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

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