

CATEGORY: Chassis/Hardware
Composite Air Tank
OEM Make & Model: 2026MY Seres Auto M6
System Supplier: Tuopu Group
Material Processor: WAL Low Carbon Technology Co.

Material Supplier: BASF Corporation & Tuopu Group
Resin: Ultramid B3WG6 BGVW BK00564 PA6 GF30 & T300 carbon fiber epoxy
Tooling Supplier: Hefei Qianli Plastic Mold Co., Ltd.

Process: Injection Molding, Hot-Gas Welding, and Filament Winding

Considered the industry's first highly integrated, irregularly shaped Type-4 composite air tank, this design supports the vehicle's air suspension, with ports and mounting tabs molded into the liner surface. Sequentially valve-gated 30% glass-filled PA6 halves are hot-gas welded under IR-camera closed-loop temperature control, raising liner burst pressure 20%. A proprietary algorithm routes carbon fiber/epoxy winding around surface features instead of cutting fiber, eliminating voids and cutting winding material by about 30%. At 60 bar burst limit, it exceeds FMVSS 121 and SAE J10, and resists corrosion and weld cracking common in metal tanks. It weighs 50% less than steel and 20% less than aluminum, costs 20% less than aluminum, and lasts five times longer.

CATEGORY: Chassis/Hardware

Composite Tunnel Reinforcement

OEM Make & Model: 2026MY Stellantis Jeep Grand Cherokee
System Supplier: L&L Products
Material Processor: L&L Products
Material Supplier: BASF Corporation
Resin: Ultramid B3Z HP RC02 BK00464 PIR PA6
Tooling Supplier: L&L Products

Process: Pultrusion and Injection Overmolding

This underbody tunnel reinforcement transfers crash load from the outer sill rail to the transmission crossmember in small-overlap and side-pole impacts, keeping the tire out of the occupant space. A pultruded insert with 80% continuous glass fiber, overmolded with high-impact nylon, delivers ultra-high-strength steel performance at one-quarter the weight. The first composite version cut mass 40% vs. stamped steel. This next generation fits a new package with higher loads, carrying more than 100 kN with 20% higher strength and more than 10% further mass reduction. A new PA6 with 60% PIR content cuts carbon footprint 80% and improves impact by 89%. Eliminating one compression limiter saves half a pound of nylon.

CATEGORY: Chassis/Hardware

Inlet Splash Panel Lipseal

OEM Make & Model: 2027MY General Motors Co. Chevrolet Silverado & GMC Sierra
System Supplier: US Farathane
Material Processor: US Farathane
Material Supplier: Washington Penn & Ravago
Resin: PPC6TF2 LTHA Black PP & Enflex V1055A BLK UV TPV
Tooling Supplier: Delta Tooling, Inc.

Process: Injection Molding (2K)

Inlet splash panel at the front of the engine compartment keeps water and snow away from the air inlet duct. On GM's full-size trucks and SUVs, a two-shot TPV lip seal injection molded directly onto the 20% talc-filled PP panel now replaces a bulb seal attached with pins, which tended to snap and pop out. It is the first lip seal used on these programs. The heat-stabilized TPV resists water, coolant, washer fluid, glycol brake fluid, and hot engine oil, and delivers a stiffer, better seal with less material. Developed during a tooling transfer to a new supplier, the design cuts cost 21% across roughly 1.05 million vehicles a year.

CATEGORY: Electric and Autonomous Vehicle Systems
Electro-Mechanical Braking System
OEM Make & Model: 2026MY Chery Automobile Co. Ltd Exeed EX7
System Supplier: Orient Motion
Material Processor: Orient Motion
Material Supplier: BASF Corporation
Resin: Ultradur B4330G6 HR PBT, Ultramid B3WG10 PA6, Ultraform POM
Tooling Supplier:

Process: Injection Molding

Exeed EX7 is the first known mass-produced passenger vehicle with a pure, 001-certified EMB system, eliminating hydraulic fluid and brake lines for full brake-by-wire control. Response time drops to 90 ms from 120 to 150 ms for electro-hydraulic systems, and stopping distance from 100 km/h falls to 33 m. At each wheel, a hydrolysis-resistant PBT motor gear unit housing survives thermal shock, IPX9K 100-bar washing, and dust. A structural PA pedal withstands 2,700 N and more than 2.2 million cycles at 25% lower mass than metal. System weight falls about 10%, and the design passed 173 regulatory tests under China's new braking standard.

