

ABSTRACT

PT. X is a manufacturing company that has three production lines. They are wiring, plastic injection and machining. This research would be focused on plastic injection because it is the biggest contributor for company's profit. The product on plastic injection process that would be focused on FB 7084 because it was the highest demand than others. But on the production line, the reject percentage exceeds the allowed, maximum limit that is why in 2013 company's Quality Objective could not be achieved.

This research was using Lean Six Sigma method to reduce total rejection on plastic injection. The steps that could be used was DMAI. The phase Definition was described to identify CTQ and mapping the production process using SIPOC diagram. The Measure phase then described to determine stability of process using p control chart, the capability of process using DPMO and sigma level and also know the dominant defect using pareto diagram. Then to analyze it then described to find dominant root causes from the dominant defect using fishbone chart and 5 Whys. Improve phase done at a later stage to prevent the causes of dominant defect.

Based by the result of Define phase, there are 4 CTQs for plastic injection process. In the Measure phase, it was known that stability process in PT. X is not good, it mean the DPMO value average is 657.63 with 4.76 sigma during Januari 2013 until November 2013, and the dominant defect in plastic injection process is discolour. Based by Analyze phase, it known the three dominant root causes for discolour. It founded there was no display for cleaning mixing machine, the operator didn't know terminal heater as a critical point, and the operator were difficult to find the original and recycle material with the composition 70 : 30. The result from Improve phase to prevent the root causes are recommendations for installation display to clean mixing machine, usage terminal heater cover and it was replaced with bigger bag capacity which is 21.4 kg.

Key words: *Lean Six Sigma, DMAI, plastic injection, improvement.*