

Inventory Models Considering Post-Production Holding Time and Cost

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Abstract—This paper proposes inventory models for an environment where the approval time of the production batches is an important problem variable. The model is motivated by industries, such as the Pharmaceutical, where a batch is produced and then withheld for a certain period pending release and disposition. The paper proposes a series of cost functions that combine the classical EOQ model with a post-production hold time cost component when considering a single-tier, and a dual-tier manufacturing system. Optimal batch sizes are derived for various cases of the post-production hold time and numerical examples are presented. Finally, we present a practical application example where the proposed inventory model is utilized to support business decision-making.

Keywords—Inventory control, Batch size, Post-production hold time

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