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Eco-Friendly Natural Filler Based Epoxy Composites

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Abstract : In this study, acrylated soybean oil (AESO) was used as modifying agent for DGEBF-type epoxy resin (ER). AESO was used as a co-matrix in 50 wt % with ER. Composites with eco-friendly natural fillers-banana bark and seashell were prepared. MNA was used as a hardener. Effect of banana peel (BP) and seashell (SSh) fillers on mechanical properties, such as tensile strength, elongation at break, and hardness of M-ERs were investigated. The structure epoxy resins (M-ERs) cured with MNA and sebacic acid (SAc) hardeners were characterized by Fourier transform infrared spectroscopy (FTIR). Tensile test results show that Young’s (elastic) modulus, tensile strength and hardness of SSh particles reinforced with M-ERs were higher than the M-ERs reinforced with banana bark.

Keywords : biobased composite, epoxy resin, mechanical properties, natural fillers
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