

Application of Advanced Process Control in Plastic Injection Molding

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Abstract

This research applies Advanced Process Control (APC)-based injection molding system to improve the quality of products. The relationships between the input parameters (injection velocity, injection pressure, injection time and barrel temperature) and a single output variable (the weight of product) were found through an experimental design method. Moreover, the injection molding process model was built via a multiple regression analysis. A dynamic model turning minimum variance (DMTMV) method is utilized to control the process. Quantified improvements were further obtained from experiments.

Keyword : advanced process control;
design of experiment;
injection molding; dynamic model turning; minimum variance