Integration of OEE and FMEA Analysis to Improve The Efficiency of The Rotary Doy Pouch Rty-10s Soy sauce Packaging Machine

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ABSTRACT

This study aimed to analyze the effectiveness of the Rotary Doy Pouch RTY-10S soy sauce packaging machine and determine improvement priorities. The research employed the Overall Equipment Effectiveness (OEE) method by evaluating the availability, performance, and quality components. The analysis was further supported by the Six Big Losses method and Failure Mode and Effects Analysis (FMEA) to identify the most critical causes of machine failure. The results showed that the OEE value was 28.69%, consisting of 55.61% availability, 62.34% performance, and 82.77% quality, indicating that the machine performance was still below the world-class standard of 85%. The Six Big Losses analysis revealed that breakdown loss (25%), reduced speed loss (20%), small stop loss (20%), and setup and adjustment loss (19%) were the major contributors to the low machine effectiveness. Furthermore, the FMEA results indicated that inadequate preventive maintenance and the absence of a standardized machine setup Standard Operating Procedure (SOP) had the highest Risk Priority Number (RPN) of 180, making them the primary improvement priorities. Therefore, it is recommended to implement scheduled preventive maintenance, establish standardized machine setup SOPs, and enhance operator competence to improve the effectiveness of the soy sauce packaging machine.

Keywords: *Failure Mode and Effect Analysis (FMEA), machine efficiency, Overall Equipment Effectiveness (OEE), Six Big Losses, soy sauce packaging machine.*