

Abstract

This research work was to study the effect of moisture on mechanical properties of wood/polyvinylchloride composites (WPVC). WPVC specimens in ratio of PVC and wood (100:100 by weight) were prepared by using twin screw extruder. The water conditions for WPVC specimen immersion testing were varied for temperatures of 30-70 °C and specimen immersion time of 0-120 h. The moisture effect was investigated by measuring flexural properties and hardness of WPVC as comparing with case of PVC specimen. The result suggested that flexural modulus of WPVC tended to decrease with increasing time of water immersion and then remained unchanged at immersion time of more than 72 and 48 h for water temperature of 30 and 70 °C, respectively. The decrease rate in flexural modulus enhanced when water temperature increased. Flexural modulus of PVC slightly changed with increasing both immersion time and water temperature. Flexural strength for both PVC and WPVC specimens were found the change at water temperature of 70 °C only. Flexural strength of PVC tended to slightly increase with increasing immersion time whereas flexural strength of WPVC slightly decreased with increasing immersion time. Hardness of PVC specimen in cases of both water temperature of 30 and 70 °C slightly increased with increasing immersion time. For WPVC, hardness tended to decrease with increasing immersion time and water temperature.

Keywords: Composite/Polyvinyl chloride/Natural fiber/Mechanical properties/Moisture