

# Experimental investigation of notch effect and ply number on mechanical behavior of interply hybrid laminates (glass/carbon/epoxy)

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**Abstract:** The great advantages of hybrid composite materials reside in the synergistic effect of their constituent materials and that make them very attractive for advanced applications. Nevertheless, the interactive effect of the intrinsic properties of each element further complicates understanding of their behavior. In this study, an experimental analysis of the mechanical behavior of interply hybrid laminates (glass/carbon/epoxy) and the estimation of the hybridization effect with respect to mono-reinforced laminates were carried out. It has been found that the incorporation of 25% carbon fibers in the glass/epoxy laminates contributes significantly to improving their tensile mechanical properties but they degrade as the number of glass plies increase. In addition, investigations were carried out on the sensitivity of these materials to geometric imperfections. To this end, the influence of a circular notch has been highlighted. From the results obtained, it was found that the greatest loss of properties is recorded for the hybrid materials; however, they remain the most resistant.

**Keywords :** Hybrid composite materials, laminates, notch, mechanical properties