

混合型多溫共配車輛路線問題之研究

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摘要

The business model of multi-temperature co-delivery that adopted modern innovational technologies, such as the multi-temperature refrigerated container (MRC), has created a new value for the cold-chain logistics. In the practice, carriers operated by a combination of traditional heterogeneous fleet with MRC because the investment in MRC is costly. Therefore, this study mainly focused on the above-mentioned combined operation and proposed a new model named as the Hybrid Multi-Temperature Co-delivery Vehicle Routing Problem (HMCVRP).

We also designed a RASTA procedure that combined the neighborhood search methods with threshold accepting algorithm into a scheme of the ranked ant system algorithm to solve the HMCVRP. In order to identify the feasibility of RASTA, a bank of thirty HMCVRP instances, modified from VRP benchmarks by Christofides et al., was generated and five experiments were conducted to analyze the computational performance. Results shown that the proposed HMCVRP is superior to the simply usage of MRC in operating cost and efficiency, and the RASTA is feasible to solve the HMCVRP.

關鍵字 : Cold-Chain Logistics, Multi-Temperature Co-delivery, Ranked Ant System Algorithm, Threshold Accepting Algorithm.