بيانات البحث رقم (8)

عنوان البحث:

Effect of recycle waste Fine Aggregate Replacement on Strength and Corrosion of Steel Bars Exposed to Various Environmental Conditions of Polypropylene Fiber Concrete

مكان النشر:

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This study investigated effect of using recycle waste material as a sand replacement on fresh and hardened fiber concrete properties. Three types of recycle material (15% marble waste, 28% red brick waste and 20% ceramic waste) were used as sand replacement. Proportions of mixes determined using ACI 318-2019 recommendations. Compressive strength of concrete and corrosion of steel bars are determined at ages of 28, 60, 90, 180 and 270 days for samples immersed in pure water and sea water. From test results, it was observed that the slump and compacting factor decreased with using recycle waste sand replacement. Compressive strength of polypropylene fiber concrete at 270 days for samples immersed in pure water, increased by 12.2%, 10.8% and 9.5% of that without sand replacement for 15% marble waste, 28% red brick waste and 20% ceramic waste sand replacement، respectively. While it increased by 5.0%, 3.75% and 2.5% of that without sand replacement for samples immersed in sea water with 15% marble waste, 28% red brick waste and 20% ceramic waste sand replacement, respectively. Corrosion rate of steel bars for polypropylene fiber concrete samples with sand replacement is smaller than that of polypropylene fiber concrete without sand replacement (100% sand). Reduction in corrosion rate of polypropylene fiber concrete samples immersed in sea water at 270 days with 15% marble waste, 28% red brick waste and 20% ceramic waste sand replacement is 32.4%, 22.3% and 40% of that without sand replacement, respectively.

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عنوان الرسالة : تآكل الخرسانة الليفية المستخدم فيها ركام صغير معاد تدويرة.

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