

## ***ABSTRACT***

*PT. XYZ is a company engaged in the field of Textile and Textile Product (TPT) which focuses on the dyeing process. The company produces one type of fabric, namely Cotton Carded 24S, and the product has 6 product specifications (Critical to Quality Product). Based on data obtained from January 2017 – June 2019 there were 11 months of production that exceeded the defect tolerance, while the tolerance was set at 2% by the company. So, it can be assumed that the Cotton Carded 24S production process has not proceeded properly. The Cotton Carded 24S production process consists of 10 process stages and one of them is the Calendaring process stage which aims to make the fabric smoother and shiny. However, based on production data, there are 5 types of defects resulting from a total of 8 types of defects during the 30-month production process. So, in this final project, the focus is on providing a proposed improvement plan for the Calendaring process in the production of Cotton Carded 24S using the Six Sigma method with the DMAI approach. Six Sigma is a method to reduce variability in the production process and used the DMAI (Define-Measure-Analyze-Improve) approach. The DMAI approach is an effective framework for improving process and as an effort to improvement. The first stage is the Define stage, which identifies the Critical to Quality product, Process Flow, Critical to process, so that the requirements that have not been met can be identified. The second stage is the Measure stage which calculates the performance of the production process based on the production data obtained by calculating the process stability and process capability and the sigma level for the Cotton Carded 24S product is 4.415 sigma. The third stage is the Analyze stage which analyzes the problems generated by using several tools such as Fishbone Diagrams, 5 Why's and continued by calculating the Risk Priority Number (RPN) on the Failure Mode Effect Analysis (FMEA) to determine the priority of improvements to be made. The fourth stage is the Improve stage where the proposed improvement is designed based on the RPN value that has been calculated on the FMEA. The design of the proposed improvements to the calendaring process is carried out in an integrated manner, namely making a steam temperature warning alarm system, work instructions with visual displays, and check sheets for Zigar tools.*

*Keywords— Cotton Carded 24S, CTQ, Six Sigma, DMAI*