

Hysteresis Behaviour of Mass Concrete Mixed with Plastic Fibre under Compression

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Abstract : Unreinforced concrete is a comparatively brittle substance when exposed to tensile stresses, the required tensile strength is provided by the introduction of steel which is used as reinforcement. The strength of concrete may be improved tremendously by the addition of fibre. This study focused on investigating the compressive strength of mass concrete mixed with different percentage of plastic fibre. Twelve samples of concrete cubes with varied percentage of plastic fibre at 7, 14 and 28 days of water submerged curing were tested under compression loading. The result shows that the compressive strength of plastic fibre reinforced concrete increased with rise in curing age. The strength increases for all percentage dosage of fibre used for the concrete. The density of the Plastic Fibre Reinforced Concrete (PFRC) also increases with curing age, which implies that during curing, concrete absorbs water which aids its hydration. The least compressive strength obtained with the introduction of plastic fibre is more than the targeted 20 N/mm² recommended for construction work showing that PFRC can be used where significant loading is expected.

Keywords : compressive strength, concrete, curing, density, plastic fibre

Conference Title : ICSECM 2016 : International Conference on Structural Engineering, Construction and Management

Conference Location : Montreal, Canada

Conference Dates : July 14-15, 2016