

■ YOUR NEXT CAR MIGHT BE MADE WITH WOOD-BASED CARBON FIBER

It's not exactly a classic, wood-paneled surfer's woody, but this small model-sized station wagon has a roof made of wood. That is, it's made of a wood-based carbon fiber composite, and the first model car to have a roof made of this novel, lightweight material. Even more novel is the car's battery, which is made of the same stuff, designed by Swedish researchers.

Composites of various kinds for lightweighting cars aren't new. Neither are wood-based materials. Ford, for example, for several years has been working on wood fiber-based composites of various kinds, as well as investigating other plant fiber-based materials. It's considered wheat straw and coconut fiber composites, in addition to composites made of tomato skins.

The company has said it wants to make strong, lightweight composites that reduce its environmental impact, right in line with Ford's continuing sustainability goals for cutting vehicle carbon dioxide emissions and the amount of waste that goes to landfills.

Making carbon fiber out of wood, though, is definitely new. It's the result of a joint project of the KTH Royal Institute of Technology, Swedish research institute Innventia, and Swerea, a research group for industrial renewal and sustainable development. The carbon fiber composite contains wood lignin from cell walls, the second-most abundant natural polymer after cellulose. The new composite is not only lightweight, but also cheaper than ordinary carbon fiber.

Goeran Lindbergh, a KTH professor and head of its department of chemical engineering and technology, said he investigated lignin-based batteries in previous work with Innventia using wood lignin as an electrode.

Lignin-based batteries can be produced from renewable raw materials such as the paper pulp production byproducts used in the new material. Except for their material composition, batteries made with the new lignin-based carbon fiber composite are the same as traditional batteries.

The carbon fiber in this model car's composite roof and battery electrodes are made from a wood lignin developed by Swedish researchers. The new material is not only lightweight, but also cheaper than ordinary carbon fiber since the lignin is made from paper pulp production byproducts (Source: KTH Royal Institute of Technology).



Source: http://www.designnews.com/author.asp?doc_id=280071

■ WOOD-SKIN: FLEXIBLE NEW STRUCTURAL MATERIAL FOR WALLS, PROGRAMMABLE FURNITURE AND BEYOND

Cue Wood-Skin. It's a new, malleable composite material that can give architectural surfaces texture with a cool 3D effect. Wood-Skin is tissue-like, as flexible as fabrics but as rigid as wood, made of nylon mesh and triangular-shaped tiles. The faceted, computer-generated triangulation pattern allows it to be highly customizable. The wood skin bends where it creases.

Wood-Skin can be used for a variety of applications, from self-standing flat structures like partitions, panels and walls to three-dimensional shapes like furniture (chairs, tables, shelves).

It's "programmable furniture" in the sense that 3D modeling technology allows companies to envision a skeleton of what their desired product would look like, while also figuring out the dimensions of the triangles – while consumers might get easy-to-assemble furniture straight of the box (shipped totally flat) with no assembly required.



Source: <http://dornob.com/wood-skin/#ixzz4EHa6r77D>

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