

Modeling a Closed Loop Supply Chain with Continuous Price Decrease and Dynamic Deterministic Demand

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Abstract : In this paper, a single product, multi-echelon, multi-period closed loop supply chain is surveyed, including a variety of costs, time conditions, and capacities, to plan and determine the values and time of the components procurement, production, distribution, recycling and disposal specially for high-tech products that undergo a decreasing production cost and sale price over time. For this purpose, the mathematic model of the problem that is a kind of mixed integer linear programming is presented, and it is finally proved that the problem belongs to the category of NP-hard problems.

Keywords : closed loop supply chain, continuous price decrease, NP-hard, planning

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