



BIOCONCEPT CAR

Smudo (left), lead singer of the German hip-hop band Fanta4, advertises a "clean cause" at the Nürburgring and the IAA. The bio-concept car not only fills up on biodiesel – its body is also made from bio-composite materials, developed by DLR.

Lightweight cars consume less fuel. Current research is also focusing on lightweight construction in terms of raw material extraction and material recycling after the end of the product's lifetime. However, conventional plastics and fiber composites are not always environmentally friendly and are particularly complex when it comes to production, use and disposal.

2006, DLR scientists have proven that these materials are extremely high performance. This biodiesel powered race car is the first to be fitted with a bodywork made from bio-composites. It was created on the basis of a Mustang bodywork that team leader Thomas von Löwis then further developed into a bio-concept car in cooperation with DLR and INVENT GmbH.

DLR researchers have found a solution: biopolymers reinforced with natural fiber, bio-composites for short. By embedding plant fibers such as flax, hemp or ramie in biopolymer matrixes, fiber composites can be produced that are environmentally friendly through raw material recycling or thermal utilization in the carbon cycle. From a technical point of view, the natural fibers stand up to critical tests: They exhibit specific properties that are comparable with those of glass fibers. Given the current price trend in crude oil, it is also logical from an economic point of view to make greater use of renewable raw materials. Technical viability has, of course, to be taken into account from case to case.

The doors, fenders, bumpers, hood, hatch and spoiler of the Mustang were made from natural fibers, which were placed in pre-cast moulds and soaked in liquid bio-plastic. After hardening, the formed parts are stable enough to withstand even the most extreme stresses and strains in motor sports.

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Placing the composite fibers in the bodywork component moulds requires prudence.

With the example of the Mustang GT RTD, the first bio-concept car in