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Studies on the mouldability of structural foams in hybrid moulds

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ABSTRACT

In the context of the research project Hybridmould 21, studies on the mouldability of structural foams using hybrid moulds have been carried out. Hybrid injection moulds are considered as an alternative for prototype series or short production runs of large parts. In hybrid moulds the moulding elements (blocks or other inserts) are manufactured in alternative metallic materials or synthetic materials typically using in rapid prototyping. Thermoplastic structural foams are moulded by injection moulding using injection pressures lower than in than in conventional injection moulding. The structural foam results from a dispersed gaseous phase, which derives from the expansion of a chemical blowing agent usually compounded in a masterbatch. In this project, thermoplastics and thermosets were used (PP, ABS and PUR) using a hybrid mould instrumented for temperature, pressure and expansion force. The moulding block was manufactured by vacuum casting of an epoxy composite. In this paper are mainly discussed the results obtained on liquid injection moulding polyurethane resins in the hybrid mould.

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