

VARIASI PENAMBAHAN *SILICA FUME* TERHADAP BETON *SELF COMPACTING CONCRETE* (SCC)

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Abstrak

Self Compacting Concrete (SCC) merupakan beton yang dapat memadat sendiri dengan *slump* yang tinggi, tanpa mengalami segregasi. Beton SCC memerlukan bahan tambah (*admixture*) seperti *superplasticizer* dan *Silika Fume* untuk melengkapi kinerja beton pada semen. Pada penelitian ini menggunakan *Superplasticizer* Sika fiscocrete-8045P dengan variasi dosis campuran yaitu sebesar 1.6% dan 1.7%. Pada variasi dosis campuran *silica fume* yang ditambahkan yaitu 6%, 7%, 8%, 9% dan 10% dari berat semen. Penelitian ini dilakukan untuk mengetahui pengaruh penambahan *silica fume* terhadap kuat tekan beton SCC. Pengujian pada beton yang dilakukan meliputi *slump flow test*, *segregation resistance test*, *filling ability test* dan uji kuat tekan pada usia beton 7, 14 dan 28 hari. Penambahan *silica fume* dan *Superplasticizer* berpengaruh pada kuat tekan beton. Kuat tekan tertinggi didapat pada variasi dosis *Superplasticizer* 1.7% dengan campuran *silica fume* sebanyak 8% pada usia 28 hari mencapai kuat tekan 93.97 MPa. Sedangkan pada komposisi *Superplasticizer* 1.6% dengan campuran *silica fume* sebanyak 9% pada usia 28 hari mencapai kuat tekan 87.80 MPa. Untuk melengkapi hasil penelitian, dapat dilakukan pengujian *slump loss* pada beton segar serta pengujian kuat geser dan lentur pada beton yang telah mengeras.

Kata kunci: *Admixture, Self Compacting Concrete, Silica Fume, Superplasticizer, Kuat Tekan.*

VARIATION OF THE ADDITION OF SILICA FUME TO SELF COMPACTING CONCRETE (SCC)

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Abstract

Self Compacting Concrete (SCC) is concrete that can compact itself with a high slump, without experiencing segregation. SCC concrete requires additives (admixture) such as superplasticizers and Silica Fume to complement the cement performance. In this study, using Superplasticizer Sika Fiscocrete-8045P with mixed dosage variations, namely 1.6%, and 1.7%. In various doses, the added mixture of silica fume is 6%, 7%, 8%, 9% and 10% by weight of cement. This research was conducted to determine the effect of adding silica fume on the compressive strength of SCC concrete. Testing on concrete includes the slump flow test, segregation resistance test, filling ability test, and compressive strength test at 7, 14, and 28 days of concrete. The addition of silica fume and Superplasticizer affects the compressive strength of concrete. The highest compressive strength was obtained at the Superplasticizer dosage variation of 1.7% with a mixture of 8% silica fume at 28 days of age reaching 93.97 MPa. Meanwhile, the composition of Superplasticizer 1.6% with a mixture of 9% silica fume at 28 days of age reached a compressive strength of 87.80 MPa. To complete the research results, slump loss testing on fresh concrete can be carried out as well as testing the shear and flexural strength of hardened concrete.

Keywords: Admixture, Self Compacting Concrete, Silica Fume, Superplasticizer, Compressive Strength.