KARAKTERISASI PAPAN BETON RINGAN BERPENGUAT BATANG JAGUNG

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ABSTRAK

Telah dilakukan penelitian tentang karakterisasi papan beton ringan berpenguat batang jagung. Penelitian ini bertujuan untuk mengetahui persentase optimum serat batang jagung yang dapat mempengaruhi sifat fisis dan sifat mekanis papan beton ringan. Persentase serat batang jagung yang digunakan dalam penelitian ini adalah 0%; 0,3%; 0,6%; 0,9%; 1,2%; dan 1,5%. Sifat fisis yang diuji dalam penelitian ini adalah densitas, porositas, dan daya serap air dengan ukuran sampel 5 x 5 x 1 cm. Sedangkan sifat mekanis yang diuji adalah kuat tekan dengan ukuran sampel 5 x 5 x 1 cm dan kuat lentur dengan ukuran sampel 20 x 5 x 1 cm. Berdasarkan hasil pengujian nilai densitas terendah didapatkan pada persentase serat 1,5% sebesar 1,39 g/cm^3, nilai porositas terendah didapatkan pada persentase serat 0% sebesar 9,38%, dan nilai daya serap air terendah didapatkan pada persentase serat 0% sebesar 5,96%. Nilai densitas yang didapatkan berbanding terbalik dengan nilai porositas dan daya serap air. Pada densitas, semakin banyak serat semakin kecil nilai densitas sedangkan pada porositas dan daya serat air semakin banyak serat maka semakin tinggi pula nilai keduanya. Sedangkan nilai kuat tekan tertinggi didapatkan pada persenatse serat 1,5% sebesar 56,27 kg/cm^2 dan nilai kuat lentur tertinggi pada persenatse serat 1,5% serat sebesar 40,5 kg/cm^2. Semakin banyak serat maka semakin tinggi nilai kuat tekan dan kuat lenturnya. Nilai densitas, porositas, daya serap air, dan kuat lentur telah memenuhi standar SNI 03-2105-2006 dan SNI 03-2104-1991 namun untuk kuat tekan belum memenuhi standar SNI.

Kata kunci : batang jagung, densitas, porositas, daya serap air, kuat tekan, kuat lentur.

CHARACTERIZATION OF LIGHTWEIGHT CONCRETE BOARDS REINFORCED WITH CORN STALKS

ABSTRACT

Research has been carried out on the characterzation of lightweight concrete boards reinforced with corn stalks. This study aim to determine to optimum percentage fiber of corn stalks that can affect the physical and mechanical properties of lightweight concrete boards. Percentage of fiber used in this study was 0%; 0,3%; 0,6%; 0,9%; 1,2%; and 1,5%. The physical properties tested in this study were density, porosity, water absorption with a sample size 5 x 5 x 1 cm. Meanwhile, the mechanical properties tested were compressive strength with a sample size 5 x 5 x 1 cm and flexural strrength with a sample size of 20 x 5 x 1 cm. Based on test result, the lowest densuty value was obtained at 1,5% fiber percentage of 1,39 g/cm^3, the lowest porosity value was obtained at 0% fiber percentage of 9,38%, and the lowest water absorption was obtained at 0% fiber persentage of 5,96%. The density value obtained is inversely proportional to the value of porosity and water absorption. In density, the more fiber the smaller the density value, while on porosity and water absoption the more fiber the higher the value of both. While the highest compressive strength value obtained at 1,5% fiber percentage of 56,27 kg/cm^2 and the highest flexural strength was at 1,5% fiber percentage of 40,5 kg/cm^2. The more fibers, the higher the compressive strength and flexural strength. The value of density, porosity, water absorption, and flexural strength have met teh standart of SNI 03-2105-2006 and SNI 10-2104-1991 but the compressive strength has not met the standart of SNI.

Keywords : corn stalks, density, porosity, water absorption, compressive strength, flexural strength.