多車種多溫共配車輛路線問題之測試與分析

卓裕仁, 許雅雯

運輸科技與物流管理學系

管理學院

m9203001@chu.edu.tw

摘要

Recently, the demand of the cold logistics and the multi-temperature distribution has rapidly grown. This paper considers two special operational situations: first, carriers utilize the engine-driven frozen truck divided into three parts to hold different temperate goods, and second, carriers utilize the multi-temperature storage box to hold different temperate goods in a general truck. We transfer the previous situations into two Heterogeneous Multi-temperature Fleet Vehicle Routing Problems, HMFVRP1 and HMFVRP2. A bank of 168 instances created by modifying the Solomon's VRPTW benchmark instances and Taillard's VRP benchmark instances is used to compare the performance of HMFVRP1 and HMFVRP2. Furthermore, real costs and capacities of different size of trucks are set for these test instances. Then, we also develop a simple heuristic algorithm to solve these HMFVRPs. Computational results present that, in average, HMFVRP2 performs well than HMFVRP1 in both of fleet size and traveling distance. Such a finding maybe offers an alternative to improve the performance of practical multi-temperate distribution for cold logistics.

關鍵字：Heterogeneous Multi-temperature Fleet Vehicle Routing Problem (HMFVRP); Heuristic method; Cold Logistics.