

Reduction in Rejection Rate of Polypropylene Bags via Six Sigma implementation

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Abstract

Purpose- The purpose of this paper is to explore the role of Six Sigma in reducing the rejection reduction of polypropylene bags in a certain manufacturing sector via implementation of its DMAIC methodology. The paper also highlights the financial savings achieved with the implementation of Six Sigma methodology. The Define-Measure-Analyze-Improve-Control (DMAIC) approach of Six Sigma methodology was used for achieving the research objective. A step-by-step procedure was followed and implemented in order to control the identified process variation in the manufacturing process of the product. A 50% reduction in rejection rate of polypropylene bags was calculated after the successful implementation of Six Sigma. The problem area was identified in the Define phase. The extent of the problem was measured in the Measure phase. Key process input variables were identified in the Analyze phase. Design of Experiments was used in the Improve phase to obtain the optimum settings for the process. Moreover, a control Plan was prepared in the Control phase to sustain the achieved improvements. The reduction in rejection rate provided a significant financial benefit by improving the strength of the bags. Furthermore, improved quality of the polypropylene bags created Customer Satisfaction with an increased profit margin. The paper explains a step-by-step approach for the implementation of DMAIC methodology of Six Sigma.

Keywords

Six Sigma, Manufacturing Industries, Rejection Rate, and Quality Control.