

Abstract

Developments in the construction sector directly demand the development of concrete technology. At the precast concrete factory PT Hakaaston, the author wants to test the combination of a superplasticizer additive with a quick setting additive in order to produce a more efficient precast concrete production process so that the molding cycle time is shorter. With a short cycle will automatically increase production capacity. This study aims to determine the effect of the "MasterRoc SA 192" quick setting additive on the compressive strength by using the "MasterGlenium ACE 8311" additive with a target f_c 50 at variations in quick setting levels of 0%, 3%, 4%, 8%, 12%, and 16%. In the implementation, a concrete cylinder test object measuring 30 cm and a diameter of 15 cm is made, each variation of which is made as many as 3 specimens and a concrete compressive test will be carried out at the age of 8 hours, 1 day, 3 days, 28 days. The concrete jobmix used uses an existing jobmix with the addition of a quick setting additive to find out the comparison. From the results of the study, the optimal percentage of quick setting additives to accelerate the initial strength of concrete was obtained at a level of 3%. In the test results, the highest increase was obtained in the 8-hour to 1-day test, but the 28-day test did not meet the desired target. The use of quick setting additives is not recommended with levels above 4% because the use above 4% has decreased both in 8 hours and 1 day testing.

Keywords : Concrete, Compressive Strength, Accelerator.

ABSTRAK

Judul : Pengaruh Penambahan Additive Quick Setting "MasterRoc SA 192" Terhadap Kuat Tekan Beton Mutu Tinggi Dengan Additive "MasterGlenium ACE 8311"

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Perkembangan pembangunan di bidang konstruksi secara langsung menuntut perkembangan teknologi beton. Di pabrik beton precast PT Hakaaston penulis ingin menguji coba kombinasi antara additive superplasticizer dengan additive quick setting agar menghasilkan proses produksi beton precast yang lebih efisien agar waktu siklus perputaran moulding lebih singkat. Dengan siklus yang singkat otomatis akan menambah kapasitas produksi. Penelitian ini bertujuan untuk mengetahui pengaruh *additive quick setting* “MasterRoc SA 192” terhadap kuat tekan dengan menggunakan *additive* “MasterGlenium ACE 8311” dengan target $f'c$ 50 pada variasi kadar *quick setting* 0%, 3%, 4%, 8%, 12%, dan 16%. Dalam pelaksanaannya dibuat benda uji silinder beton berukuran 30 cm dan diameter 15 cm yang masing-masing variasi dibuat benda uji sebanyak 3 buah dan akan dilakukan uji tekan beton pada umur beton 8 jam, 1 hari, 3 hari, 28 hari. Jobmix beton yang digunakan menggunakan jobmix yang sudah ada dengan penambahan *additive quick setting* untuk mengetahui perbandingannya. Dari hasil penelitian diperoleh persentase optimal *additive quick setting* untuk mempercepat kuat awal beton didapatkan pada kadar 3%. Pada hasil pengujian peningkatan tertinggi didapat pada pengujian 8 jam hingga 1 hari, namun untuk pengujian di 28 hari belum memenuhi target yang diinginkan. Penggunaan *additive quick setting* tidak disarankan dengan kadar diatas 4% karena penggunaan diatas 4% mengalami penurunan baik di pengujian 8 jam maupun 1 hari.

Kata kunci : *Additive quick setting, accelerator beton*