PENGARUH PENAMBAHAN SERAT PLASTIK *POLYETHYLENE TEREPHTHALATE* 0,43%, 0,45% DAN 0,47% TERHADAP KUAT TEKAN BETON

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ABSTRAK

Perkembangan pembangunan di Indonesia mengalami peningkatan yang begitu pesat sehingga kebutuhan akan bahan bangunan juga semakin bertambah besar permintaannya. Beton merupakan salah satu bahan bangunan yang sering digunakan karena memiliki nilai kuat tekan yang tinggi, akan tetapi lemah terhadap kuat tarik dan kuat lentur. Penggunaan bahan tambah dalam campuran beton. Penambahan Polyethylene Terephthalate (PET) adalah salah satu upaya dalam mengurangi sampah plastik yang penggunaannya banyak di masyarakat.Dalam melakukan penelitian penambahan Polyethylene Terephthalate (PET) pada campuran beton bertujuan untuk mengetahui pengaruh serat beton terhadap kuat tekan, dan perbandingan kuat tekan rata-rata, Variasi persentase penambahan serat Polyethylene Terephthalate (PET) sebesar 0,43%, 0,45%, dan 0,47%. Benda uji yang digunakan adalah silinder beton dengan diameter 15 cm dan tinggi 30 cm, Perencanaan campuran beton menggunakan metode SNI 03-2834-2000 dengan kuat tekan rencana sebesar 30 MPa Berdasarkan hasil pengujian kuat tekan beton dengan persentase 0,43% didapatkan bahwa sampel uji no 1 memiliki kuat tekan sebesar 31,509 MPa, sampel uji no 2 kuat tekannya sebesar 31,321 MPa, dan sampel uji no 3 kuat tekannya sebesar 31.060 MPa. Sedangkan persentase 0,45% didapatkan bahwa sampel uji no 1 memiliki kuat tekan sebesar 31,902 MPa, sampel uji no 2 kuat tekannya sebesar 30,002 MPa, dan sampel uji no 3 kuat tekannya sebesar 32,297 MPa. Terakhir dengan Persentase 0,47% didapatkan bahwa sampel uji no 1 memiliki kuat tekan sebesar 32,822 MPa, sampel uji no 2 kuat tekannya sebesar 30,900 MPa, dan sampel uji no 3 kuat tekannya sebesar 32,194 MPa. Dari pengujian-pengujian tersebut di atas maka dapat disimpulkan bahwa beton dengan penambahan serat PET mengalami kenaikan yang cukup significan dibandingkan dengan kuat tekan rencana yang ditentukan..

Kata Kunci : beton, silinder, kuat tekan, PET, Slump

EFFECT OF 0.43%, 0.45% AND 0.47% POLYETHYLENE TEREPHTHALATE PLASTIC FIBER ADDITION ON THE COMPRESSIVE STRENGTH OF CONCRETE

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ABSTRACT

The development of development in Indonesia has increased so rapidly that the demand for building materials has also increased. Concrete is a building material that is often used because it has a high compressive strength value, but is weak in tensile strength and flexural strength. The addition of Polyethylene Terephthalate (PET) is one of the efforts to reduce plastic waste, which is widely used in society. Research on the addition of Polyethylene Terephthalate (PET) to concrete mixtures aims to determine the effect of concrete fibers on compressive strength and average compressive strength ratio. Variations in the percentage of addition of Polyethylene Terephthalate (PET) fibers were 0.43%, 0.45% and 0.47%. The test object used was a concrete cylinder with a diameter of 15 cm and a height of 30 cm. The design of the concrete mix used the SNI 03-2834-2000 method with a design compressive strength of 30 MPa. Based on the results of the concrete compressive strength test with a percentage of 0.43%, it was found that the test sample No. 1 has a compressive strength of 31.509 MPa, test sample No. 2 has a compressive strength of 31.321 MPa, and test sample No. 3 has a compressive strength of 31,060 MPa. While the percentage of 0.45% found that test sample No. 1 had a compressive strength of 31.902 MPa, test sample No. 2 had a compressive strength of 30.002 MPa, and test sample No. 3 had a compressive strength of 32.297 MPa. Finally, with a percentage of 0.47%, it was found that test sample No. 1 had a compressive strength of 32.822 MPa, test sample No. 2 had a compressive strength of 30.900 MPa, and test sample No. 3 had a compressive strength of 32.194 MPa. From the tests mentioned above, it can be concluded that concrete with the addition of PET fiber has increased significantly compared to the specified design compressive strength.

Keywords: concrete, cylinder, compressive strength, PET, Slump