

The Possibility of Producing Waste Plastic Reinforced Eco-Friendly Recycled Aggregate Concrete

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Abstract

This article aims to study the mechanical properties of concrete containing the recycled and crushed aggregate instead of normal aggregate separately, and reinforced with volumetric ratios equal to (0.25,0.5,0.75,1,1.25 and 1.5)% of plastic fibers, which produced by cutting the plastic water bottles as a partial replacement from volume of coarse aggregate. Preliminary results showed that the compressive strength of recycled aggregate concrete(RAC) increased with increasing the waste plastic fibers (PET) more than the observed values of crushed aggregate concrete(CAC), while the results showed that the splitting tensile strength of concrete samples containing recycled aggregate have a higher splitting tensile strength than those containing the crushed aggregate. On the other hand, it was noted that the increasing in the proportions of PET from (0.25-1) % showed an increase in compressive and splitting tensile strength, but after the ratio of PET used equal to (1%), it was observed a decreasing in both of compressive and splitting tensile strength