A matheuristic for the multi-vehicle inventory routing problem

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The Multi-vehicle Inventory Routing Problem (MIRP) is the problem of determining for each time of a discrete horizon the quantity to deliver to customers and the routes at minimum cost. This includes the inventory costs at all nodes and the costs of the vehicle routes. No stock-out is allowed at the customers and the vehicle capacity constraints are satisfied. We present a matheuristic where three different mathematical programming models are embedded in a heuristic scheme. Computational results are presented for a large set of benchmark instances and compared with state of the art results.