

Polyolefin Fiber Reinforced Self-Compacting Concrete Replacing 20% Cement by Fly Ash

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Abstract : This paper deals with the behavior of concrete's workability in a fresh state and compressive and flexural strength in a hardened state with the addition of polyolefin macro fibers. Four different amounts (3kg/m³, 4.5kg/m³, 6kg/m³ and 9kg/m³) of polyolefin macro fibers mixed in concrete mixture to observe the workability and strength properties difference between the concrete specimens. 20% class C type fly ash added is the concrete as replacement of cement. The water-cement ratio(W/C) of those concrete mix was 0.35. Masterglenium SKY 700 superplasticizer was added to the concrete mixture for better results. Slump test was carried out for determining the flowability. On 7th, 14th and 28th day of curing process compression strength tests were done and on 28th day flexural strength test and CMOD test were carried to differentiate the strength properties and post-cracking behavior of concrete samples.

Keywords : self-compacting concrete, polyolefin fibers, fiber reinforced concrete, CMOD test of concrete

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