

On the effects of geometrical shapes in failure modes in natural – conventional fiber reinforced composite tube: a review

ABSTRACT

Background: Natural and synthetic fibers are known for their low density, easier fabrication than metallic in several engineering applications. Furthermore, their structural rigidity is high and they can be used for advanced applications, such as aerospace applications and automotive industry sector. **Methods:** Owing to this in depth, studies had been conducted to evaluate its failure modes and process of fabrication for axial and lateral crushing behaviour to replace metallic materials. In this review paper, failure modes and geometrical designs such as shapes, triggering and geometry have been examined, where these factors are affected on crashworthiness parameters. The main aim of this review article is the reported work done in crushing behavior and failure modes of natural, synthetic and manufacturing technique process parameters on fibers reinforced composite tubes. **Results:** The results showed that the failure modes and crushing behavior in composite tubes depend on the type of material reinforced composite tubes and structure. **Conclusion:** The failure modes and crushing behavior in composite tubes depend on the type of material reinforced composite tubes and structure.

Keyword: Natural and synthetic; Aerospace applications; Automotive industry; Crashworthinesses; Energy absorption; Fabrication processes; Fiber