

BUILT FORD GREEN: SUSTAINABLE MATERIALS MAKE AMERICA'S BEST-SELLING TRUCK ENVIRONMENTALLY FRIENDLY AND TOUGH

- Rice hulls are the latest sustainable material used in Ford F-150; the hulls reinforce plastic used in an electrical harness in 2014 F-150
- Other eco-friendly materials in F-Series trucks are soybeans and post-industrial recycled cotton – one 2014 Ford F-150 truck uses the equivalent of about 10 pairs of jeans, 26 bath towels or 31 T-shirts as carpet insulation or sound absorber
- Eco-friendly materials complement fuel efficient F-Series powertrains, including an available 3.5-liter EcoBoost[®] engine, which improves fuel economy up to 20 percent and reduces CO₂ emissions up to 15 percent compared to similarly capable V8 engines

Ford is proving that pickups can be green and tough by adding rice hulls to the list of sustainable materials used to build F-150 – America's best-selling truck.

Ford is using plastic reinforced with rice hulls – a byproduct of rice grain – in an electrical harness in the 2014 F-150. The company will need at least 45,000 pounds of hulls in the first year.

“The 2014 F-Series exemplifies our continued efforts to use recycled content in our vehicles,” said John Viera, Ford

global director of sustainability and vehicle environmental matters. “We can have greater impact in this case because of the size and sales volume of this product.”

The rice hulls are sourced from farms in Arkansas and will replace a talc-based reinforcement in a polypropylene composite made by RheTech, a Whitmore Lake, Mich.-based automotive supplier.

“We developed this resin specifically for Ford over the last three years, working with the automaker closely, including in all phases of material qualification,” said David Preston, director of business development for RheTech. “The whole process has been a rewarding success for both Ford and RheTech, which can add yet another natural-fiber based product to our RheVision line.”

Rice hull-reinforced plastic is the most recent example of Ford researchers and engineers using sustainable material whenever possible in the F-Series – without compromising toughness and durability. F-Series trucks already feature:

- **Recycled cotton:** Used as carpet insulation and a sound absorber; every 2014 F-150 contains enough recycled cotton to make the equivalent of 10 pairs of jeans
- **Soybeans:** Used to make seat cushions, seat backs and head restraints
- **Recycled carpet:** Some F-150 trucks have cylinder head covers made with EcoLon, a nylon resin produced

from 100 percent post-consumer recycled carpet

- **Recycled tires:** A thermoplastic material made from recycled tires and post-consumer recycled polypropylene is used to make shields and some underbody covers on F-150
- **Recycled plastic soda pop and water bottles:** A lightweight fiber derived from recycled plastic soda pop and water bottles is used to construct F-150 wheel liners and shields. The parts are significantly lighter than traditional injection molded parts and lead to a quieter ride. Select F-Series trucks feature fabric made from recycled fiber
- **Recycled post-industrial plastics:** Used in interior finish panels, including around radio and climate controls

Researchers in Dearborn are constantly searching for the next sustainable material that can feasibly be used in Ford vehicles. Finding a source of material is only the beginning of the process, however, because before making it to production, components made from recycled content must perform as well or better than comparable virgin-grade material.

Materials development engineers at Ford Materials Engineering, Testing and Standards in Dearborn, in conjunction with RheTech, conducted testing of the rice hull material for more than a year, examining everything from smell and appearance to functionality and flammability. The rice hull-based material successfully

passed all tests.

With F-Series as America's best-selling truck for 36 years – averaging more than 650,000 sales per year – the environmental impact of being as sustainable as possible adds up fast. Ford estimates about 10 million pounds of recycled cotton are used in F-Series trucks annually.

“Fuel economy is a top priority when it comes to Ford's environmental impact,” says Carrie Majeske, Ford product sustainability manager. “But we also recognize the tremendous impact that can be made by using sustainable materials inside our cars, utilities and trucks.”

The eco-friendly aspects of F-Series extend to the powertrain. The available 3.5-liter EcoBoost engine combines technologies typically associated with heavy-duty truck diesel engines – turbocharging and direct fuel injection – in a gasoline engine. The engine delivers fuel economy gains of up to 20 percent, while reducing CO₂ emissions by up to 15 percent.

Further, the 2014 F-150 equipped with a 3.7-liter V6 engine will be available this fall with a factory-installed package that allows the engine to operate on either natural gas or gasoline through separate fuel systems.

The complete F-Series Super Duty pickup truck and chassis cab lineup is available with gasoline, diesel, B20, and dedicated compressed natural gas or liquid propane gas

capability, or CNG/LPG bi-fuel capability, while Ford F-650 and F-750 medium-duty trucks can be outfitted for gasoline, biodiesel or CNG/LPG operation. In addition to biodiesel and CNG/LPG offerings, the 6.2-liter V8 can operate on E85, an ethanol-gasoline mix.