CATEGORY: Electric and Autonomous Vehicle Systems
Battery Pack Thermal Barrier
OEM Make & Model: 2027MY Rivian Automotive, LLC Rivian R2
System Supplier: Autoneum
Material Processor: Autoneum
Material Supplier: Autoneum
Resin: Polyurethane / Glass Mat PU
Tooling Supplier: Autoneum

Process: Spray Transfer Molding (STM)

Thought to be the first use of spray transfer molding for a mica-free thermal barrier, this polyurethane and long-glass-fiber composite shields the Rivian R2's high-energy 4695 cylindrical cells from external flame breach during thermal runaway. In repeated cell-event testing, with a 2.5 kV dielectric check after each event, it survived as many events as the mica baseline, the only non-mica option evaluated to do so. Molded-in 3D features conform to pack geometry and eliminate separate spacers and locators. Each piece weighs about 1 kg less than mica, saving roughly 3 kg per vehicle, and landed cost falls about 30%. Robots install it without the sharp edges of mica and steel.

CATEGORY: Electric and Autonomous Vehicle Systems
Cosmetic and Structural GMT Frunk
OEM Make & Model: 2027MY General Motors Co. GMC Hummer EV
System Supplier: Hanwha Advanced Materials
Material Processor: Hanwha Advanced Materials
Material Supplier: Hanwha Advanced Materials
Resin: Profuse30 GMT & UD45 GMT
Tooling Supplier: Dong-A ENG Co., Ltd. & Kyungwon ENG Co., Ltd.

Process: Compression Molding

Billed as the industry's first customer-facing frunk to co-mold unidirectional and standard GMT, this Hummer EV frunk replaces 1.8-density structural SMC with 1.2-density glass mat thermoplastic. A 30% glass GMT forms the body while 45% unidirectional glass GMT, placed by robot, reinforces the floor locally to carry a 75 kg knee load with no more than 10 mm deflection and minimal body support. One-shot compression molding delivers a Class-A surface with no carpet. Ultrasonic welding replaces pumpable adhesives and enables end-of-life recycling. Mass fell 34.2%, cost fell 33.75%, and the part reached 100% PPAP in one month. Consistent fiber length, orientation, and placement were controlled to optimize structural performance without compromising dimensional stability.

CATEGORY: Materials

Interior Door Handle Bezels

OEM Make & Model: 2026MY Ford Motor Co. Ford Everest
System Supplier: Supavut Industry Co.Ltd – THAILAND
Material Processor: Supavut Industry Co.Ltd – THAILAND
Material Supplier: BASF Corporation
Resin: Ultramid D3K R01 BK 23361 PA
Tooling Supplier: Sin Kwang Plastic Industries Sdn Bhd

Process: Injection Molding

In a Ford first, a pre-colored, unfilled PA6 blend delivers high-gloss piano black door handle bezels with no paint and no rapid heat and cool tooling. Previous paint-free executions needed specialty molds and presses. Here, a standard injection mold and press reproduce a mirror-polished cavity through a wall-thickness flow leader, which places the weld line where it is nearly invisible, and gating designed for maximum cavity pressure without parting-line flash. Additives provide scratch, mar, and UV resistance for four bezels per vehicle in extreme-touch zones. Replacing painted ABS eliminates paint racks, paint scrap, and VOCs, and the single-material part simplifies end-of-life recycling.

CATEGORY: Materials

Low VOC Body in Black Panels

OEM Make & Model: 2027MY General Motors Co. Chevrolet Corvette
System Supplier: Molded Fiber Glass Companies
Material Processor: Molded Fiber Glass Companies
Material Supplier: Molded Fiber Glass Companies
Resin: MFG 071261 Low VOC SMC
Tooling Supplier:

Process: Compression Molding

Residual styrene in conventional SMC causes odor and VOC emissions, so Corvette body-in-black parts required a 325°F, 50-minute post-bake. Molded Fiber Glass reformulated its 1.0-density structural SMC with a new cure package leaving less unreacted styrene. Total volatiles drop 60% as molded, from 5,800 to 2,350 ppm, and within a year fall below post-baked production levels. The front tub and dash panel skip the bake entirely, saving energy and 9% per component. Nominal density holds at 1.0, and all mechanicals except a slight flexural strength drop remain statistically equivalent. After four formulation rounds and validation, the material runs in existing tools.

