Racing cars with body parts made from renewable raw materials

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 fiber 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 fiber 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 molded components of the production sports car. In terms of weight and stiffness, the recyclable natural fiber composite materials of non-structural components share properties similar to carbon fiber composites (CFRP) and meet the same high safety and quality standards. Natural fiber composites can be manufactured more economically and with less energy.

Farmed flax fibers serve as the basis of the sustainable natural fiber 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 fiber 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 fiber 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 fiber 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 fiber orientations ensure the precise adjustment to specific purposes and load scenarios. Natural fiber 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 fiber composite material body kit and powered by a 3.8-liter flat-six engine producing 419 hp, 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.

MEDIA ENQUIRIES



Frank Wiesmann

Manager, Product Communications, Motorsport and Brand Heritage
Porsche Cars North America
404-539-5031
frank.wiesmann@porsche.us

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