THERMAL CONDUCTIVITY OF GYPSUM BOARD IN PROPORTION TO KENAF FIBER AND POLYVINYL ALCOHOL (PVA)

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ABSTRACT

This study is about thermal conductivity of gypsum board in different proportions of Kenaf fiber and polyvinyl alcohol. The aim of this experiment is to study the effects and compatibility of Kenaf fiber and polyvinyl alcohol towards the properties of gypsum board. In this study, different compositions of these three main materials were produced. The first composition consists of 100% gypsum. The second composition is gypsum in proportion to Kenaf fiber at 1%, 3% and 5%. The third composition is gypsum and Kenaf fiber at 1%, 3% and 5% in addition to polyvinyl alcohol. Other parameters such as the temperature (100 °C) and density (800 kg/m^3) were held constant. The thermal conductivity values for every different composition will be measured by using needle probe device also known as KD2 Pro in reference to the standard of ASTM D5334-14. Overall results show that gypsum board which contains Kenaf fiber and polyvinyl alcohol has much higher reading of thermal value in comparison to gypsum board without polyvinyl alcohol. This experiment concluded that both higher value of Kenaf and polyvinyl alcohol affect the thermal conductivity of gypsum board.