CATEGORY: Materials

Cup Holder Liner

OEM Make & Model: 2027MY General Motors Co. GMC Sierra & Chevrolet Silverado

System Supplier: Summit Polymers, Inc.
Material Processor: Summit Polymers, Inc.
Material Supplier: Audia Elastomers
Resin: TPE-75IN330RC UV TPE
Tooling Supplier: Isen Precision Industrial (Shenzhen) Co., Ltd

Process: Injection Molding

Football-shaped cupholder liners on the Silverado and Sierra needed consistent insertion and extraction effort. But even a 1 mm change in side radius raises effort 50% to 60%, and no industry friction test existed. So, GM developed one. Screening led from a 75 Shore A TPV-based TPE to a 75 Shore A SEBS-based TPE with 25% post-industrial recycled content. Insertion force falls about 10% and exertion force about 15%. After wear testing, the TPV showed material shaving, while the new TPE showed only

wear marks. The drop-in material keeps the Class-A, molded-in-color surface and existing tooling, and cuts cost 6% to 8%.

CATEGORY: Powertrain

Press In Place Engine Coolant Seal

OEM Make & Model: 2027MY General Motors Co. Chevrolet Traverse, Buick Enclave, & GMC Acadia
System Supplier: Uchiyama Marketing & Development America LLC
Material Processor: Uchiyama Marketing & Development America LLC
Material Supplier: Zeon Chemicals, LP
Resin: J7201R Hydrogenated Acrylonitrile Butadiene Terpolymer (HNBR)
Tooling Supplier: Uchiyama Marketing & Development America LLC

Process: Injection Molding

Compact engines place coolant and oil seals side by side, where leaked oil swells traditional EPDM and risks coolant-oil mixing, overheating, and engine seizure. Regarded as the industry's first press-in-place coolant seal for a crankcase, this 3 mm x 5 mm seal uses a new HNBR terpolymer compound. Acrylonitrile provides chemical resistance, hydrogenated butadiene adds heat resistance, and proprietary third monomer maintains performance from 135°C to −40°C, with only 2% swell in oil vs. more than 50% for EPDM. Six thin stabilizer ribs prevent tipping in the groove, and four thick retention ribs prevent pop-out. The seal holds 30 psi coolant pressure and trims weight and cost about 30% each.

CATEGORY: Powertrain

Turbo Inlet Ducts

OEM Make & Model: 2025MY General Motors Co. Chevrolet Corvette ZR1
System Supplier: Steere Enterprises
Material Processor: Steere Enterprises
Material Supplier: Celanese and BASF Corporation
Resin: Fortron 1115L0 PPS GF15 & Ultramid 8272G HS PA6 GF12
Tooling Supplier: Square One Engineering

Process: 2D and 3D blow molding

Prior GM twin-turbo engines used aluminum turbo inlet adapters, prized for holding stiffness at high underhood temperatures. The ZR1 subsystem replaces them with blow-molded plastic that helps achieve 1,064 hp. Upper ducts of 3D blow-molded, 15% glass PPS sit directly above the catalytic converters, meet a V0 flame rating, and run more than 3 feet while shifting repeatedly between round and triangular sections. Steere Automotive's steel-reinforced plastic flange, welded to the duct, made a plastic adapter possible. An overmolded TPV cuff replaces a two-clamp hose, eliminating a leak path. CFD modeling of pressure loss along the duct, a first at GM, shaped the design, and weight falls up to 12.75%.

CATEGORY: Process/Assembly/Enabling Technologies

Molded-in-Color Composite Hood

OEM Make & Model: 2026MY KIA Corporation KIA PV5
System Supplier: Kolon Spaceworks Co.,Ltd
Material Processor: Kolon Spaceworks Co.,Ltd
Material Supplier: KPX CHEMICAL CO., LTD.
Resin: NIXOL KL-171NT-1 PU LGF
Tooling Supplier: Krauss-Maffei Wegmann GmbH & Co. KG

Process: Long Fiber Injection (LFI)

This Class-A hood gets its color in the mold, eliminating the paint shop, which accounts for about 40% of vehicle production CO_2. A co-extruded ABS and PMMA sheet, with colored and clear PMMA layers, is thermoformed and backed by long-fiber-injection polyurethane sprayed at 7 mm to 40 mm thickness to

manage stress in normal and crash loading. Inserts and features mold in place, improving part integration 30%. Compared with a stamped steel hood, the composite saves 2.4 kg, about 32%, and cuts tooling investment 80%. The hood passes Euro NCAP pedestrian head impact and five years of validation, including two years of Mojave exposure, at about 230 vehicles per day.

