

Tensile properties of hybrid woven glass fibre/PALF reinforced polymer composite

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ABSTRACT

The world today is experiencing a significant global warming problem. One of the causes of the problem is due to the use of excessive and uncontrollable material. Replacing the material with more environmentally friendly is a priority today, especially from wasted natural materials such as pineapple leaf fibre (PALF). Therefore, the aim of the study is on an investigation of tensile properties from composites made by reinforcing woven glass fibre and short fibre PALF into epoxy resin. The fibre contains a fixed glass fibre with 20 wt% and PALF contains with a range of 5 wt%, 10 wt% and 15 wt%. The architecture of hybrid composite comprises of bottom and top are woven glass fibre meanwhile middle layer is short fibre of PALF. Epoxy resin was poured into it, then hand lay-up technique was used to spread the epoxy evenly. Cold compression method was used to cure the composite. The results show that 10 wt% of PALF and 20 wt% woven glass fibre have shown the best tensile strength and stiffness. This concluded that the best filler of PALF is at 10 wt%.

KEYWORDS

Pineapple leaf fibre (PALF); Woven glass fibre; Hybrid composite; Tensile properties

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