

Analysis Of The Effect Of Adding Waste Tires To Concrete

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ABSTRACT

Tires waste is one of the largest waste contributor. Due to the abundant amounts it is necessary the right way to utilize waste tires. One of them by adding on mix design and substitute fine aggregate on concrete. Tire used steel fiber is a fine-shaped wire material produced from the residual burning of used truck tires. Rubber crumb (crumb rubber) is a material in the form of small pieces of waste tires used.

The concrete test specimens were 15 x 30 cm in size and planned according to SNI 03-2847-2002, FAS value 0.54, slump 80-130 mm, mixed proportions there are 4 variations : normal concrete mix, 5%, 1% and 1.5% by weight of mix design and tire rubber with variation of 5%, 10% and 15% from the weight of fine aggregate. Test parameters are slump test, concrete Absorption, compressive strength of concrete, and tensile strength of concrete. For porosity testing conducted on day 28, while for concrete compressive strength test and concrete tensile strength conducted on days 7, 14, and 28.

The addition of tire steel fiber to the used design mix and rubber counts as a substitute for fine aggregate can increase the compressive strength of concrete and tensile strength of concrete. The highest value of compressive strength is concrete variation 1 (0.5% steel fiber and 5% rubber count) which is 21,692 MPa, (increase of 14%) from normal concrete compressive strength of 18,958 MPa. The highest tensile strength values are 3 variations of concrete (1.5% steel fiber and 15% rubber proof) of 2.24 MPa, (increase of 9%) from the normal bellah pull strength of 2,051 MPa. For Absorption in can the average value on each variation of 3.16%. For testing the weight of concrete in can be an average value of 12.25 kg.

Keywords: *Waste Tires, Concrete Compressive Strength, Concrete Tensile strength*