

PENGARUH ADMIXTURE POLYCARBOXYLATE DAN NAPHTHALENE TERHADAP KUAT TEKAN BETON NORMAL

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ABSTRAK

Dalam beton salah satu yang mempengaruhi kuat tekan adalah bahan tambahan (*admixture*). Dalam penelitian ini dianalisa kuat tekan beton yang dihasilkan dengan menggunakan *superplasticizer* type *Naphthalene* merek *Mighty* dan *Polycarboxylate* merek *Tamcem 60RA* dibandingkan dengan beton normal tanpa menggunakan *admixture*. Target mutu beton rencana adalah $f'c$ 34,32 Mpa, penelitian dan pengujian dilakukan pada bulan April 2021 di Laboratorium Beton milik PT Jaya Beton Indonesia Site Medan. Penambahan *admixture* yang digunakan sebesar 1% dari berat semen yang digunakan, pengujian kuat tekan beton dilakukan pada umur beton mulai dari 7, 14, dan 28 hari dan target slump adalah 70 mm. *Superplasticizer* jenis *Naphthalene* mampu mengurangi air sampai 24,78%, sedangkan *superplasticizer* jenis *Polycarboxylate* mampu mengurangi penggunaan air sebesar 12,19%. Hasil kuat tekan beton meningkat dengan menggunakan *admixture superplasticizer Polycarboxylate* mencapai peningkatan mutu beton 12,19% dan dengan menggunakan *Naphthalene* peningkatan mutu beton mencapai 2,98% dari mutu beton normal. Dari perhitungan analisa harga satuan bahan didapatkan untuk membuat $1m^3$ beton normal untuk mutu $f'c$ 34,32 Mpa (K-350) didapat dengan harga Rp. 1.113.806, tetapi dengan *mix design* beton normal dengan ditambahkan *superplasticizer* 1% dari berat semen maka kuat tekan meningkat hingga $f'c$ 43,13 Mpa (K-439) dengan harga Rp1.527.044.

Kata Kunci : Beton normal, Naphthalene, Polycarboxylate, Superplasticizer.

THE EFFECT OF ADMIXTURE POLYCARBOXYLATE AND NAPHTHALENE ON THE COMPRESSIVE STRENGTH OF NORMAL CONCRETE

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ABSTRACT

In concrete, one that affects the compressive strength is the admixture. In this study, the compressive strength of the concrete produced using the Superplasticizer type Naphthalene Mighty brand and Polycarboxylate brand Tamcem 60RA was analyzed compared to normal concrete without using admixture. The planned concrete quality target is $f'c$ 34.32 MPa, research and testing will be carried out in April 2021 at the Concrete Laboratory owned by PT Jaya Beton Indonesia Site Medan. The addition of admixture used is 1% of the weight of the cement used, the compressive strength test of the concrete is carried out at the age of the concrete starting from 7, 14, and 28 days and the slump target is 70 mm. Naphthalene type superplasticizer can reduce water up to 24.78%, while Polycarboxylate type superplasticizer can reduce water use by 12.19%. The results of the increased compressive strength of concrete using Polycarboxylate superplasticizer admixture achieved a 12.19% increase in concrete quality and by using Naphthalene the concrete quality improvement reached 2.98% from normal concrete quality. From the calculation of the unit price analysis, it is obtained to make $1m^3$ of normal concrete for the quality $f'c$ 34.32 Mpa (K-350) obtained at a price of Rp. 1,113,806, but with a normal concrete mix design with added superplasticizer 1% of the weight of cement, the compressive strength increases to $f'c$ 43.13 Mpa (K-439) at a price of Rp. 1,527,044.

Keywords: *Normal concrete, Naphthalene, Polycarboxylate, Superplasticizer.*