ABSTRACT

PT ABC faces the problem of overstock of paper afval raw materials caused by the uncertainty of raw material requirements and the absence of an optimal inventory control method. This overstock condition has an impact on increasing storage costs, reducing the quality of raw materials, and limited storage space. To overcome these problems, a Monte Carlo simulation was conducted to accommodate fluctuations in raw material requirements more accurately by compiling several scenarios based on the Economic Order Quantity (EOQ) method. The Monte Carlo simulation results showed a total raw material requirement of 22.070.689 kg with an average of 424.437 kg for 52 weeks in the seventh simulation, which was then validated using an Independent Sample T-Test. The results of this test indicate that the simulation results are able to represent the actual conditions in the company and are considered capable of reducing the overstock of paper afval. The scenario chosen was Scenario 5 which resulted in an EOQ of 700.328 kg, with a safety stock level of 5% of the average weekly requirement of raw materials. The implementation of this scenario resulted in a decrease in average inventory to 363.885 kg, as well as a total inventory cost of 1,25% to Rp 94.682.819, which is more economical than the other scenarios.

***Keywords**: paper afval, demand uncertainty, Monte Carlo Simulation, EOQ, Safety Stock*