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A Genetic Algorithm for the Multi-Compartment Vehicle Routing Problem with Flexible Compartment Sizes.

This page contains material of the following publication:


Koch, H.; Henke, T.; Wäscher, G. (2016):

A Genetic Algorithm for the Multi-Compartment Vehicle Routing Problem with Flexible Compartment Sizes. Working paper.

Abstract:

In this paper, a genetic algorithm for the multi-compartment vehicle routing problem with continuously flexible compartment sizes is proposed. In this problem, supplies of several product types have to be collected from customer locations and transported to a depot at minimal cost. In order to avoid mixing of different product types which are transported in the same vehicle, the vehicle's capacity can be separated into a limited number of compartments. The size of each compartment can be selected arbitrarily with the limits of the vehicle's capacity, and in each compartment one or several supplies of the same product type can be transported.

For solving this problem, a genetic algorithm is presented. The performance of the proposed algorithm is evaluated by means of extensive numerical experiments. Furthermore, the economic benefits of using continuously flexible compartments are investigated.

Typ	> Titel	Content
	> Data files	This file contains all data files and a format description.

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- ▶ 2019
- ▶ 2017 / III.
- ▶ 2017 / II.
- ▶ 2017 / I.
- ▶ 2016 / III.
- ▶ 2016 / II.
- ▶ 2016 / I.
- ▶ 2015 / IV.
- ▶ 2015 / III.
- ▶ 2015 / II.
- ▶ 2015 / I.
- ▶ 2014
- ▶ 2012 / II.
- ▶ 2012 / I.
- ▶ 2008 / I.
- ▶ 2007 / II.
- ▶ 2007 / I.
- ▶ 2004 / I.
- ▶ 2003 / I.