

ABSTRACT

Quality is the main idea of a company capability to survive in business competition in the global market which is getting tighter nowadays. Some companies that started from a poor level of quality have become a world class since considering quality seriously, Motorola and General Electric (GE) are some examples. A keywords from the success story of Motorola and General Electric (GE) is "six sigma" implementation. Six sigma doesn't start on a time when defectives are being found, but from the thought of : as long as improvement can be done then it must be done since quality achievement doesn't stop when product is not out-of-specs or when defectives level is low enough. Therefore, six sigma will be a perfect solution for a company who has vision of reaching zero defect, as it becomes a general trend of industry these days.

In this research six sigma as a philosophy about quality will be implemented in a project along together with a *Define, Measure, Analyze, Improve and Control* (DMAIC) cycle as a systematic methodology to PT Abadi Adimulia, a tube package manufacturer who also pick zero defect achievement as their vision.

Tube package with 25 mm of diameter and 83 mm of length has been selected as the object of this research, especially the process manufacturing parison parts (body) of tube. Defining *Critical to Quality* (CTQ) is performed in define phase to determine the project goals (project Y). After that in measure phase a measurement of present output variability (defect product) and process capability is conducted. The analysis of measurement results in analyze phase yield some information about the most affecting causes of product variability (vital X). Next phase of improve is defining the improvement actions to control vital X to reduce product variability. In the most important phase, control, a control system planning is performed to maintain a continuous improvement to the process.

The results of this research is a conclusion that process capability is able to guarantee that products yielded are not out-of-specs, but to reach zero defect condition, some improvements are still needed especially on the control system implemented to the process. Therefore, in this research, it's also recommended an improvement to process control system in order to detect failure immediately so an action can be taken.

Keywords : *Quality, Zero Defect, Six Sigma, DMAIC, Tube Package, Process Capability, Product Variability.*