

Closed Loop Supply Chain Network Design for the Marble Industry: A stochastic robust approach

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Closed loop supply chain design is to provide an optimal platform for efficient and effective supply chain management for the marble industries. Since considerable amount of waste materials are produced which have a serious impact on the environment. Therefore, it is an essential and strategic operation management problem in supply chain management and usually includes reverse flows. In this paper, a linear programming (LP) model is proposed under uncertainty for a remanufacturing system of marble industry, which includes both forward and reverse flows. The objective of the model is to minimize the transportation, recycling, cutting operation, holding and fixed opening costs in a reverse logistics network. Revenues obtained from selling the reused parts and solid dust wastes are also considered in the proposed model. Robust optimization approach based on stochastic programming is used. Application of the proposed model is illustrated by a numerical example and the model performance is assessed. Finally, a sensitivity analysis of the proposed model is presented by considering different parameters.

References

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