ABSTRAK

Perusahaan masterbatch adalah perusahaan manufaktur yang bergerak dalam pembuatan masterbatch. Masterbatch merupakan biji plastik pewarna yang sudah melalui proses *dispersing* dan *pelleting.* Dalam prosesnya perusahaan masterbatch menggunakan mesin *injection molding* untuk mencetak *chip* dengan berbagai macam warna dalam proses pengecekan sampel hasil produksi oleh quality control. Banyaknya jenis warna yang harus diuji serta keterbatasan mesin *injection molding* mengakibatkan terjadinya pemborosan pada proses *cleaning* dikarenakan pengunaan biji plastik yang cukup banyak untuk proses *cleaning* setiap pergantian warna, sehingga limbah buang proses *cleaning* menjadi meningkat. Untuk mengurangi limbah proses *cleaning* mesin *injection* perusahaan dapat menerapkan konsep experiment, di mana salah satu metode yang dapat digunakan adalah *Design of Experimnent* (DOE). Analisis dengan metode *Design of Experiment* (DOE) dilakukan untuk mengetahui penambahan komposisi campuran zat additive yang paling optimal dengan nama Masterbatch Cleant yang berguna sebagai bahan tambahan untuk proses *cleaning* mesin *injection molding*. Tahapan *Design of Experimnent* meliputi *One Factor At a Time, factorial desing*, uji ANOVA. Hasil yang didapatkan adalah kombinasi level terbaik pengunaan masterbatch cleant pengunaan 50% dengan pengurangan limbah sebesar 40% sehingga dapat mengurangi limbah buang proses *cleaning* mesin *injection* dari 1000kg menjadi 600kg. Dengan begitu limbah dapat dikurangi hingga 400kg.

Kata kunci : Pemborosan, *One Factor At a Time*, *Design of Experient, factorial design*, ANOVA

ABSTRACT

Masterbatch Company is a manufacturing company that is engaged in manufacturing masterbatch. Masterbatch is the plastic seed dye that has been through the process of dispersing and pelleting. In the process of Masterbatch company use injection molding machine to print chips with a variety of colors in the process of checking samples produced by quality control. The many types of colors to be tested and the limitation of injection molding machine results in the occurrence of waste in the process of cleaning due to the use of plastic beans enough to process cleaning each color change, so that waste wastage cleaning process becomes increased. To reduce the waste process cleaning injection machine companies can apply the concept of experiment, in which one of the methods that can be used is Design of Experimnent (DOE). Analysis with the Design of Experiment (DOE) method is done to find out the addition of the mixture of the most optimal additive substance with the name Masterbatch Cleant which is useful as an auxiliary material for the process of cleaning injection molding machine. The stages of Design of Experimnent include One Factor At a Time, factorial desing, ANOVA test. The result is a combination of the best level of use in the process of the utilization of the 50% of the usage cleant with reduced waste of 40% so that it can reduce the waste of processing cleaning machine from 1000kg to 600kg. With so waste can be reduced up to 400kg.

Keywords: waste, One Factor At a Time, Design of Experient, factorial Design, ANOVA