

Public Abstract

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Title:A PRACTICAL APPROACH TO THE CYCLIC MULTI-BIN JOINT REPLENISHMENT PROBLEM

Inventory management practices of supplied parts in manufacturing facilities is a performance critical topic that is often underestimated in importance. Commonly, supplied parts in manufacturing are ordered and inventoried in bulk to leverage lower prices, etc. The result is a manufacturing environment in which inventory is stored in two locations; bulk inventory and production inventory. This research presents a new policy aimed at addressing the joint replenishment problem, or the movement of multiple inventoried items from one location to another within a manufacturing facility. Physical constraints are considered as well as risk of production stoppage due to inventory shortages. In shortage situations, emergency replenishments are considered. Practical advantages of the proposed policy over previously developed policies will be highlighted. Finally, two solution approaches are developed and applied to sample data.