

## **ABSTRACT**

*Product quality and quantity are greatly influenced by production cycle time. Increasing the speed of the production cycle can produce more products, but it does not always have a positive impact on quality. However, in reality there are still many companies that experience problems in controlling production quality. As experienced by Mandiri Plastik MSMEs, which experience challenges in handling the quality of plastic products. This study aims to provide a basis for companies to consider adopting the Six Sigma approach to quality control. To understand the quality control strategy of UMKM Mandiri Plastik which includes defect reduction, researchers try to apply the Six Sigma method with the DMAIC concept in analyzing and improving quality control. The method used to solve quality control problems uses the Six Sigma DMAIC approach. The results when using the Six Sigma method DMAIC approach obtained an average sigma value of 3.73, indicating that the overall production process is in good control, although there are still opportunities for improvement, especially in months with high DPMO. The conclusion on the control of the production process, although in general it has been running well, there are still obstacles stemming from the human factor of lack of focus and accuracy as well as the machine factor of limited equipment and maintenance. Control of production results still shows weaknesses with the discovery of various standard non-conformities such as color problems, cuts, holes, and tears in the product. Based on the results of applying the DMAIC Six Sigma method, there are potential profits that can be obtained by the company. To increase the sigma value, several improvement steps are proposed, including: Clear standard operational procedures and a regular monitoring schedule*

**Keywords:** *Quality Control, Six Sigma, DMAIC, DPMO, Defective Products*