

## **ABSTRACT**

PT Bakrie Sumatera Plantations Tbk, is one of the national private plantation companies owned by Bakrie Groups engaged in oil palm plantations. Palm Oil factory, Kisaran Palm Oil Mill is one of the factory units engaged in palm oil processing which aims to produce crude palm oil Crude Palm Oil (CPO) and Palm Kernel (PK).

Until now, this company is still faced with problems of quality of products(PK) that have not been up as indicated by the still not achieve the production target as well as the still large number of defects within one month of production. To overcome these problems, it is necessary to improve the quality of focusing on the type of greatest defect. To overcome these problems, use Six Sigma methods, with the principle of achieving zero defect products or the achievement of the number of defects of 3.4 part per million. In six sigma there are five steps, called DMAIC (Define, Measure, Analyze, Improve, Control). In the define phase, carried out the production process definition and determination sportswear Critical to Quality (CTQ). In the measure phase sigma level calculation, DPMO, and the calculation of the stability of the process. Then, to analyze the performance of the production of PK which is then analyzed the root causes of defects by using a fishbone diagram. In the improve stage, given that the proposal is based on the analysis conducted at this stage analyze, but it also made prioritization of repairs wallet by using FMEA. The proposal is given to reduce the number of defects that arise in using the PK product tools help 5W 1H.

In this research, three points CTQ there are integrity of the products, hygiene products and the suitability of the water content of the product with the desired specifications of the customer. Based on the three types of CTQ, there are three types of product defects found are broken, dirty, and the water content exceeds a predetermined standard. By using a pareto diagram we know that are two types of defects are the most influential broken and unclean PK product. Both types of defects are caused by the lack of separation between the seed is large, medium, and small, no act of cleaning the dirt on the loading ramp area, rotor bar and rotor plate is not functioning properly, perforated plate rotor, operator fatigue, motivation to work less , the operator does not work according to work instructions, dirty loading ramp floor, and because the operator is not discipline.

The proposal given are to create and use a bulkhead (wall) is placed in the hopper nut tool in pressing work station area, modify the floor loading ramp by making some holes loading ramp on the floor for dirt to separate from TBS to be processed, gives oil mill ripple on the machine in order to work optimally and make reminder notes to find out how many hours the length of the machine used, and provide counseling to all employees about the importance of quality and worker role in maintaining cleanliness in the production of floor area.

**Keywords:** *Quality Management, Six Sigma, CTQ, Failure Mode and Effect Analysis.*