

ABSTRACT

CV. Rizky Mandiri is a company that related in the iodized salt production which requires planning and control of raw materials for its production. CV. Rizki Mandiri had a problem in cumulation of raw material inventory. Inventories are assets of a company in the material form that has an important role to ensure the fulfillment of goods. The purpose of this study was to determine the optimal order quantity using the limiting factor of warehouse volume to solve the problem of accumulation of storage materials in the company and to minimize total inventory cost.

The calculation of the optimal order quantity with the warehouse volume limiting factor is influenced by the cost of order costs, holding cost, Lagrange multiplier, and demand per year. The order cost consists of telephone charges, invoices, transportation, and unloading costs. Holding cost is calculated by using the Bank Indonesia interest rate at 8.25%. And lack of storage cost is the cost if the company did not make production. While, the Lagrange multiplier is influenced by the volume of raw materials and the volume of the warehouse.

Based on the calculation and analysis that have been done, using the EOQ (Economic Order Quantity) with a Lagrange multiplier, the optimal order quantity is 169,650 kg with reorder point of 131,330 kg. In one month, the company can make a reservation as much as six times. And the total inventory cost based on the calculation is Rp. 12.877.427. While the actual total inventory cost of the company is Rp. 16.229.712. There is a savings of Rp. 3.352.285. The volume of unused warehouses is $407.16 m^3$. While the volume of available warehouse to store raw materials is $409.5 m^3$. So all of the materials that received from the ordering process can be accommodated in the warehouse of raw materials.

Keywords : EOQ (Economic Order Quantity), Lagrange Multiplier