

Studi karakteristik beton ringan cangkang kelapa sawit dengan menggunakan bahan tambah 1.2 superplasticizer dan variasi silica fume = The study of oil palm shell ops lightweight concrete characteristic using 1 2 superplasticizer and variation of silica fume

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Abstrak

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Perkembangan dari teknologi beton di Indonesia yang semakin pesat mengakibatkan penggunaan material beton sebagai komponen struktur semakin meningkat. Dengan meningkatnya penggunaan beton maka mengakibatkan meningkatnya kebutuhan material penyusun beton. Disisi lain banyaknya limbah cangkang kelapa sawit di Indonesia yang masih sedikit pemanfaatannya dan menjadi limbah yang tertumpuk. Sehingga dilakukan penelitian beton ringan dengan menggunakan limbah cangkang kelapa sawit sebagai pengganti agregat kasar dengan penambahan bahan tambah yaitu superplasticizer dan silica fume. Penelitian ini menggunakan agregat kasar cangkang kelapa sawit dengan menggunakan bahan tambah 1.2 superplasticizer dan variasi dari silica fume sebesar 3.5 , 5 , 6.5 , dan 8 . Beton dengan bahan tambah 1.2 superplasticizer dan 6.5 silica fume memiliki nilai kuat tekan optimum. Kuat tarik lentur beton optimum dimiliki oleh beton dengan bahan tambah 1.2 superplasticizer dan 6.5 silica fume. Nilai modulus elastisitas tertinggi dimiliki oleh beton dengan bahan tambah 1.2 superplasticizer dan 5 silica fume. Nilai daya serap air beton terendah dimiliki oleh beton dengan bahan tambah 1.2 superplasticizer dan 5 silica fume. Nilai susut tertinggi dimiliki oleh beton dengan bahan tambah 1.2 superplasticizer dan 6.5 silica fume.

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**ABSTRACT**

The development of concrete technology in Indonesia is growing rapidly resulting in the use of concrete materials as structural components is increasing. With the increasing use of concrete then resulted in an increased need for concrete constituent materials. On the other hand the amount of waste in the Indonesian palm kernel shells are still slightly utilization and waste pile into. So that the lightweight concrete research done by using waste palm shells as a substitute for coarse aggregate with the addition of the added material is superplasticizer and silica fume. This study uses a coarse aggregate palm shells by using materials added 1.2 superplasticizer and silica fume variation of 3.5 , 5 , 6.5 and 8 . Concrete with added material superplasticizer 1.2 and 6.5 silica fume have optimum compressive strength value. Optimum flexural tensile strength of concrete is owned by the concrete with added material superplasticizer 1.2 and 6.5 silica fume. The highest value of the modulus of elasticity is owned by the concrete with added material superplasticizer 1.2 and 5 silica fume. The value of the lowest water absorption of concrete with material owned by concrete superplasticizer added 1.2 and 5 silica fume. The highest value is owned by the shrinkage of concrete with added material superplasticizer 1.2 and 6.5 silica fume.