CATEGORY: Process/Assembly/Enabling Technologies
Liftgate Applique Wiper Trough

OEM Make & Model: 2027MY Rivian Automotive, LLC Rivian R2
System Supplier: RESRG Automotive
Material Processor: RESRG Automotive
Material Supplier: Borouge International & Celanese
Resin: Recleo EH2241SYU PIR TPO, Santoprene 12180B260 TPV
Tooling Supplier: International Tool Manufacturing Corp.

Process: Injection Molding (2K)

A roll-down rear window leaves no glass for the wiper to rest on, and the flow-through spoiler rules out packaging above it. Enabling what is thought to be the industry's first hidden wiper for a roll-down rear window, this trough parks it in a recessed pocket at the base of the liftgate. Drain paths, drain hoses, and a heating element manage water, debris, snow, and ice, with no trapped water in validation. The two-shot trough pairs a 20% talc-filled TPO hard shot with 20% post-industrial recycled content and a self-lubricating, low-friction TPV soft shot. An angled seal gap reduces wiper arm contact. The recycled TPO cuts CO_2e about 17%.

CATEGORY: Process/Assembly/Enabling Technologies
Thermoplastic Body Door Seal

OEM Make & Model: 2027MY Volvo Cars, Volvo EX60
System Supplier: Cooper Standard
Material Processor: Cooper Standard
Material Supplier: Mitsubishi Chemical, Celanese, & Ravago
Resin: Tefabloc TPE-S, Santoprene TPV & Scolefin PP
Tooling Supplier: Cooper Standard

Process: Extrusion and carrier corrugation

Deemed the first fully thermoplastic body door seal, FlexiCore replaces the steel or aluminum carrier of traditional EPDM seals with Cooper Standard's patented corrugated thermoplastic carrier. The 100% recyclable TPV, TPS, and PP construction eliminates EPDM curing and spray coating, meets dynamic sealing requirements, and adds a co-extruded skin colorable to match interior trim. Linear weight falls from 511 to 286 g/m, a 44% reduction worth 2.7 kg per four-door set, and frunk seals drop 31%. Carbon emissions fall 20%. Greater flexibility around corners speeds assembly up to 20%, and operators handle about a quarter ton less material per 200-vehicle shift.

CATEGORY: Process/Assembly/Enabling Technologies
Headlamp and Tail Lamp with Uniform Visual Effect

OEM Make & Model: 2027MY General Motors Co. GMC Sierra & Chevrolet Silverado
System Supplier: Lumentis & Valeo
Material Processor: Lumentis & Valeo
Material Supplier: Trinseo & SABIC
Resin: Plexiglas V825-100 PMMA & Lexan LS1-111 PC
Tooling Supplier: DBM Group & Integrity Tool and Mold Inc.

Process: Injection molding and laser carbonization

Matching piano key signatures front and rear, with a precise 2 mm optical pattern and 1 mm gaps, took two methods. In the headlamp, a four-axis infrared laser carbonizes a two-shot crystal and black PC lens to form dark keys, the first known production use of dark carbonized laser treatment in a high-volume

legal lens. This eliminates printing and complex partial black-shot tooling. In the tail lamp, a 4 mm PMMA inner lens with 260 µm micro-cone optics creates illuminated keys fed by a hidden light blade, while grain simulates the pattern when unlit. Integration cuts tooling cost 50% and bezel mass 50%.

