

ABSTRAK

PEMANFAATAN LIMBAH ABU SEKAM PADI SEBAGAI CAMPURAN MATERIAL UNTUK PENINGKATAN KUALITAS MUTU BATA

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Bata merah merupakan material dinding yang paling umum digunakan, namun seringkali memiliki keterbatasan dalam hal kekuatan dan daya serap air. Di sisi lain, penambahan bahan aditif yang mengandung silika reaktif diperlukan untuk memperbaiki sifat fisik dan mekanik tanah lempung. Oleh karena itu, penelitian ini bertujuan meningkatkan kualitas bata merah dengan memanfaatkan limbah abu sekam padi sebagai bahan campuran. Metode eksperimental dilakukan menggunakan tanah lempung anorganik plastisitas tinggi (CH) dengan variasi campuran abu sekam sebesar 0%, 2%, 5% dan 10% melalui pendekatan kadar air lapangan dan kadar air optimum (KAO). Pengujian sifat mekanik batu bata mengacu pada SNI 15-2094-2000 meliputi kuat tekan, daya serap air, dan kerapatan semu. Hasil penelitian menunjukkan komposisi paling optimal terdapat pada campuran 2% dengan metode KAO, yang menghasilkan kuat tekan tertinggi sebesar 51,23 kg/cm², daya serap air terendah 13,24%, dan kerapatan semu 1,73 g/cm³. Penambahan abu sekam padi terbukti efektif meningkatkan mutu bata akibat reaksi pozzolanik, namun kadar di atas 5% cenderung menurunkan kualitasnya.

Kata kunci: Bata merah, abu sekam padi, reaksi pozzolanik, kuat tekan, daya serap air

ABSTRACT

UTILIZATION OF RICE HUSK ASH WASTE AS A MATERIAL MIXTURE FOR IMPROVING BRICK QUALITY

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Red brick is the most commonly used wall material, but it often has limitations in terms of strength and water absorption. On the other hand, the addition of additives containing reactive silica is necessary to improve the physical and mechanical properties of clay soil. Therefore, this study aims to improve the quality of red brick by utilizing rice husk ash waste as a mixing material. The experimental method was carried out using high plasticity inorganic clay soil (CH) with variations in rice husk ash mixture of 0%, 2%, 5% and 10% through a field moisture content and optimum moisture content (OMC) approach. The mechanical properties of the bricks were tested in accordance with SNI 15-2094-2000, including compressive strength, water absorption, and apparent density. The results showed that the most optimal composition was found in the 2% mixture using the OMC method, which produced the highest compressive strength of 51.23 kg/cm², the lowest water absorption of 13.24%, and an apparent density of 1.73 g/cm³. The addition of rice husk ash proved to be effective in improving brick quality due to pozzolanic reactions, but levels above 5% tended to reduce quality.

Keywords: *Red brick, rice husk ash, pozzolanic reaction, compressive strength, water absorption.*