STRESS DISTRIBUTION ON COMPOSITE HONEYCOMB SANDWICH STRUCTURE FOR A LEAF SPRING

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ABSTRACT

Lightweight composite leaf spring of honeycomb sandwich structures are laminated composite structures that are composed of thin stiff face sheets bonded to a thicker lightweight core in between aluminum honeycomb in that honeycomb structure filled with foam. These structures have high potential to be used in marine, aerospace, defense and civil engineering applications due to their high strength to weight ratios and energy absorption capacity. In this study, composite sandwich structures were developed with Jute fiber reinforced polymer composite face sheets and aluminum honeycomb core materials with various thicknesses. Jute fiber/epoxy composite sheets were fabricated with lamination Jute fiber by weight infusion technique. Honeycomb layers were sandwiched together filled with foam with the face sheets using a thermosetting adhesive method. Mechanical tests were carried out to determine the mechanical behavior of face sheets, cores and the composite structure. Effect of core thickness on the mechanical properties of the sandwich was investigated.

KEYWORDS: *Composite Material, Natural Fibers, Epoxy, Honeycomb Material, Foam*