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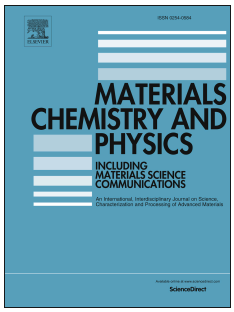

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Physical, Structural and Thermomechanical properties of oil palm nano filler/kenaf/epoxy hybrid nanocomposites

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Abstract

The present research study deals with the fabrication of kenaf/epoxy hybrid nanocomposites by the incorporation of oil palm nano filler, montmorillonite (MMT) and organically modified montmorillonite (OMMT) at 3% loading, through hand lay-up technique. Effect of adding different nano fillers on the physical (density), structural [X-ray diffraction **(**XRD)] and thermomechanical analysis (TMA) of kenaf/epoxy composites were carried out. Density results revealed that the incorporation of nano filler in the kenaf/epoxy composites increases the density which in turn increases the hardness of the hybrid nanocomposites. XRD analysis confirmed the presence of nano fillers in the structure of their respective fabricated hybrid nanocomposites. All hybrid nanocomposites displayed lower coefficient of thermal expansion (CTE) with respect to kenaf/epoxy composites. Overall results predicted that the properties improvement in nano