

Racing cars with body parts made from renewable raw materials

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24/09/2020 The Porsche 718 Cayman GT4 Clubsport MR will tackle this year's Nürburgring 24-hour race featuring a complete body kit made of natural-fibre composite materials for the first time.

Since early 2019, Porsche manufactured the two doors and the rear wing of the small series racing vehicle out of a natural-fibre mix, sourced primarily from renewable raw materials. Now for the first time, the front and rear aprons, the front spoiler, front and rear lids as well as the mudguards and diffuser including the aerodynamic fins are also made of this regenerative material. These materials replace the metal and plastic injection moulded components of the production sports car. In terms of weight and stiffness, the recyclable natural-fibre composite materials of non-structural components share properties similar to carbon-fibre composites (CFRP) and meet the same high safety and quality standards. Natural-fibre composites can be manufactured more economically and with less energy.

Farmed flax fibres serve as the basis of the sustainable natural-fibre composite material – without conflicting with food crops. This development began in 2016 with collaboration between Porsche, the Federal Ministry of Food and Agriculture (BMEL), the Fraunhofer WKI and the Swiss company Bcomp. At the 24-hour race, the team Four Motors joins forces with Project 1 Motorsport to take the natural-fibre 718 Cayman GT4 Clubsport MR through its first test at race speed.

For the doors, light balsa wood serves as the core of the composite material. The sandwich construction correlates to the well-known resin transfer moulding (RTM) process used in the production of carbon-fibre components. By contrast, for the rear wing, layers are impregnated with epoxy resin then baked in an autoclave. The newly added components made of natural-fibre reinforced plastic are created using a vacuum infusion process and contain Bcomp's proprietary powerRibs™ technology to fulfil stiffness requirements. Materials of varying thicknesses and fibre orientations ensure the precise adjustment to specific purposes and load scenarios. Natural-fibre composite materials are particularly suited to areas that are not or only partially part of the vehicle structure. Moreover, the damping of vibrations improves fivefold and, in the case of an accident, splinter into larger and less sharp pieces.

Fitted with a natural-fibre composite material body kit and powered by a 3.8-litre flat-six engine producing 313 kW (425 PS), the 718 Cayman GT4 MR takes up the Nürburgring 24-hour race sporting the starting number 420. The cockpit is shared by Matthias Beckwermert, Henrik Bollerslev, Nicola Bravetti and Marco Timbal. The vehicle does not have homologation to compete in the SRO racing series. If the test outing at the endurance classic goes well, it is likely that Manthey-Racing will offer the parts kit to customers.

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Title: Porsche 718 Cayman GT4 Clubsport MR, 2020, Porsche AG
Subline: For the rear wing, layers are impregnated with epoxy resin then baked in an autoclave.

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Link to this article
https://newsroom.porsche.com/en/2020/motorsports/porsche-718-cayman-gt4-clubsport-mr-natural-fibre-composite-body-kit-22439.html

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