

An EOQ Model for Items with Weibull Distributed Deterioration, Shortages and Power Demand Pattern

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Abstract

An inventory model is considered in which inventory is depleted not only by the deterministic (or probabilistic) demand, but also by deterioration. Hence, we derive the EOQ model for inventory of item that deteriorates at a Weibull distributed rate, assuming the demand rate with a power function of times. Moreover, the proposed deterministic (or probabilistic) model cannot be solved directly in a closed form, thus we used the computer software IMSL MATH/LIBRARY (1989) to find the optimal reorder time (or the optimal initial expected stock). Finally, three numerical examples and sensitivity analyses are provided to assess the solution procedure for the deterministic inventory model.

Keywords: EOQ Model, Deterioration, Shortage, Weibull Distribution, Demand, Reorder Time.