عنوان مقاله:

Strength and Toughness of Reinforced Concrete with Coated Steel Fibers

محل انتشار:

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خلاصه مقاله:

The effect of zinc phosphate (ZP) and zinc calcium phosphate (ZCP) coatings on the reinforcing mechanisms of smooth steel fiber in cementitious matrix have been studied. The results of pull out tests illustrated that by coating smooth steel fiber the pull-out load may be increased up to 100%. The effect of zinc phosphate coating on interface bonding was more than zinc-calcium phosphate coating. This could be due to formation of large crystals in zinc phosphate coating and its tendency to react in alkaline environment of cementitious matrix. This behavior was also confirmed by SEM analysis. The obtained results from a mathematical model for pull-out energy were in good agreement with the experimental results. The results indicated that coating of fibers with zinc based ceramics could improve the composite s mechanical properties as well as its chemical stability.

کلمات کلیدی:

Cementitious matrix composite, Pull out strength, Fracture toughness, Interface characteristics