Title: An engine oil closed-loop supply chain design considering collection risk

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Highlights

- Developing a robust bi-objective mathematical model with some realistic features.
- Maximization of total profit and minimization of collection risk in network.
- Illustrative case study in engine oil with sensitive analysis is conducted.
- Applying augmented ε-constraint to find a set of Pareto points.

An engine oil closed-loop supply chain design considering collection risk

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Abstract

Manufacturers are devising new methods to make their production systems more efficient and effective. Designing an optimized supply chain can support the corresponding processes to integrate the resources. However, one the most important obstacles is the resource limitation. Recycling the second-hand products is one of the approaches to cope with this issue. Reverse logistics is a system of collecting products from end-users to the manufacturing centers for obtaining values from collected materials. In this research, the collection and distribution process of engine oil, which is derived from one of the most valuable natural resources, is considered. A

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