ABSTRACT

PT. Glopac Indonesia is one of the industrial companies engaged in paper-based packaging which is quite large in Indonesia. Packaging is very important to maintain the quality of food & beverages, household industries, and daily necessities. PT. Glopac Indonesia itself has produced various types of paper packaging with high quality, including paper cups, food boxes, paper straws, paper bags, and many more. Based on the machine data that has, a very significant damage in the last year is the Cup Forming CP 14 machine.

By using the Failure Mode Effect and Critically Analysis (FMECA) method in the selection of selected components that are significant to the CP 14 Cup Forming machine damage, 2 critical components were obtained, namely roulette and incurl. The method used is reliability, availability, maintainability, and safety (RAMS) to calculate the value of reliability, availability, and maintainability on the machine. In this study there is a new variable, namely safety, which aims to calculate the level of safety on the machine. The purpose of choosing this method is to determine the level of machine performance.

From the RAMS calculations that have been carried out, it is known that the reliability score of the CP 14 Cup Forming machine system in the time span of 24 to 480 hours, the results obtained when t = 24 are 97.82%, while when t = 480 the reliability value is 46.32%. The inherent availability score is 99.60% and operational availability is 99.37%. According to the key performance index standard which sets the minimum standard of availability value at 95%, the inherent and operational availability values are in good condition because the value exceeds the predetermined limit. The system maintainability value to reach 100% value occurs at t = 16 hours. For the Safety Integrity Level, both critical subsystems are located at level 1. To increase the value of reliability and maintainability, it is necessary to carry out proposed maintenance, conduct daily machine checks briefly and periodically.

Keywords: Reliability, Availability, Maintainability, Safety, FMECA*, Facilities maintenance, Safety Integrity Level, Cup Forming* CP 14