



Joint News Release

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BASF, Flex-N-Gate, L&L Products and Toyota named as finalists for the 2023 JEC Innovation Award for composite seatback design on 2022 Toyota Tundra

WYANDOTTE, MI and ROMEO, MI, March 3, 2023 – [BASF](#), [Flex-N-Gate](#), [Toyota](#), and [L&L Products](#) were named as finalists for the 2023 JEC Innovation Award in the Automobile and Road Transportation – Design Part category with the composite seatback design on the 2022 Toyota Tundra™. This project has previously won the 2022 Altair Enlighten Award for achievements in weight savings and the 2022 SPE Automotive Innovation Award.

“Pultrusion composite technology allowed us to design a seat structure that was 20% lighter compared to the previous model and to meet our cost goals,” said Vik Bhatia, Group Manager for Engineering Design Chassis at Toyota. “BASF, L&L Products and Flex-N-Gate were great partners that help us reach our targets.”

The seat structure is the first interior application for L&L Products’ Continuous Composite Systems™ (CCS™) technology that uses BASF’s polyurethane pultrusion system Elastocoat® 74850. CCS is a fiber-reinforced composite carrier with highly engineered sealants and adhesives in a two-dimensional profile. In this application it was overmolded with BASF’s impact-modified polyamide 6 Ultramid® B3ZG7 CR to create the 3D shape of the 60% seat back.

“With this partnership, we were able to eliminate an all-steel assembly which contained 60 stamped and welded parts and integrate into four composite parts which reduced assembly and scrap costs associated with the metal seat structure,” said Hank Richardson, Product Engineering Manager, L&L Products. “This also allowed for greater functionality of the seating system.”

“We continue to show how pultrusion can deliver lightweight, cost-effective solutions as well as integrated functionality,” said Kipp Grumm, Technology Leader for Thermoplastic Composites, Performance Materials, BASF Corporation. “The unique design of the injection overmolded pultruded beam in the seat structure also passed all relevant crash test requirements and opens the door for more adoption of composites in automotive applications.”

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Continuous Composite Systems (CCS) is a trademark of L&L Products

Tundra is a trademark of Toyota

About BASF

BASF Corporation, headquartered in Florham Park, New Jersey, is the North American affiliate of BASF SE, Ludwigshafen, Germany. BASF has approximately 16,000 employees in North America and had sales of \$25.7 billion in 2022. For more information about BASF’s North American operations, visit www.basf.com/us.

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. More than 111,000 employees in the BASF Group contribute to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio comprises six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions. BASF generated sales of €87.3 billion in 2022. BASF shares are traded on the stock exchange in Frankfurt (BAS) and as American Depositary Receipts (BASFY) in the United States. Further information at www.basf.com.

About L&L Products

L&L Products is a technology-driven business-to-business company with unique expertise in static sealing, acoustics, vibration reduction, structural reinforcements, and composite components for automotive, aerospace, commercial vehicle and other industrial applications. Today, L&L has over 1200

employees worldwide, locations in 16 countries, and 9 manufacturing facilities. For more information, visit www.llproducts.com.