

ABSTRACT

Optimization is a process to achieve ideal result of a product. Even though from many result of the process of injection molding there still many defect of the product like Sink mark and shrinkage which is it can be influencing the quality of the product. Product of the plastic was made in so many ways to avoid negative effect for the result such as, sink mark and shrinkage. The two defect that mentioned before caused by filling time and cooling.

This research is computerized based on simulation software Autodesk Moldflow Insight to predict two failure and to optimize the quality of the product. Because the insufficient of the plastic product for the engine in motorcycle, so the researcher doing the study case of the spare part of motorcycle that is top case. The research begin with 4 experiment, the first step is comparing from the 4 experiment with analyzing fill time. After analyzing the fill time, the next step is comparing between cooling baffle and cooling conformal. After that the best result from the comparison was analyzed with Taguchi's Analyze, the result from the Taguchi's Analyzed should be randomizing using matrix orthogonal $L_9(3^3)$ so there is 9 experiment with 3 level.

In this case the optimization parameter that used Taguchi's method already proven that could minimalized the sink mark and shrinkage. In the other hand optimization with Taguchi's method could be used for the parameter for the product manufacturing that fabricated using injection molding such as top case product.

Keywords: Optimization, Runner, Cooling, Moldflow Insight, Sink mark, Shrinkage, Top Case