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Implementation of Lean Tools in the FIBC (Flexible Intermediate Bulk Container) Industry to Improve Productivity

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Abstract:

In recent years, the FIBC (Flexible Intermediate Bulk Container) industry has increasingly turned to lean manufacturing principles to enhance operational efficiency. FIBC manufacturing, like garment production, is a well-established system that involves a complex array of essential processes. Key performance indicators in the FIBC industry include lead times, production output, waste reduction, and labor efficiency. To stay competitive globally, FIBC manufacturers prioritize reducing lead times and minimizing waste, both of which are crucial for boosting productivity and achieving sustainable development. This drive towards lean and responsive manufacturing has intensified the need for advanced tools and techniques to identify and address inefficiencies within production. This study explores the application of lean manufacturing tools in the Flexible Intermediate Bulk Container (FIBC) industry to improve productivity and reduce waste. As the industry faces increased global competition, FIBC manufacturers are under pressure to optimize lead times and eliminate inefficiencies to stay competitive. In particular, manufacturers are implementing lean methodologies such as Value Stream Mapping, Root Cause Analysis (RCA) to reduce rework rates, Kanban, standard minute value (SMV) and efficient methodologies to meet the expectations of a competitive market. This paper shows a case study of an FIBC company where lean tools are used systematically to identify and mitigate sources of waste throughout its production process. Initial results show that lean tools can lead to significant improvements in production rate, lower lead times, and enhanced operational stability.

Keywords:

FIBC (Flexible Intermediate Bulk Container), lean manufacturing, operational efficiency, productivity improvement, Lean tools implement

Biographies

Abhishek Sharma is an undergraduate student pursuing a degree in Industrial and Production Engineering at the American International University-Bangladesh (AIUB). With a strong interest in industrial efficiency and manufacturing processes, he has gained valuable field experience in the Flexible Intermediate Bulk Container (FIBC) industry, particularly in its production processes. Abhishek has been actively involved in academic and extracurricular activities, including being a semi-finalist in the AIUB Business Club Case Study competition. He has undergone specialized training in industrial fire safety management organized by ESSAB Bangladesh and has completed a comprehensive training program in Quality Control Management (QCM) for FIBC bags at Dutch-Bangla Pack Ltd. In addition to his technical expertise, Abhishek has experience in industrial event management and is a dedicated member of the ESAB AIUB Unit Face. His academic pursuits, practical training, and organizational involvement reflect his commitment to contributing to industrial innovation and operational excellence. Abhishek aspires to apply

his knowledge and skills to advance sustainable and efficient manufacturing practices in the global industrial landscape.

MD. Al Nafiul Aishik is an undergraduate student studying Industrial and Production Engineering at the American International University-Bangladesh (AIUB). With a strong passion for enhancing industrial productivity and optimizing manufacturing systems.He serves as the Event Coordinator at the AIUB Student Chapter of IEOM (Industrial Engineering and Operations Management) where he leads the organization of impactful academic and professional events. He has also completed comprehensive Workplace Basic Safety training organized by the Samsung C&T Safety Academy,Additionally, Nafiul has completed industrial training on Garments Technology and Lean Manufacturing at the Institute of Apparel Research & Technology, BKMEA.Apart from his technical and academic pursuits, Nafiul actively engages in social and organizational activities as the General Secretary of the Abanita Foundation. These experiences reflect his leadership and commitment to contributing to industrial innovation, community development, and workplace safety.Nafiul aims to use his knowledge and skills to promote sustainable and efficient manufacturing practices while prioritizing workplace health and safety in the global industrial sector.

Dr. Monon Mahboob is an Associate Professor of Industrial and Production Engineering Department of American International University-Bangladesh (AIUB). His fields of research are composites manufacturing, additive manufacturing and materials modeling. He has several years of teaching experience in the field of mechanical engineering and has a PhD from Ohio State University in mechanical engineering.