International Journal of ChemTech Research
CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.10 No.8, pp 276-283, 2017

Experimental Study on High Performance Concrete and High Volume Flyash Concrete using Polypropylene Fibre

R.M.Karthikeyan[1], K.M.Ramkumar[2]*, D Jayalin[3]

[1,2]Department of Civil Engineering, SNS College of Technology, Coimbatore, India.
[3]Department of Civil Engineering, Karunya University, Coimbatore, India.

Abstract : India is the second largest cement producer in the world. In India, 420 million tonnes of cement was produced in previous year[7]. By 2025, cement production will reach up to 550 million tones. One tonne of cement produces 1.25 tonnes of CO_2. Cement replaced by the other cementitious materials to reduce the effects of CO_2 emission on environment. This experimental study was carried out to study on flexural behavior of high Performance concrete of Grade M60 by the cement replacement with Fly ash and polypropylene fibre. The total production of fly ash is nearly as much as production of cement. But utilization of fly ash is only about 5% of the population in India. The disposal of fly ash is one of the major issues as dumping of fly ash as a waste material may cause severe environmental problems. Present study is aimed to obtain high durability and high strength concrete by replacing cement with 40% & 50% of fly ash and 10% of Silica fume & Metakaolin. As Per ACI method the various mix designs are prepared for various proportions. Respective tests are conducted. Based on the results, 50% replacement of fly ash and 10% of silica fume with cement gave better compressive strength.

Keywords : High volume fly ash, silica fume, Metakaolin, super plasticizer, polypropylene fiber.

K.M.Ramkumar *et al* /International Journal of ChemTech Research**,** 2017,10(8): 276-283.

*****