



Investigation of Mechanical Properties of Concrete with PVC Fibers

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Abstract—The development of concrete has brought about the essential need for additives both to improve the performance of concrete and attain sustainability in the environment. In this regard various admixtures such as plastic wastes in different forms, have been used so far. Hence, an attempt has been made to investigate the mechanical properties of concrete with Poly Vinyl Chloride (PVC) fibers. PVC fibers were manually obtained from electric wires. This study is an experimental comparison between Nominal concrete and PVC fiber reinforced concrete. To achieve the aim of this study, total 18 concrete samples were casted using a single Mix M20 (1:2:4). Among 18 samples, 6 samples each of cylinders, cubes and beams were casted. Out of these six (06) samples three each of normal concrete and other three were of reinforced concrete. All samples were cured for 28 days. Subsequently Split tensile test, compressive tests and flexural tests were performed for cylinders, cubes and beams respectively. The results were analyzed and compared. The comparison shows that there is not a considerable difference in the compressive strengths of the normal concrete and PVC fiber concrete. However, there is an increase in both the tensile strength and flexural strength of the PVC fiber concrete as compared to the normal concrete. It might be because of the extra bonding of the PVC fibers and elasticity of PVC fibers. It is also a sustainable way to minimize plastic waste while recycling the electronic waste for copper or metal wires that pollutes the environment.

Keywords—Concrete, Mechanical Properties, PVC fibers, Nominal Concrete, Compressive Strength, Tensile Strength, Flexural Strength