

ABSTRACT

PT. Pindad is one of the companies under the auspices of SOEs that produce military and commercial products in Indonesia, one of which is producing railway components such as shoulder products, base plates and e-clips. Based on historical data period January 2017 - December 2018, it is known that shoulder products have the highest defect average and exceed the tolerance limit set by the company. The defect product tolerance set by the company is 2%, while the shoulder product has an average defect of 5.22%. Based on historical data in the period January 2017 - December 2018, shoulder products have the highest average defect and exceed the tolerance limit set by the company. The defect product tolerance set by the company is 2%, while the shoulder product has an average defect of 5.22%. Defect of sand inclusion is one type of defect that often occurs. Therefore, the research will focus on the process that causes defect of sand inclusion using the Six Sigma method with the DMAIC stage (Define, Measure, Analyze, Improve, Control). There are 6 CTQs obtained from the results of the Delphi questionnaire for defining the problem. In the measure stage, calculation of process stability is carried out using p-control chart by ensuring the data is within the control limit, and calculation of process capability to determine the DPMO value and sigma value. Sigma value is 4.35 and still needs to be increased to approach 6 sigma. Analyze phase uses fishbone diagram and 5 why so that there are man, method, machine and material factors as the root cause of the problem. After that, FMEA analysis to determine the priority of improvement through the highest RPN value. Proposed improvements in the phase are designing alarm displays with Poka-yoke, making scheduling maintenance and checking of sand mixer water pipes and making display as a reminder of checking gassing systems.

Keywords: Shoulder, Sand Inclusion, Six sigma, DMAIC, CTQ, Poka-yoke