

Karakterisasi pengaruh penambahan jumlah serat pada pembuatan biokomposit dengan penguat serat jerami padi dan serabut kelapa dengan perekat lem putih pvac = Characterization of the increase in fiber loading in the fabrication of rice straw and coir fiber reinforced biocomposites with pvac white glue as adhesive

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Abstrak

Biocomposite fiberboards using thermoplastic adhesive polymer white glue polyvinyl acetate and two types of natural fibers, rice straw and coir fibers, were made by vacuum bag moulding. The influences of fiber loading on the biocomposite's tensile and behavior to water properties were investigated. Prior to the fabrication of the biocomposite the natural fibers were treated using the the alkali process by soaking the fibers in NaOH 5%. Three kind of fiber board were fabricated, a biocomposite with a variation of rice straw fiber loading, a biocomposite with a mixture of 50% rice straw and 50% coir whose fiber loading was also varied, and last a biocompsite with a 30% fiber loading mixture with a variation of coir fiber loading. The biocomposites fabricated had a gradual increase of tensile strength to an optimum fiber loading which after drops with the increase of fiber loading. Rice straw based composites had an optimum fiber loading of 30% percent and the the composite with a mixture of 50% rice straw and 50% coir dah an optimum fiber loading of 35%. The increase of fiber loading also increase the water content and the water absorption for all biocomposites fabricated. The study showed that rice straw and coir fibers may not work well with PVAc as reinforcing filler but showed similar trends when varying the fiber loading with other using natural fibers.