

Mitsubishi Chemical's SMC Adopted for Roof of Toyota GR Yaris

Mitsubishi Chemical Corporation

Carbon fiber sheet molding compound (SMC) produced by Mitsubishi Chemical Corporation (MCC; Head office: Chiyoda-ku, Tokyo; President: Masayuki Waga) has been adopted for the roof of the new GR Yaris launched by Toyota Motor Corporation (Toyota; Head office: Toyota-shi, Aichi; President: Akio Toyoda) in September this year.

Developed by MCC, this SMC is a type of intermediate material for carbon fiber reinforced plastics (CFRPs), and takes the form of a sheet-shaped material in which carbon fibers cut into several-centimeter lengths are dispersed in resin. The SMC can be processed into components in a short period of time, i.e., roughly two to five minutes, by press molding. In contrast to prepreg intermediate materials (uncut carbon fiber fabric impregnated with resin), this SMC features high formability for molding complicated shaped parts. Also, since the SMC's mechanical properties are almost homogeneous, manufacturers can use carbon fiber with relative ease and achieve weight reduction and high strength while utilizing previously accumulated expertise in component design.

Toyota adopted MCC's SMC for the GR Yaris because it enables the automaker to achieve major weight reductions and high levels of component performance. Toyota also rated MCC's SMC highly for its superior formability, which enables production of complicated shaped parts. This is the third round of Toyota vehicles that have used MCC's SMC, following on from its adoption for the rear door frame of the Prius PHV in February 2017 and door and luggage room inner panels of the Lexus LC500 and LC500h luxury coupes in March 2017.

Against the backdrop of electrification and tighter CO₂ emission regulations, demand for lighter car bodies has been growing recently in the automotive market. MCC will continue to accelerate R&D for cutting-edge materials including carbon fiber and CFRP, and proactively expand its business to provide optimal solutions for the mobility field, where remarkable technological innovation is taking place.



Left: Toyota's GR Yaris; Right: GR Yaris carbon fiber roof
Photo courtesy of Toyota

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