

Fresh, Mechanical Properties and Impact Resistance Behavior of Eco-Friend Self-Compacted Concrete

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Abstract: In this work, waste glass powder from broken windows and plastic fibers from waste polyethylene terephthalate bottles are utilized to produce an economical self-compact concrete. Fresh properties (slump flow diameter, slump Flow T50, V. Funnel, L- Box), mechanical properties (Compressive strength and Flexural strength) and impact resistance of self-compact concrete are investigated. 15% waste glass powder as a partial replacement of cement with five percentages of polyethylene terephthalate plastic waste were adopted: 0% (reference), 0.5%, 0.75%, 1%, 1.25% and 1.5% by volume. It seems that the flow ability of self-compact concrete decreases with the increasing of the amount of plastic fibers. The compressive strength was increased slightly with plastic fiber content up to (0.75%), about 4.6% For more than (0.75%) plastic fiber. The compressive strength began to decrease about 15.2%. The results showed an improvement in flexural strength and an impact on the resistance in all tested specimens' content of the plastic fibers, especially at (1.5%) fibers.