

Effect of Eggshell Waste Powder on Impact Resistance and Bond Characteristics of Reinforced Concrete

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Abstract. This research studied the effect of eggshell powder as a partial replacement of cement on fresh and hardened properties of concrete. The cement was partially replaced with eggshell powder at these percentage 0%, 2.5 %, 5 %, 7.5% and 10%, (by weight of cement). The resulting concrete was compared for impact resistance, energy absorption, load-slip characteristics and ultimate bond strength. setting time (initial and final), slump, density and compressive strength also have been found. The results showed that the 2.5% ESP gave the highest energy capacity under impact load. For ESP content higher than 7.5% the energy capacity was reduced and 2.5% ESP gave the highest bond strength. For ESP content higher than 7.5% the bond strength was reduced. The concrete unit weight has not obviously affected by eggshell powder content. The 2.5% eggshell powder give the best results compared to reference mix.