Effect of Multiwall Carbon Nano Tube on Mechanical Properties of Cement Concrete

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Mode of Study : F. Time

ABSTRACT

Carbon nano tube have great potential to improve the strength and mechanical properties of cement based building material after effective dispersion in water. Multi Wall Carbon Nano Tube (MWCNTs) incorporated into cement concrete to investigate the effect on compression strength, flexure strength and abrasion resistance. Because CNTs having properties like strength and high aspect ratios, it have been excellent nano reinforcing material for improvement in mechanical properties.

The carboxyl group (-COOH) Carbon Nano Tubes were obtained from United Nanotech Innovation Pvt Ltd. CNT/concrete composite have been prepared from Portland Pozzolana cement with various amount of common MWCNTs ranging from 0.075% to 0.125% by weight of cement. Results indicate that compression strength, flexure strength and abrasion resistance of concrete improved with addition of MWCNTs. With addition of 0.075% of MWCNTs, the 7 days and 28 days compressive strength increase by 45.4% and 22.76% respectively. The flexure strength improved by 40% and abrasion resistance improved by 40.68% respectively.