MULTI RESPONSE OPTIMIZATION FOR FOAMING PROCESS OF SPONGE SHEET SLP3X PRODUCT DEVELOPMENT WITH APPROACH FUZZY TOPSIS METHOD (CASE STUDY IN PT. XYZ)

Name of Student : Nuzilatul Firdausi
NRP : 1310 100 051
Department : Statistika FMIPA-ITS
Supervisor : Dr. Sony Sunaryo, M.Si

ABSTRACT

The competition in the industry makes PT. XYZ must improve quality of its product. One of the product of this company is Sponge Sheet SLP3X. The product is a sponge letter that is used as material of sofas, seats of car, etc. The quality of Sponge Sheet SLP3X can be viewed from the Critical to Quality (CTQ) which is the thickness and the width of it. The specifications of each CTQ are 1,8 ± 0,05 mm and 1,370 ± 10 mm. The defective of this product usually occurs during the foaming process. So the process needs to be optimized based on the variables of the process. These variables are speed of conveyor, speed of heating drum roll, speed of embossing roll, and speed of cooling roll. Optimization process is done by fuzzy TOPSIS approach with fuzzy entropy weighting. So the result get the setting of level of four variables process are 7 meters/minute, 8,6 meters/minute, 6,2 meters/minute, and 6,7 meters/minute. By setting of the level of variables process obtained an improvement of 20,79% and estimated the fuzzy relative have been closeness between 0.7302 to 1.

Key words : Foaming Process, sponge sheet, fuzzy entropy, TOPSIS