

عنوان مقاله:

APPLICATION OF HYBRID FIBER REINFORCEMENT AND HIGH VOLUME COARSE FLY ASH IN SELF COMPACTING CONCRETE

محل انتشار:

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خلاصه مقاله:

Self compacting concrete is termed as a concrete with high flow ability and cohesiveness which can fill its mold without the need of any extra vibration effort. Fiber inclusion to concrete enhances the mechanical properties, while making the concrete less workable. This article presents a study on the fresh and mechanical properties of a fiber reinforced self compacting concrete incorporating high volume fly ash that does not meet the fineness requirements of ASTM C 618. A poly carboxylic based superplasticizer was used in combination with a viscosity modifying admixture. In mixes containing fly ash, 50% of cement by weight was replaced with fly ash. Two different types of steel fibers were used in combination, keeping the total fiber content constant at 60 kg/m³. Slump flow time and diameter, V funnel, and air content were performed to assess the fresh properties of the concrete. Compressive strength, split tensile strength, and ultrasonic pulse velocity of the concrete were determined for the hardened properties. It can be concluded that high-volume coarse fly ash could successfully be used in producing fiber reinforced SCC. Even though there is some reduction in the concrete strength, because of the use of high-volume coarse fly ash, it is possible to achieve self compaction with considerable fiber inclusion.

کلمات کلیدی:

self compacting concrete, fiber reinforcement, high volume coarse fly ash, fresh properties, ultrasonic test

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