

A Case Study of Inventory Classification for a Plastic Pallet Manufacturing Company

Yiyo Kuo and Hao-Chen Jiang

Department of Industrial Engineering and Management

Ming Chi University of Technology

New Taipei City, Taiwan

yiyo@mail.mcut.edu.tw, bencorlos159@gmail.com

Abstract

Although the cost of plastic pallets is higher than wooden pallets, the plastic pallets can be highly reused and exported without fumigating. According to a report by Grand View Research, Inc. The global plastic pallets market is anticipated to grow by 5.2% per year from 2022 to 2030 and the market size is expected to reach USD 9.72 billion by 2030. This research deal with a case study of a plastic pallets manufacturing company in Taiwan. Due to the various product sizes, uncertain demand, long changeover time, limited inventory space, and so on, the case company needs a pragmatic approach to control the inventory level. According to the concept of ABC inventory management, the inventory policy of each class was suggested firstly. Traditionally, it is commonly seen that using increasing class sizes, such as 20%, 30%, and 50% to classify all inventory items. However, the policies will affect the batch sizes, average inventory, number of changeovers, and fill rate. Based on the limitation of the number of changeovers and inventory space limitation, a systematic procedure was proposed to classify all inventory items and maximize the fill rate. Finally, some experiments were tested to give suggestions to the case company.

Keywords

Inventory Management, ABC Inventory Classification, Plastic Pallet

Biographies

Yiyo Kuo received the Ph.D. degree in Manufacturing Engineering from National Cheng Kung University, Taiwan, in 2015. He is a Professor in the Industrial Engineering and Management, Ming Chi University of Technology, New Taipei City, Taiwan. He teaches courses of Operations Management, Lean Production and so on. His areas of research/expertise are production management and application of artificial intelligence.

Hao-Chen Jiang received the B.S. degree in Industrial Engineering and Management, Ming Chi University of Technology, New Taipei City, Taiwan. He is a graduate student in the same department. His current research focus on the inventory classification.