ABSTRACT

PT. Indorama synthetics is a company engaged in the field of textile and petrochemical industries with produces various types of synthetic yarns. In the manufacture of synthetic yarn is not apart from the various problems, given the existence of several factors in the examination process which may cause the thread is not within specifications. PT. Indorama Synthetics is currently facing a problem of quality. Quality improvement system that is used isn't enough to fix the problem. Improvement of the quality of yarn is done still by means of visual and laboratory research. This led to the company's difficulties in determining factors that influence the mismatch of thread. To resolve the problem the company has yet to get a satisfactory solution in the improvement of the quality of the thread.

Type of defect in the broken filament yarn occurs because the threads often touch ceramic material that resides in yhe yarn guide. So gradually the ceramic will be abnormal and filament-filament yarn break. Additionally, broken filament happens because yarn traverse continues to operate because of the withdrawal process threads in a long time. Kind of defect in t the broken filament can also occur because of errors in the yarn path. Dirt from polyester on the plate heater also affecting the filament will be heated, thus broken filament. It can be concluded that the broken filament occur due to some failure mode process so that the repair process needs to be done with the redesign process. Determination of priority factors of improvement against the failure of the process is done using analysis FMEA (Failure Mode and Effect Analysis). The purpose of making this FMEA analysis is to identify, set priorities and eliminate potential failure on the production process of yarn before the products get to the hands of the consumer. Determination of priority improvements to quality, from the value of the RPN (Risk Piority Number). The value of the RPN is a multiplication factor of severity, occurrence, and detection.

The first improvement is to create additional new guide ceramic with a larger diameter in the yarn guide. The second improvement namely cleansing on a plate heater II by using the tool in the form of the brush smooth. After developing an alternative refinement, performed the calculation ability of the final process to see if the preliminary process capability has increased after the proposed improvements. Observation capabilities of the final process was conducted several months after delivering the proposed improvements. The result of the calculation obtained average value (μ c) i.e. 7.26, Upper Spesification Limit i.e 15,34, Lower Spesification Limit i.e 0 and Cp = 1.45, then it is evident that the ability production process of the yarn DTY for the better after the repair process.

Keywords: Quality Improvement, FMEA (Failure Mode and Effect Analysis), Seven tools