Integrating Quality And Maintenance Decisions In A Production-Inventory Model For Deteriorating Items

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Summary

In typical production-inventory models of deteriorating items, deterioration of the production process has not been considered. In this paper, a model is proposed in which both the produced items and the production equipment deteriorate. When the production system deteriorates, it shifts to an out-of-control state and begins to produce a proportion of defective items, necessitating corrective maintenance action. A model is formulated to integrate several realistic aspects, including item and process deterioration, varying demand and production rates, quality, inspection, and maintenance. A heuristic solution algorithm is developed to determine the production and inspection schedules, and a numerical example is solved.

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