Comparison of Mechanical Properties of Normal & Polypropylene Fiber Reinforced Concrete

Abstract

Concrete is the most commonly used construction material in the world. However, normal weight concrete shows less resistance to flexure. This research dealt with the technique to improve material efficiency in flexure as well as in compression, using polypropylene fibers. Different samples of concrete were prepared containing different dosages of polypropylene fibers (0.1%, 0.2%, 1% and 2% of the total concrete volume). The samples were then tested in compression and flexure, after 7, 14 and 28 days. The experimental investigation showed that the fibers increase the flexural strength of concrete in elastic range, when used in a specific limit. Maximum efficiency from the material was obtained at 0.2% dosage of fibers. Below and above this percentage the flexural and compressive strengths start decreasing. The experimental results also confirmed that with the gradual increase in polypropylene content the water absorption of concrete increases.

Keywords: *polypropylene fibers, flexure strength, compressive strength, shrinkage*