

ABSTRACT

CV Armico is a company that operates book printing and publishing. Two types of book printed by this company are book that is printed using HVS paper and the one that is printed using *ivory* paper. In order to support production process, the company uses five types of raw materials, namely HVS paper, ivory paper, glue, ink, and the plate. These materials come from different suppliers, with the exception of paper and paper HVS ivory. At this company, inventory control system has not been applied properly. Several types of materials that are not able to be kept in the warehouse are evidences of that problem .

By observing warehouse restrictions, it is necessary to apply an inventory control system with warehouse volume as a storage of materials. To overcome this problem, EOQ (*Economic Order Quantity*) methods and Lagrange equation approach are used to determine the optimal order quantity by looking carefully at volume of the warehouse.

EOQ method with Lagrange function equation approach aims to store raw material for a production process according to demand, so they can be contained in the warehouse.

By using EOQ method and Lagrange function equation approach can evidently reduce the total inventory cost spent by the company. It spent Rp. 41,825,681 for total inventory cost when they used their system. If they use EOQ method with Lagrange function equation approach they will spend total inventory cost of Rp. 30271422. By using EOQ method with Lagrange function equation approach, total inventory cost can decrease Rp. 11,554,259 within period of 12 months.

Keyword : EOQ (*Economic Order Quantity*), Lagrange Equation, Total Inventory Cost