**the use of the dmaic model in identifying potential defects in MANUFACTURING INDUSTRY**

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**ABSTRACT:** This study is focusing in the use of the DMAIC model Lean Six Sigma in composite material manufacturing hand lay-up process improvement in order to identify potential Foreign Object Debris (FOD). Hand lay-up is a process in which individual layers of prepreg are laid up on a tool and then cured. Hand lay-up is a manual process that resulting in numbers of quality defects such as voids, delamination, voids, warpage and the Foreign Object Debris (FOD). This study exclusively deals with the FOD quality defect. In this study, the DMAIC model approach (Define, Measure, Analyze, Improve, Control) is applied and some appropriate quality tools are used in the hand-lay-up process to give way to companies on how to identify and reduce the number of FOD quality defects on composite panels to ensure the high-quality composite panels can be produced that finally fits the aircraft. As the result of this study, the main source of the cause of the problem is identified and some solutions were purposed. These solutions included, Kaizen, Standard Operation Process and SMED. With the use of the DMAIC model Lean Six Sigma and other quality tools, composite materials manufacturing companies can reduce the number of FOD defects and improve the overall performance of the hand-laying process.

**KEYWORDS:** *Lean Six Sigma; DMAIC; Foreign Object Debris (FOD)*