Tensile Strength of Al Particles/Sisal Fibres Hybrid Composite with Epoxy Matrix

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The hybrid composite polymer system was prepared by a vacuum infusion. The reinforcement phase of the composite consists of natural fibers and inorganic aluminum particles. Hard inorganic particles are used in composite systems to optimize certain mechanical characteristics such as hardness, wear resistance or even strength. Hybrid system with an epoxy matrix and a variable concentration of reinforcing phases of aluminum min. purity of 99% (average particle size 31 μm) and sisal fibers was used in the experiment. Sisal fibers were used without a preferred orientation - it was a disordered long-fiber composite system and fibers were treated with 6% aqueous NaOH. The experiment focuses mainly on the hardness and strength characteristics of the composite. Electron microscopy was used to describe the particle morphology and size, and to evaluate matrix filler distribution and interphase interactions.

Keywords: Agave sisalana, Electron microscopy, Interaction, Mechanical characteristics

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