

Abstrak

Penelitian ini bertujuan untuk mengetahui pengaruh variasi komposisi dan ukuran butiran pasir merah terhadap peningkatan kuat tekan beton mutu K-350. Beton dibuat dalam bentuk kubus berukuran 15 cm x 15 cm x 15 cm dengan standar mutu K-350. Penelitian ini dibuat dengan variasi komposisi pasir merah (0, 2, 4, 6)% dan ukuran butir (80, 100, 120) mesh. Pembukaan cetakan beton dilakukan setelah beton berumur 24 jam dan dirawat selama 28 hari. Setelah melalui 28 hari perawatan, beton diuji menggunakan metode uji serap air, uji kuat tekan, uji XRD, dan uji SEM. Dari hasil pengujian diperoleh kuat tekan beton maksimum pada ukuran butir 120 mesh dengan komposisi 6% dengan nilai 35,27 MPa. Dari hasil uji daya serap air didapatkan adanya penurunan berturut-turut pada komposisi pasir merah 4%. Pengujian XRD didapatkan unsur berupa SiO_2 , CaO , Ca(OH)_2 dengan intensitas silikon paling tinggi. Dari hasil uji SEM, ukuran struktur beton dengan campuran pasir merah memiliki pori-pori yang lebih sedikit.

Kata Kunci : *Beton, Daya Serap Air, Kuat Tekan, Pasir merah, SEM, XRD*



Abstract

This study aims to determine the effect of variations in the composition and size of red sand grains to increase the compressive strength of K-350 quality concrete. Concrete is made in the form of a cube of 15 cm x 15 cm x 15 cm with the K-350 quality standard. This study was made with variations in the composition of red sand of (0, 2, 4, 6)% and grain size of (80, 100, 120) mesh. The opening of the concrete mold is done after the concrete is 24 hours old and is treated for 28 days. After going through 28 days of treatment, the concrete was tested using the methods of water absorption, pressure strength test, XRD, and SEM tests. From the test results, the maximum concrete pressure strength was obtained at the grain size of 120 mesh with a composition of 6% with a value of 35.27 MPa. From the results of the water absorption test, it was found that there was a successive decrease in the composition of 4% red sand. XRD testing obtained elements in the form of SiO_2 , CaO_3 , Ca(OH)_2 with the highest silicon intensity. From the results of the SEM test, the size of the concrete structure with a mixture of red sand has fewer pores.

Keywords: *Compressive Strength, Concrete, Red sand, SEM, Water Absorption, XRD*

