

Tensile properties, Swelling behaviour and XRD characteristic of RHDPE/Tyre dust and R-HDPE/Chicken feather fiber composites

Abstract

Effect of filler loading on tensile properties, swelling behavior, and XRD characteristic of R-HDPE/tyre dust (TD) composites and R-HDPE/chicken feather fibers (CFF) composites were studied. The both composites were prepared with Brabender Plasticorder at 160°C and rotor speed of 50 rpm. The R-HDPE/TD composites gave a greater value of tensile strength, and swelling behavior resistance compared to R-HDPE/CFF composites. X-ray diffraction analysis shows the R-HDPE/TD composites have lower value of interparticle spacing (d) than R-HDPE/CFF composites. This indicated better interaction between tyre dust and R-HDPE matrix.

Keywords; Chicken feather fiber, recycled high density polyethylene, tyre dust