

Tensile properties of kenaf/unsaturated polyester composites filled with a montmorillonite filler

Abstract

Kenaf/unsaturated polyester composites filled with montmorillonite (MMT) filler were produced. Overall, the study showed that, for samples with kenaf filler only, the strength properties decreased as the kenaf filler loading was increased from 40 to 60%. The increase in the kenaf filler loading reduced the amount of matrix material. This subsequently lowered the ability of the sample to absorb energy or distribute stress efficiently. However, with MMT, the tensile properties improved because of the high aspect ratio and surface area of the MMT. The study of the effect of kenaf filler size on the tensile properties showed that the samples with the smallest size (74 μm) displayed the lowest tensile properties compared to the larger ones. This was attributed to the agglomeration of the kenaf fillers. The addition of MMT resulted in an overall increase in the tensile strength of the composites compared to those without MMT.