ABSTRACT

Injection molding is a process of forming or molding plastic material into the mold cavity by injection and heat treatment. It's a molding method that is widely used in the plastics manufacturing industry for mass production of complex plastic components with precise dimensional tolerances. In the injection molding process, there are defective products such as processing shrinkage resulting in decreased quality of plastic produced. Processing shrinkage is caused by the setting of parameter process on the unfitted injection machines. The purpose of this research is to improve product quality by optimizing the parameter process that affect the shrinkage in recycled plastic material acrylonitril butadiene styrene (ABS).

In this research, the parameter process used to minimize shrinkage in recycled materials ABS are holding pressure, holding time, back pressure, cooling time, and the melt temperature. The method used to combine the above parameter process variations, is a method of design of experiments (DOE). With this method, the data obtained optimum parameter process variations to the processing shrinkage.

The results of this research, is themost minimum percentage of shrinkage on recycled ABS material for longitudinal 0.28%, transversal 0.77%, 0.57% far gate, near gate 0.54%, with a variation of the parameter process holding pressure 90 bar , holding time of 3.25 s, cooling time of 20 s, back pressure 10 bar, and a melting temperature of 205 ° C.

Keyword: injection molding, shrinkage, ABS, method DOE.