PENGARUH PERBANDINGAN BATU SPLIT ASAL TANJUNG BALAI KARIMUN DAN TANJUNG PINANG TERHADAP KUAT TEKAN BETON PADA MUTU BETON FC 25 Mpa

Nama : Rayhan Maulana
Nim : 4103230005
Dosen pembimbing : Indriani Puluhulawa, M.Eng

ABSTRAK

Beton merupakan material konstruksi yang banyak digunakan karena memiliki kuat tekan tinggi serta berperan penting dalam menjamin kekuatan dan kestabilan struktur. Salah satu faktor yang memengaruhi kuat tekan beton adalah karakteristik agregat kasar yang digunakan. Penelitian ini bertujuan untuk mengetahui karakteristik fisik batu split asal Tanjung Balai Karimun dan Tanjung Pinang, menganalisis pengaruh perbedaan karakteristik tersebut terhadap kuat tekan beton mutu f'c 25 MPa, serta membandingkan hasil kuat tekan beton yang menggunakan kedua jenis agregat tersebut. Penelitian dilakukan secara eksperimental di Laboratorium PT. Dumai Jaya Beton dengan tahapan pengujian karakteristik agregat, meliputi kadar air, kadar lumpur, analisa saringan, berat volume, berat jenis, dan keausan (Los Angeles), kemudian dilanjutkan dengan Job Mix Design, slump test, pembuatan benda uji silinder berukuran 15 × 30 cm, perawatan beton, dan pengujian kuat tekan pada umur 7, 14, dan 28 hari sesuai standar SNI. Hasil penelitian menunjukkan bahwa agregat kasar asal Tanjung Balai Karimun memiliki karakteristik fisik yang lebih baik sehingga menghasilkan kuat tekan rata-rata sebesar 25,95 MPa, 26,23 MPa, dan 32,65 MPa pada umur 7, 14, dan 28 hari. Sementara itu, agregat kasar asal Tanjung Pinang menghasilkan kuat tekan rata-rata sebesar 22,84 MPa, 26,42 MPa, dan 27,18 MPa. Berdasarkan hasil penelitian dapat disimpulkan bahwa perbedaan karakteristik agregat kasar berpengaruh terhadap kuat tekan beton, dan agregat asal Tanjung Balai Karimun memberikan hasil yang lebih baik sehingga direkomendasikan sebagai agregat kasar untuk pembuatan beton mutu f'c 25 MPa.

Kata kunci: beton, agregat kasar, batu split, kuat tekan beton, Tanjung Balai Karimun, Tanjung Pinang.

THE EFFECT OF COMPARING COARSE AGGREGATES (CRUSHED STONE) FROM TANJUNG BALAI KARIMUN AND TANJUNG PINANG ON THE COMPRESSIVE STRENGTH OF CONCRETE WITH F'C 25 Mpa

Nama : Rayhan Maulana
Nim : 4103230005
Dosen pembimbing : Indriani Puluhulawa, M.Eng

ABSTRAK

Concrete is one of the most widely used construction materials due to its high compressive strength and its important role in ensuring structural stability. One of the main factors affecting concrete compressive strength is the physical characteristics of the coarse aggregate. This study aims to determine the physical characteristics of crushed stone from Tanjung Balai Karimun and Tanjung Pinang, analyze the effect of their differences on the compressive strength of 25 MPa (f'c 25 MPa) concrete, and compare the compressive strength produced by the two aggregate sources. The research was conducted experimentally at the Laboratory of PT. Dumai Jaya Beton. The testing program included aggregate property tests consisting of moisture content, mud content, sieve analysis, bulk density, specific gravity, and Los Angeles abrasion, followed by Job Mix Design, slump testing, preparation of cylindrical concrete specimens (15 × 30 cm), curing, and compressive strength testing at the ages of 7, 14, and 28 days in accordance with Indonesian National Standards (SNI). The results showed that the coarse aggregate from Tanjung Balai Karimun had better physical characteristics and produced average compressive strengths of 25.95 MPa, 26.23 MPa, and 32.65 MPa at 7, 14, and 28 days, respectively. Meanwhile, concrete made with coarse aggregate from Tanjung Pinang achieved average compressive strengths of 22.84 MPa, 26.42 MPa, and 27.18 MPa. It can be concluded that differences in coarse aggregate characteristics influence the compressive strength of concrete, and the coarse aggregate from Tanjung Balai Karimun provides better performance and is therefore recommended for producing 25 MPa (f'c 25 MPa) concrete.

Keywords: *concrete, coarse aggregate, crushed stone, compressive strength, Tanjung Balai Karimun, Tanjung Pinang.*