

Temporal Changes in Mechanical Properties of Steel Fiber Reinforced and Polypropylene Fiber Reinforced Aggregate Recycling Concrete

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Abstract

In this study, recycling aggregates were obtained from polypropylene fiber-reinforced concrete produced in different types and proportions. Polypropylene fiber-reinforced concrete was broken in a jaw crusher at the end of 120 days, and recycling aggregates of 0-4mm, 4-15mm and 15-22, 4 mm dimensions were obtained. With the polypropylene fiber-reinforced recycling aggregates obtained, concrete is produced again. Polypropylene fiber reinforced aggregate recycling concrete has been added in two (2) different ratios of steel fiber. Steel fiber reinforced concrete produced has been awaited for three years in the laboratory environment. The compressive strength, tensile splitting strength, elasticity modulus, bending strength, and bending strength deformation of the suspended concrete were investigated. The compression, tensile splitting, and bending strength and the modulus values of elasticity have increased slightly depending on the time. The abrasion and water imbibition values of hardened concrete samples were also measured. The addition of steel fiber has improved abrasion strength. The water imbibition ratio has also increased with the addition of steel fiber.



of Engineering, Department of Civil Engineering Building Materials. Works in these subjects: self-compacting concretes, fiber-reinforced concretes and recycling. Furthermore, has studies in the fields of university campus planning, green campus and energy-efficiency in buildings.

Speaker Publications:

1. "Mechanical recycling of PVC plastic waste streams from cable industry: A Case Study, Sustainable Cities and Society"; Vol 18, 2015, 13-20.
2. "Properties of lightweight aggregate concrete prepared with PVC granules derived from scraped PVC pipes, Waste Management"; Vol 29, 2009, 621-628.
3. "Recycling of PVC wastes, Polymer Degradation and Stability"; Vol 96, 2011, 404- 415.
4. "Performance of concrete with PVC fibers, Woodhead Publishing Series in Civil and Structural Engineering"; 369-385.

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Biography:

Hasan BAYLAVLI works in Hitit University Construction Technology and Building Audit Programs, in Çorum, Turkey as Research Assistant. Completed associate degree program in 1997 in Gazi University Çorum Vocational School Construction Program. Graduated from Pamukkale University, Faculty of Engineering, Department of Civil Engineering in 2000. Did Master's degree in Eskişehir Osmangazi University, Faculty of Engineering, Department of Civil Engineering Building Materials. Still does doctorate in University, Faculty