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Investigation of Dynamic Mechanical Properties of Jute/Carbon Reinforced Composites

Authors : H. Sezgin, O. B. Berkalp, R. Mishra, J. Militky

Abstract : In the last few decades, due to their advanced properties, there has been an increasing interest in hybrid composite materials. In this study, the effect of different stacking sequences of jute and carbon fabric plies on dynamic mechanical properties of composite laminates were investigated. Vacuum bagging system was used to fabricate the composite samples. Each composite laminate was reinforced with two plies of jute fabric and two plies of carbon fabric by varying the position of layers. Dynamic mechanical analyzer (DMA) was used to examine the dynamic mechanical properties of composite laminates with increasing temperature. Results showed that the composite sample, which has carbon fabric at the outer layers, has the highest storage and loss modulus. Besides, it was observed that glass transition temperature (T_g) of samples are close to each other and at about 75 °C.

Keywords : differential scanning calorimetry dynamic mechanical analysis, textile reinforced composites, thermogravimetric analysis
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