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THE EFFECT OF PLASTIC WASTE FIBERS ON MORTAR PERFORMANCE

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Abstract

This paper studies the possibility of using plastic waste fiber in the mortar, and aims to find the optimum percentage of fiber to improve the properties of mortar. The plastic fiber is used as a volume substitution in dune sand and it used with rates of 5%, 10%, 15%, 20%, 25%, and 30%. Specifically, the mechanical properties as compressive and tensile strength and durability performance as capillary and immersion absorption, the depth of chloride penetration and the loss of weight were measured. The results show that the incorporation of waste plastic fiber reduces the compressive strength and enhances the flexural tensile strength. The use of waste plastic fibers indicates the good behavior to mortars in aggressive environment.

Keywords: Cement; Durability; Mortar; Plastic fibers; Performance; Substitution; Waste.