

## **An Investigation of Aluminum Foil-Epoxy Laminated Composites for Rapid Tooling Applications**

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**Abstract :** Mass customization is an area of increased importance and the development of rapid tooling applications is pivotal to the success of mass customization. This paper presents a laminated object manufacturing (LOM) process for rapid tooling. The process is termed 3D metal laminate printing and utilizes domestic-grade aluminum foil and epoxy for layered manufacturing. A detailed explanation of the process is presented to produce complex metal laminated composite parts. Aluminum-epoxy composite specimens were manufactured from 0.016mm aluminum and subjected to tensile tests to determine the mechanical properties of the manufactured composite in relation to solid metal specimens. The fracture zone of the specimens was analyzed under scanning electron microscopy (SEM) in order to characterize the fracture mode and study the interfacial bonding of the manufactured laminate specimens.

**Keywords :** 3D metal laminate printer, aluminum-epoxy composite, laminated object manufacturing, rapid tooling

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