

다종 재질을 이용한 차체부품 제작과 과제

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Manufacturing Autobody using Various Materials and Technologies to be Developed

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Abstract

Most important issue in automotive development is weight down for emission reduction. In view of difficulties by changing autobody structure, for example, hydroforming, it is preferred to change materials which is used in autobody fabrication. From years ago, as light materials, the aluminum and high strength steels are applied in autobody closures and structures. Recently, add to these materials, the thermoplastic resin and fiber reinforced resin are studied in autobody closures. The technology for using the thermoplastic resin is injection molding with high temperature, and in case of fiber reinforced resins are SMC and GMT. Main issue in injection molding is thermal deformation caused by E-coat process and in SMC and GMT, the difficulties are low technological environments in domestic, even though are popular technologies in Europe. Thermal deformation in injection mold should be estimated by simulation and considered in product design before developing mold tools. In case of SMC and GMT, especially SMC, it is recommended to establish the technologies which are connected to mold tools and forming devices

Key Words : light weight material, autobody, injection molding, thermoplastic, SMC, GMT, mold tool, fiber reinforced resin, thermal deformation