

ABSTRAK

Beton adalah salah satu bahan konstruksi yang umum digunakan pada infrastruktur. Perkembangan infrastruktur perlu didukung dengan teknologi terbaru seperti *self-compacting concrete*. *Self-compacting concrete* merupakan beton inovatif yang sudah banyak digunakan dilapangan dengan kelebihan mampu mempersingkat waktu pekerjaan, meminimalisir rongga pada beton, mengisi ruang pada celah sempit, dan memadat sendiri. Penelitian ini bertujuan untuk menganalisis *fresh properties* dan kuat tekan *self-fiber compacting concrete* dengan bahan tambah *zeolite* dan serat *nylon*. *Zeolite* sebagai pengganti semen digunakan dengan kadar 0%, 5%, 10%, dan 15% serta serat *nylon* 1% dari berat semen, ditambahkan dengan tujuan untuk meningkatkan kuat tekan dari *self-fiber compacting concrete*. Adapun *superplasticizer* jenis sikament LN dengan kadar 1,5% digunakan untuk meningkatkan *workability*. Penambahan *zeolite* dan serat *nylon* terhadap pengujian sifat beton segar telah memenuhi standar yang ditetapkan EFNARC (2005). Pengujian kuat tekan dilakukan pada umur beton 7, 14, dan 28 hari menggunakan benda uji silinder. Berdasarkan hasil pengujian, didapatkan hasil kuat tekan tertinggi pada penambahan *zeolite* 5% dan serat *nylon* 1% pada umur 28 hari, yaitu sebesar 34,4 MPa. Penambahan *zeolite* 5% dan serat *nylon* 1% pada umur 7, 14, dan 28 hari berturut-turut mengalami kenaikan sebesar 14%, 13%, dan 4% dari beton normal. Sedangkan pada penambahan *zeolite* 10% dan 15% mengalami penurunan kuat tekan jika dibandingkan dengan beton normal.

Kata kunci: *self-fiber compacting concrete*, *zeolite*, serat *nylon*, sikament LN, dan kuat tekan beton.

ABSTRACT

Concrete is one of the commonly used construction materials in infrastructure. Infrastructure development needs to be supported by renewable technology such as self-compacting concrete. Self-compacting concrete is renewable technology concrete that is already widely used in the field with the advantages of being able to shorten the time of work, minimize the cavity in concrete, fill the space on the narrow gaps, and self-compacting. The purpose of this research is to analyze the fresh properties and compressive strength for self-fiber compacting concrete with zeolite and nylon fiber added. Zeolite as a replacement for cement used with contents of 0%, 5%, 10%, and 15% also nylon fiber 1% of the weight cement is added, with the aim to increase the compressive strength from self-fiber compacting concrete. As for the sikament LN is type superplasticizer with the content of 1.5% used to increase workability. The addition of zeolite and nylon fiber against testing fresh properties in concrete has fulfilled a standard set EFNARC (2005). Compressive strength test does do of the concrete age 7, 14, 28 days using cylinder mold. In summary, this results is compressive strength highest on zeolite added 5% and 1% nylon fiber at the age of 28 days, amounted to 34,4 MPa. The addition of zeolite 5% and 1% nylon fiber at the age of 7, 14, and 28 days respectively increased of 14%, 13%, and 4% from normal concrete. While for zeolite addition on the 10% and 15% decrease of compressive strength when compared to normal concrete.

Keywords: self-fiber compacting concrete, zeolite, nylon fiber, sikament LN, and compressive strength.