ABSTRACT

The importance of product defect analysis has given the advantage to company to improve the product quality. Therefore, this research applies integration of Fuzzy Analytical Hierarchy Process (Fuzzy AHP)-Failure Mode and Effect Analysis (FMEA) with Six Sigma method through Define, Measure, Analyse, Improve and Control (DMAIC) phases. The problem of product defect is applied to PT. Gula Putih Mataram, sugar company. Six Sigma through DMAIC phases is designated to analyse product defect level. In order to obtain the possibilities number of sugar that experiences defects, DPMO as Six Sigma metric is used in this research. Then, FMEA is proposed to identify and assess the risk that turns to be the potential cause of failures. Fuzzy AHP is used to obtain rank metrics of attributes, weight of attributes, and overcome the subjectivity and uncertainty of experts' judgment. The result of the research shows that the highest defect occurred in production defect. Therefore, the improvement and control are needed to be implemented by the company.

Keywords: Fuzzy AHP-FMEA, Six Sigma, DMAIC