CATEGORY: Sustainability
Exterior Vehicle Lighting Remanufacturing
OEM Make & Model: 2016MY General Motors Co. Chevrolet Silverado
System Supplier: Llink Technologies
Material Processor: Valeo, Magna International, North American Lighting Inc. & SL Corporation
Material Supplier: H.B. Fuller
Resin: Rapidex NP 2075 T PUR
Tooling Supplier:

Process: Adhesive Bonding

Presented as the first scalable automotive lighting remanufacturing process, Llink Technologies' patented method recovers up to 95% of components from damaged sealed lamps. Each lamp is tested, then reflectors, bezels, wiring, control modules, LEDs, and other components are harvested and assembled into a new lens and housing. A single universal hot-melt PUR adhesive meets every OEM requirement, and flexible equipment adapts to any make, model, or lighting technology. Finished lamps meet OEM and FMVSS 108 requirements and carry OEM warranty at about 40% below the price of new. Each lamp diverts 9.4 pounds from landfill and saves about 5 kg CO_2e. The process now supports 36 GM part numbers.

CATEGORY: Sustainability
Sustainable Seat Foam
OEM Make & Model: 2027MY Rivian Automotive, LLC Rivian R2
System Supplier: Adient plc
Material Processor: Adient plc
Material Supplier: Dow Chemical Company
Resin: Specflex REN Polyol
Tooling Supplier:

Process: Foam Molding

Considered the first automotive seat foam with this level of sustainable content, the Rivian R2's molded flexible polyurethane foam contains about 24% bio-circular biomass. Dow's mass-balanced Specflex REN polyol draws on used cooking oil, lowering the polyol's global warming potential about 40% vs. virgin material. The foam's cell structure matches virgin foam, and it meets all impact, hardness, and perceived quality requirements with no odor issues. It runs on Adient's standard line with no separate tankage, facilities, or process changes. Cost falls about 10%. Seat foam anchors Rivian's broader push to embed sustainable polymers in every application, including engineered thermoplastics.

CATEGORY: Sustainability
Fuel Pump Module Subcomponents
OEM Make & Model: 2026MY Toyota Motor Co., Toyota Tundra
System Supplier: Aisan Industry Co., Ltd.
Material Processor: Enplas (U.S.A.) Inc.
Material Supplier: Celanese
Resin: Celcon ECO-C M90 C872 POM
Tooling Supplier: Enplas America, Inc.

Process: Injection Molding

In the first known automotive application of carbon-captured POM, Toyota Tundra fuel pump module subcomponents now use Celanese Celcon ECO-C M90. Carbon dioxide captured from industrial emissions is combined with hydrogen to make methanol and then POM, cutting the material's production

CO_2 by 90%. Because the resin is chemically identical to standard M90, with matching flow, modulus, strength, impact, and heat deflection values, the switch required no mold, molding condition, or design changes. Toyota approval took two months instead of the typical two to three years. Production began in April 2026, reducing module carbon footprint 4% now, with a 30% target by 2029.

Category Winners and a **Grand Award** winner, selected from these finalists during the Blue Ribbon judging by a group of journalists, academics, and retired industry chief engineers, will be announced on November 4, 2026, during the 55th annual SPE Automotive Innovation Awards Gala at the Laurel Manor in Livonia, Michigan. A **Hall of Fame Award** will be presented for an innovative application that has been in use for 15 years or longer making a significant impact in the industry with increased applications. A **Lifetime Achievement Award** will also be presented to honor a person who has made significant contributions to the industry.

Major Sponsors of the 2026 SPE Automotive Innovation Awards Gala to date include: Celanese, BASF Corporation, American Chemistry Council – Plastics Division, ExxonMobil, SABIC HPP, INEOS Styrolution America and Syensqo.

Since 1970, the ***SPE Automotive Innovation Awards Competition*** has highlighted the positive changes that polymeric materials have brought to automotive and ground-transportation industries, such as weight and cost reduction, parts consolidation, increased safety and enhanced aesthetics and design freedom.

During the competition phase of the event, dozens of teams made up of OEMs and suppliers work for months to hone submission forms and presentations describing their part, system, or complete vehicle module to support claims that it is the year's ***"Most Innovative Use of Plastics."*** To win, teams must survive a pre-competition review and two rounds of presentations before industry and media judges.

This annual event usually draws over 600 OEM engineers, automotive and plastics industry executives and media. Funds raised from the event are used to support SPE educational programs including technical seminars and conferences, which help educate and secure the role of plastics in the advancement of the automobile.

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Attn: Editors: Photos of the Finalists, as well as a large collection of SPE Automotive Division digital photography, are available for download at: https://www.flickr.com/photos/speautomotive/albums/

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