

The effect of alkali treatment of OPKS filler on mechanical property of polyester-composite

Abstract

This paper presents a study on the effect of alkali treatment of Oil Palm Kernel Shell (OPKS) on the mechanical properties of polyester composite. The dosage of NaOH in this study is limited to 5wt% concentration. The experiments on mechanical properties investigate the tensile strength, the flexural strength and the flexural modulus of untreated, cold alkali treated and hot alkali treated OPKS reinforced polyester composite. It is found that the alkali treatment improves the mechanical properties of the composite. However, the improvement due to the hot alkali treatment is significant compared to the cold alkali treatment. The morphology of OPKS and the fracture surface of OPKS composites were investigated using scanning electron microscopy (SEM), showing a rough surface and good interfacial adhesion between OPKS as filler and polyester as a matrix.