

Analysis on the Process Parameters of Lightguides Using Injection Compression Molding

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ABSTRACT

ABSTRACT This research discussed the application of injection/compression molding in the manufacturing of a light guide. The effects of six process parameters, including the filling time, melt temperature, press compression force, press compression time, press open distance; mold temperature and cooling time, on part quality were studied. The shrinkage and warpage of the products were measured. Applying Taguchi method, the optimum set of parameters was determined. Furthermore, the relationship between the process parameters and the product performance was developed. The results were also compared to the simulation data. The flow front locations and the pressure changes were studied from both experimental and numerical points of view. On the designing of conventional injection modeling, we often depend on mechanics designing. But because of the process technology and the requirement of product 's small amount and variety, if we only mend and repair models through the inherit of experience and " try and error ", the time and cost can ' t be burdened by us at present time Therefore, in our research, we apply simulation aid to do model-flow analysis. In order to get better modeling design and lower designing cost. Moreover, through the research, we know how parameters influence the quality of product and we can also get the best quality control through analysis. In relative research and companies, this kind of research makes considerable contribution toward injection/ compression modeling technology. Key Words : lightguide, shrinkage, warpage, injection/compression molding

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