

ABSTRAK

Beton merupakan salah satu dari bahan konstruksi yang biasanya digunakan pada pembangunan infrastruktur. Pada era pembangunan yang modern ini banyak sekali variasi tambahan yang digunakan untuk beton seperti tambahan serat. Serat tambahan yang digunakan adalah serat limbah plastik HDPE (*High Density Polyethylene*) dikarena untuk mengurangi penumpukan limbah plastik yang sangat mencemari lingkungan. Variasi tambahan serat limbah plastik HDPE sebesar 0%, 2%, 4%, dan 6% dari berat agregat kasar (kerikil). Serat ditambahkan dengan tujuan agar mengurangi limbah plastik HDPE dan mengurangi berat beton. Pengujian kuat tekan beton dilakukan pada umur 7 hari dan 28 hari menggunakan benda uji silinder dengan total benda uji 24 buah. Berdasarkan hasil pengujian kuat tekan, didapatkan kuat tekan beton tambahan serat limbah plastik HDPE variasi 2% sebesar 13,72 MPa pada umur 28 hari. Pada kuat tekan beton tambahan serat limbah plastik HDPE dari variasi 0%, 2%, 4%, dan 6% pada umur 7 hari mengalami penurunan sebesar 13%, 15%, dan 34% dan pada umur 28 hari mengalami penurunan sebesar 36%, 51%, dan 50% dari kuat tekan beton normal. Sedangkan untuk berat beton serat variasi 2%, 4%, dan 6% mengalami penurunan sebesar 1,2%; 2,6%; dan 3,6% dari berat beton normal.

Kata – kata kunci: Beton Serat, Serat Limbah Plastik HDPE, Plastik HDPE, Berat Beton Serat, dan Kuat Tekan Beton

ABSTRACT

Concrete is one of the construction materials which is usually used in infrastructure development. In this modern development era, there are many additional variations used for concrete such as additional fiber. The additional fiber used is HDPE plastic waste fiber (High-Density Polyethylene) due to reducing the accumulation of plastic waste which is very polluting the environment. Additional variations of HDPE plastic waste fibers are 0%, 2%, 4%, and 6% of the weight of coarse aggregate (gravel). Fiber is added to reduce HDPE plastic waste and reduce the weight of concrete. Testing of concrete compressive strength was carried out at 7 days and 28 days using cylindrical specimens with a total of 24 pieces of specimens. Based on the results of the compressive strength test, the concrete compressive strength of the HDPE plastic waste variation of 2% was obtained at 13.72 MPa at 28 days. In the concrete compressive strength, additional HDPE plastic waste fibers from variations of 0%, 2%, 4%, and 6% at 7 days of age decreased by 13%, 15%, and 34% and at 28 days decreased by 36%, 51%, and 50% of normal concrete compressive strength. Whereas for the weight of fiber concrete variations of 2%, 4%, and 6% decreased by 1.2%; 2.6%; and 3.6% of the weight of normal concrete.

Key words : Concrete Press Strength, Fiber Concrete, Fiber Concrete Weight, HDPE Fiber Plastic Waste, and HDPE Plastic