

A Two Phase VNS Algorithm for the Combined Production Routing Problem

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Abstract : Production and distribution planning is the most important part in supply chain management. In this paper, a NP-hard production-distribution problem for one product over a multi-period horizon is investigated. The aim is to minimize the sum of costs of three items: production setups, inventories and distribution, while determining, for each period, the amount produced, the inventory levels and the delivery trips. To solve this difficult problem, we propose a bi-phase approach based on a Variable Neighbourhood Search (VNS). This heuristic is tested on 90 randomly generated instances from the literature, with 20 periods and 50, 100, 200 customers. Computational results show that our approach outperforms existing solution procedures available in the literature

Keywords : logistic, production,distribution, variable neighbourhood search

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