THE APPLICATION OF FMEA METHOD IN SIX SIGMA ANALYZE TO REDUCE POTENTIAL FAILURE OF PRODUCT IN THE FIBER DEPARTMENT OF PT. XYZ

Jessica Clarissa Soejanto, Yurida Ekawati, Purnomo

Universitas Ma Chung

Abstract

The fiber department is one of the departments in the PT. XYZ produces bus panels and appliances. Based on the fiber production data on August 1 - September 23, 2022, there are 92 defects out of 547 products. It is important to analyze the potential failures of the production process. This could be used to improve product quality by using six sigma's method with the DMAIC cycle (Define, Measure, Analyze, Improve, and Control).

There are seven types of defects in the manufacturing process that is, fiber is too thick or thin, the fiber surface is rough, fiber has white spots, fiber needs a long time to dry, fiber rejects (liquid/burn), the putty result is imperfect, and the paint is imperfect. Based on analysis by Fault Tree Analysis (FTA) method defect product can be caused by a human, machine, or tool factor. Improvement recommendations are made to improve quality with the Failure Mode and Effect Analysis (FMEA) based on the value of RPN. Corrective recommendations include periodic drain engine water, emptying water form, products-checkout form, and roll-cleaning form, and using a measuring cup for the catalyst and a new container for acetone.

Based on these results, it can degrade DPMO values and increase the sigma level. DPMO's starting value was 24.027,16 down to 6.543,07. And then, the value of sigma level was actually 3,48, up to 3,98. So the improvement can increase sigma level values. To keeping the quality of the product alive would be done with the creation of quality control to help the chairman of the fiber department look at the frequency of the consumer product.

Keywords: Quality, Fiber, Six sigma, FMEA, FTA, DPMO, Sigma level

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