



Investigation of flexural properties of hybrid woven Carbon-Kevlar- epoxy composites added with nanosilica filler

Pranesh K.G. ^a✉, Channabasavaraj S. ^b

Show more ▾

☰ Outline | 🔗 Share ☞ Cite

<https://doi.org/10.1016/j.matpr.2022.03.484>

Get rights and content

Abstract

The main objective of this research work is to focus on the investigation of the effect of adding the nanosilica (NS) on flexural properties in woven carbon-Kevlar-epoxy hybrid composite and the better stacking sequence of fibers. The nanosilica added to the epoxy resin in various weight percentages (wt. %) 0, 0.5, 1.0, 1.5 and 2.0. The laminates have five layers of carbon and four layers of Kevlar woven fiber (5C4K), and five layers of Kevlar and four layers of carbon(5K4C). The vacuum assisted resin infusion molding (VARIM) technique was used to fabricate the laminates. The test specimens for flexural properties were prepared as ASTM D790 standard. The results of the tested specimens revealed that 0.5 wt% of nanosilica with the epoxy provides higher flexural properties as compared to other wt. % of nanosilica in both types of stacking sequence. The laminate having five layers of carbon and four layers of Kevlar woven fiber (5C4K) shows better flexural properties as compared to laminate having five layers of Kevlar and four layers of carbon(5K4C).

< Previous

Next >

Keywords

Hybrid composites; Carbon; Kevlar; Epoxy; Nanosilica; Flexural

B. M. T.
HEAD OF THE DEPARTMENT
Mechanical Engg

ACHARYA INSTITUTE OF TECHNOLOGY

PRINCIPAL
ACHARYA INSTITUTE OF TECHNOLOGY
Soldevanahalli Bangalore-560 107