



Comparison of mechanical properties of concrete incorporated with Multiwalled Carbon nanotube and partial replacement of cement with flyash

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Abstract

Concrete incorporated with Carbon Nanotubes is an evolving research area. The major reason for this research is due to the significant properties of the Multiwalled Carbon Nanotubes (MWCNT). This research article explained the comparison of the mechanical properties of the concrete. The cement is replaced with fly ash at 20% in its volume. The concrete mechanical properties such as compressive strength, Flexural and Split Tensile strength of the concrete were done. In this research three different levels of incorporations of MWCNTs were done. They are 0.025%, 0.050% and 0.075% in weight of cement were done. In this research three test specimens were casted in each mixes. Totally five mixes were done. They are Conventional Concrete (CC), Fly ash replaced concrete (CF), Fly ash replaced concrete and 0.025% of MWCNT (CNT 1), Fly ash replaced concrete and 0.050% of MWCNT (CNT 2) and flyash replaced concrete and 0.075% of MWCNT (CNT 3). Totally, 84 specimens were 42 cubes, 21 cylinder and 21 prisms were casted in this research. The magnetic stirring method was used for surface decoration or dispersion in Poly Carboxylate Ether for MWCNT.

Introduction

In construction industry concrete is a vital component.. Concrete properties are constituted by the constituents which comprises the concrete. The cement content, water-cement ratio, properties of aggregates are plays vital role in governing the strength of the concrete. The concrete shows high compression strength and less tensile strength [3], [22] Foldyna et al. 2016 concluded as concrete is