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## Technical News

### Carbon fiber "au naturel"

Technical News

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By Ania Dardas

What's the new Corvette ZR1 got that no other car has? A roof panel, front fascia splitter and rocker moldings made out of carbon fiber.

So what's special about that?



From the [Detroit Auto Show 2008](#): Carbon fiber weave is a feature on the roof of the Corvette ZR1

On the Corvette, the carbon fiber weave has been left exposed as a feature, with just a clear coating for protection rather than being painted over as is otherwise always the case.

This takes advantage of the material's unique appearance and variable look and it's all thanks to the first application of a new stabilizing additive made by Ciba that protects carbon fiber from the detrimental effects of sunlight.



From the [Geneva Auto Show 2008](#): The Koenigsegg CCXR is completely covered in carbon fiber panels



*Detail*

Since its development and refinement in the 1970s, carbon fiber has been a very desirable material. It combines high tensile strength with low weight and low thermal expansion. Basically that means it is very strong, very light and – unsurprisingly – very expensive! Thanks to its strength and light weight, carbon fiber is the ideal material for use in the manufacture of aircraft, and racing cars, among others. Given all the advances made in aerodynamic design over the years and the fact that the average car weighs between 1.5 and 2 tonnes, saving on weight is one of the few remaining ways in which reductions in fuel consumption can be made for vehicles.



From the [Geneva Auto Show 2008](#): The Tramontana V12



*Detail*



*Detail*

#### **It's all in the weave**

But it's not just about the features and benefits carbon fiber offers; it's about the material itself and the potential it offers for designers. Carbon fiber is made up of very thin fibers (between 0.005 and 0.010 mm), which in turn are made up of many thousands of filaments, each with a diameter of 5 to 8 micrometers. These fibers are twisted to be used as yarn – think of Kevlar vests, for example – or are woven and embedded in epoxy.



From the [Geneva Auto Show 2008](#): The Pagani Roadster Zonda J



*Detail*

This is where the creative aspect comes in. Now that the carbon fiber no longer needs to be covered with a layer of pigment for protection, its weave can be exposed and showcased as a feature. And the only limitation to the variations of weave pattern is our imagination.



From the [Geneva Auto Show 2008](#): Carbon fiber trim on KTM's X-Bow 100



*Detail*

Although the new additive is being sold, it has not yet been officially launched. It was developed in response to a request by General Motors to produce a colorless additive that would absorb light in the visible range. Ciba had already been working in this area and had a product that needed to undergo testing. The product was successfully subjected to weathering for around 5,000 hours – automotive requirements for weathering are 4,000 hours. And the rest is history.



From the [Geneva Auto Show 2008](#): Ferrari at the Mansory stand



*Detail*

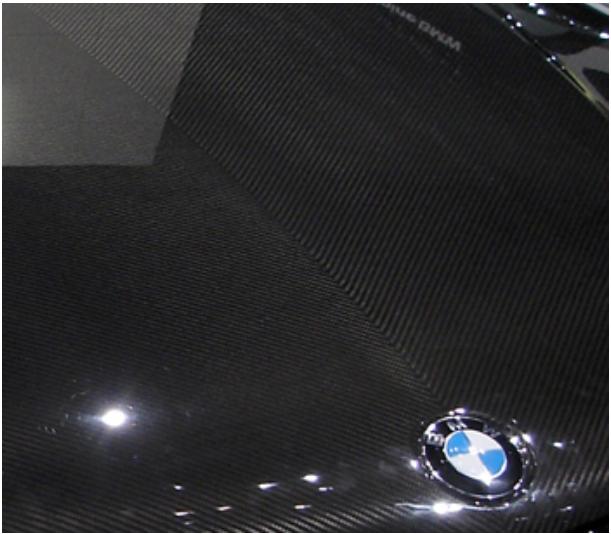
Where could this go?

The possibilities are endless. Due to its features and price, carbon fiber is clearly a high-end product. When used in bicycles, a 2-kilogram saving in weight from 7 down to 5 kg is priced at a fairly hefty EURO 2,000. But just imagine a set of carbon fiber luggage, skis or snow boards, each with a unique weave that identifies it with a specific brand. And it doesn't stop there, with its accommodating black base, carbon fiber is a perfect carrier for the addition of effect pigments resulting in a subtle opalescent glow or iridescence. Just think what you could do with that.

To find out more about Ciba's new additive for carbon fibers, [contact us!](#)



*From the [Geneva Auto Show 2008](#): The BMW 123d Coupé*



*Detail*

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