

The Effects of adding Waste Plastic Fibers on the Flexural Toughness of Normal Concrete

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This study aims to apply the concept of sustainability to reduce the environmental pollution which is represented by the accumulation of waste plastic of soft drink bottles. The Polyethylene Terephthalate (PET) fibers that were obtained from cutting the plastic bottles were added to the ordinary concrete with volume fraction (0.25, 0.5, 0.75, 1, 1.25 and 1.5%) to study the effect of these fibers on the flexural toughness and performance of Fiber-Reinforced Concretes (FRC). The flexural toughness was calculated according to ASTM C1018 and ASTM C1609 in addition to ASTM C78 that was adopted to measure the modulus of rupture for all fibers percentage. The results indicate to enhance each of the modulus of rupture and toughness indices with the presence of the waste plastic fibers in concrete until fibers content 1.25% which has the highest percentage of increase in the modulus of rupture that reached to 8.88%) at 28 days.