Extention Method and Numerical Simulation of Micro-Injection Molding

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Abstract

Micro system technology is including Optic, Mechanism, Electricity, Material, Control and Chemistry, etc. Micro-injection molding is a branch of micro system technology. In this study, 3D numerical simulation and extension method are performed on micro-injection molding. The analysis with different polymers (such as PP, PA and POM), processing parameters (injection time, mold temperature, injection temperature and injection pressure) uses to simulate the micro-gear for example. In order to obtain optimum result, the analysis introduces Taguchi method to discuss the influence of each parameter in microinjection molding. In this study, the results between numerical simulation and extension method show that the mold temperature is the most important factor on processing parameters and PP material is the best suitable material.