



SIMULATIONS OF THREE DIMENSIONAL FLUID PENETRATIONS FOR WATER ASSISTED INJECTION MOLDED PARTS

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Water assisted injection molding (WAIM) is one of the latest and most promising developments in “assisted” injection molding. Because of similarities between the two processes, both provide the same benefits due to the light weight, relatively lower resin cost per part and faster cycle time. This study investigates the 3D filling phenomena of the water assisted injection molding process by using a 3D numerical visualization technique for WAIM of plastic parts. Through the fully featured 3D animations, the simulation tool gives highly realistic images of flow fields. The predicted melt front location and water penetration behavior show a good agreement with the experimental results, while the effects of the processing conditions and model geometry of WAIM are also investigated numerically and systematically. This proposed 3D approach proves to be a highly effective tool for process simulation and mold design for WAIM.