Ford Builds on Advanced Materials Use in All-New F-150 with Lightweight Concept Car

- Ford Lightweight Concept vehicle represents Ford’s ongoing research for future light-weighting and advanced materials applications, building on the all-new Ford F-150, which sheds up to 700 pounds through use of high-strength steel and aluminum alloys.

- Light-weighting is a key component in Ford’s Blueprint for Sustainability: mixed-materials research vehicle explores how advanced materials might be applied for future high-volume vehicle production for better performance and gas mileage, and carbon dioxide emission reduction.

- Ford Lightweight Concept reduces the weight of a 2013 Fusion to that of a Ford Fiesta, resulting in a nearly 25 percent weight reduction.

- Mixed-materials research vehicle developed in partnership with the U.S. Department of Energy’s Vehicle Technologies Program, together with Cosma International – a subsidiary of Magna International.

Ford Motor Company today unveiled its Lightweight Concept vehicle, which uses advanced materials to explore future weight-reduction solutions that could improve performance and fuel efficiency while reducing carbon dioxide emissions.

The vehicle represents the latest phase of Ford’s research into developing sustainable technology solutions that are affordable for consumers and can be produced in large volumes across the product lineup. This research has also led to dramatic weight reductions of up to 700 pounds in the all-new F-150. The 2015 F-150 sheds weight through the use of high-strength steel and aluminum, enabling it to tow more, haul more, accelerate quicker and stop shorter – all with improved gas mileage.

“Consumers today want better fuel efficiency, but they also want more technology and features in the car, which usually adds weight to the vehicle,” said Raj Nair, Ford group vice president, Global Product Development. “A focus on light-weighting will be fundamental to our industry for years to come, and we are investigating many advanced materials applications as possible solutions for weight reduction in our vehicles.”

Light-weighting is a key component in Ford’s Blueprint for Sustainability, which integrates sustainability into the business plan for the long-term preservation and enhancement of environmental, social and financial capital. The introduction and incorporation of lightweight materials into vehicle construction helps meet the goal of reducing weight to achieve better fuel economy for consumers while also reducing greenhouse gas emissions.

Ford’s research into improved efficiency through weight reduction with advanced materials including new metals, alloys and composites began more than 25 years ago. This research produced the breakthrough Aluminum Intensive Vehicle program in 1992 and all-aluminum high-performance Ford GT in 2005.

Along with other fuel-efficiency technologies, light-weighting is fundamental to Ford’s efforts to stabilize carbon dioxide concentrations in the atmosphere at 450 parts per million – the level many scientists, businesses and governmental agencies believe may avoid the most serious effects of climate change.

**Holistic approach to light-weighting**
As consumer electronics like cellphones and tablets become more lightweight, so does the ultimate mobile device – the vehicle. Ford’s Lightweight Concept uses many of the same advanced materials found in today’s lightweight electronic devices, including aluminum, chemically toughened glass and advanced lightweight plastics.

Ford engineers took a holistic approach to weight reduction by incorporating advanced materials into the entire design of the vehicle, including powertrain, chassis, body, battery and interior features such as seats. This Lightweight Concept vehicle represents its most comprehensive blend of advanced materials yet in one vehicle, including strategic application of aluminum, ultra-high-strength steels, magnesium and carbon fiber.

The research vehicle was developed with the U.S. Department of Energy’s Vehicle Technologies Program, together with Cosma International – a subsidiary of Magna International – to illustrate long-term potential light-weighting solutions. Magna’s design and development of the multi-material body-in-white, closures and chassis components are a significant contribution in light-weighting the concept vehicle.

“Our goal was to investigate how to design and build a mixed-materials, lightweight vehicle that could potentially be produced in high volume, while providing the same level of safety, durability and toughness as our vehicles on the road today,” said Matt Zaluzec, Ford technical leader, Global Materials and Manufacturing Research. “There’s not a one-size-fits-all approach to light-weighting. The Lightweight Concept gives us the platform to continue to explore the right mix of materials and applications for future vehicles.”

Other industries have incorporated lighter-weight advanced materials to achieve greater fuel economy, speed and performance. Aviation and aerospace industries – commercial and military – make extensive use of composites structures and mixed materials, including aluminum and carbon fiber, to reduce weight and maximize fuel efficiency. The rail industry makes extensive use of lightweight materials to reduce weight in high-speed and bullet trains. The heavy truck transportation industry uses lightweight materials including aluminum and high-strength steel to improve fuel efficiency.

About Ford Motor Company

Ford Motor Company is a global company based in Dearborn, Michigan. The company designs, manufactures, markets and services a full line of Ford cars, trucks, SUVs, electrified vehicles and Lincoln luxury vehicles, provides financial services through Ford Motor Credit Company and is pursuing leadership positions in electrification, autonomous vehicles and mobility solutions. Ford employs approximately 191,000 people worldwide. For more information regarding Ford, its products and Ford Motor Credit Company, please visit corporate.ford.com.