

ABSTRACT

PT. Pupuk Kujang (PT PKC) is a company that produces fertilizer. PT. PKC produce some products, such as ammonia, urea, and NPK. PT. PKC has two factories to produce its products, one of each is Pabrik Kujang 1A. Parts is one component of production that important to PT. PKC production. The problem occurs in the production area. The production decrease because of downtime machine increase due to spare part shortage.

One of several factor caused spare part shortage is random demand patterns. The company cannot predict the demand. Problems occurred causing a shortage cost and the total cost of inventory increasing in Pabrik Kujang 1A. Spare parts are categorized using the ABC analysis to determine the level of importance. Inventory planning with random inventory policy can be used as a solution to these problems.

Based on the calculation random inventory policy, optimal lot size for each inventory of spare parts can be calculated and it can minimize the total cost of inventory. The result are shortage cost reduction decrease by 12.3% and total inventory cost decrease by 12%.

Keywords: Down Time, Random Inventory Policy with Controlled Risk Method, Inventory, Spare Part