ABSTRAK

Try Vicky Benu (00000014360)

PENGARUH PENGGUNAAN *ACCELERATOR* DAN *FOAMED* PADA BALOK BETON

Skripsi, Fakultas Sains dan Teknologi (2021).

(xv + 69 halaman; 41 gambar; 8 tabel; 1 lampiran)

Beton merupakan salah satu bahan konstruksi yang banyak dipergunakan dalam struktur bangunan modern. Beton diperoleh dengan cara mencampurkan semen portland, air, pasir, kerikil, dan untuk kondisi tertentu bisa menggunakan bahan tambahan (admixture) yang berupa bahan kimia, serat dan bahan non kimia. Dalam dunia modern beton dimodifikasi untuk dapat menyesuaikan dengan kebutuhannya, salah satu dari bentuknya adalah beton ringan. Beton ringan memiliki kelebihan yaitu berat jenisnya yang rendah dengan berat jenis dibawah 1850 kg/m^3. Salah satu material yang dapat memodifikasi beton agar menjadi ringan adalah foam. Pada penelitian ini, digunakan bahan foam sebagai bahan material beton untuk perancangan balok dan dengan penambahan accelerator guna mendapatkan kuat tekan awal yang lebih tinggi. Metode pengecoran yang digunakan yaitu pengadukan beton dan foam agent beserta accelerator selesai pada waktu bersamaan dan metode curing menggunakan perendaman penuh. Pada proses penelitian didapatkan hasil berat jenis accelerator foamed concrete rata-rata sebesar 1814 kg/m^3. Hasil uji lentur balok didapatkan, balok accelerator foamed concrete 1 memiliki momen ultimate teoritis 14,06 kNm dan momen ultimate aktual 12,769 kNm. Balok accelerator foamed concrete 2 memiliki momen ultimate teoritis 14,06 kNm dan momen ultimate aktual 11,69 kNm. Hasil cek kuat geser balok didapatkan, balok accelerator foamed concrete 1 memiliki kuat geser ultimate 16,06 kN dan kuat geser nominal 23,84 kN. Balok accelerator foamed concrete 2 memiliki kuat geser ultimate 14,74 kN dan kuat geser nominal 23,84 kN. Perbandingan uji tekan silinder accelerator foamed concrete menunjukkan bahwa hasil kuat tekan accelerator foamed concrete mencapai 21 MPa di hari ke-28.

Kata Kunci : accelerator foamed concrete, balok beton, karakteristik, kuat tekan, kuat lentur

Referensi : 25 (1998-2020)

ABSTRACT

Try Vicky Benu (00000014360)

PENGARUH PENGGUNAAN *ACCELERATOR* DAN *FOAMED* PADA BALOK BETON

Thesis, Faculty of Science and Technology (2021).

(xv + 69 pages; 41 figures; 8 tables; 1 appendices)

Concrete is one of the most widely used construction materials in modern building structures. Concrete is obtained by mixing portland cement, water, sand, gravel, and for certain conditions you can use admixtures in the form of chemicals, fibers and non-chemicals. In the modern world, concrete is modified to suit its needs, one of the forms is lightweight concrete. Lightweight concrete has the advantage of low specific gravity with a specific gravity below 1850 kg/m3. One of the materials that can modify concrete to make it lighter is foam. In this study, foam was used as a concrete material for beam design and with the addition of an accelerator to obtain a higher initial compressive strength. The casting method used is the mixing of concrete and foam agent along with the accelerator completed at the same time and the curing method using full immersion. In the research process, it was found that the specific gravity of the foamed concrete accelerator was 1814 kg/m3 on average. The beam flexural test results obtained, foamed concrete accelerator 1 has a theoretical ultimate moment of 14.06 kNm and an actual ultimate moment of 12.769 kNm. The foamed concrete accelerator beam 2 has a theoretical ultimate moment of 14.06 kNm and an actual ultimate moment of 11.69 kNm. The results of the beam shear strength check show that the foamed concrete 1 accelerator beam has an ultimate shear strength of 16.06 kN and a nominal shear strength of 23.84 kN. The foamed concrete accelerator beam 2 has an ultimate shear strength of 14.74 kN and a nominal shear strength of 23.84 kN. Comparison of the compression test of the foamed concrete accelerator cylinder showed that the results of the compressive strength of the foamed concrete accelerator reached 21 MPa on the 28th day.

Keywords : accelerator foamed concrete, concrete beam, characteristics, compressive strength, bending test

References : 25 (1998-2020)