

Accepted Manuscript

Title: Mixed-time mixed-integer linear programming for optimal detailed scheduling of a crude oil port depot

Authors: Haoran Zhang, Yongtu Liang, Qi Liao, Jie Gao, Xiaohan Yan, Wan Zhang



PII: S0263-8762(18)30352-6
DOI: <https://doi.org/10.1016/j.cherd.2018.07.013>
Reference: CHERD 3267

To appear in:

Received date: 19-6-2017
Revised date: 5-6-2018
Accepted date: 10-7-2018

Please cite this article as: Zhang, Haoran, Liang, Yongtu, Liao, Qi, Gao, Jie, Yan, Xiaohan, Zhang, Wan, Mixed-time mixed-integer linear programming for optimal detailed scheduling of a crude oil port depot. *Chemical Engineering Research and Design* <https://doi.org/10.1016/j.cherd.2018.07.013>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Mixed-time mixed-integer linear programming for optimal detailed scheduling of a crude oil port depot

Haoran Zhang**^{1,2} Yongtu Liang*¹ Qi Liao¹ Jie Gao¹ Xiaohan Yan¹ Wan Zhang¹

1. Beijing Key Laboratory of Urban oil and Gas Distribution Technology, China University of Petroleum-Beijing, Fuxue Road No.18, Changping District, Beijing, PR China, 102249
2. Center for Spatial Information Science, The University of Tokyo 5-1-5 Kashiwanoha, Kashiwa-shi, Chiba, Japan, 277-8568

*Corresponding author: E-mail address: liangyt21st@163.com (Y. Liang) zhang_ronan@csis.u-tokyo.ac.jp (H. Zhang)

Highlights

- A mixed-time MILP model is proposed aiming at optimal scheduling of COPD.
- Multiple transportation modes such as pipeline, road and railway are considered.
- The detailed operation and transport scheduling of a crude oil port depot can be obtained.
- A real case study in China is given to demonstrate this method's practicality.

ABSTRACT: Crude oil port depots are key hubs in oil trade and thus play a vital role in the crude oil supply chain. Based on the characteristics of the scheduling system in an oil port depot, the development of a precise schedule is essential for handling asynchronous upstream supply and downstream market demand, thereby reducing operation cost as well as the impact of market fluctuations. Most previous studies focused only on the depot system, and few have taken the export transport scheduling into consideration. In this study, the diversity of crude oil storage modes, complexity of operations, and variety of transportation modes are considered. To minimize the total operation cost, a mixed-time representation based on a mixed-integer linear programming model is established. Finally, three real cases in a crude oil port depot in China are studied, and the monthly schedules of the depot are developed. Compared with previous algorithms, this method yields more accurate results in a considerably shorter time with improved computational stability.

Keywords: detailed scheduling; crude oil port depot; mixed-integer linear programming; mixed-time representation

Nomenclature

Abbreviations

CNY

Chinese Yuan

Download English Version:

<https://daneshyari.com/en/article/7005513>

Download Persian Version:

<https://daneshyari.com/article/7005513>

[Daneshyari.com](https://daneshyari.com)