



Enhancement of Mechanical Behaviour of Self Curing Concrete with Partial Replacement of Fine Aggregate by using Quarry Dust

Muthuraman P^{1*}, Shiny K¹, R.Anuradha²

¹Department of Civil Engineering V V College of Engineering, Tisaiyanvilai Tirunelveli, Tamilnadu, India

²Department of Civil Engineering SNS College of Technology, Coimbatore Tamilnadu, India

Abstract : Self-curing concrete is one of the special concretes in mitigating insufficient curing due to human negligence paucity of water in arid areas, inaccessibility of structures in difficult terrains and in areas where the presence of fluorides in water will badly affect the characteristics of concrete. The aim of the investigation is to evaluate the use of water-soluble polyethylene glycol as self-curing agent with partial replacement of conventional fine aggregate with light weight fine aggregate and to optimise the quantity of polyethylene glycol. Flexural Behaviour of Self-curing concrete of M30 grade is casted by replacing optimum % of natural fine aggregate with lightweight fine aggregate & optimum % of Polyethylene Glycol by weight of cement.

The fine aggregate partially replaced by the 25% Quarry dust. From the optimum % of light weight fine aggregate replacement, Optimum % of polyethylene glycol -400 was found out by varying the percentage of PEG 0%, 0.5%, 1% and 1.5% by weight of cement for M30 grade of concrete. In this study, compressive strength, split tensile strength, and flexural strength of self-curing concrete with varying quantity of polyethylene glycol is evaluated and compared with the conventional concrete specimen.

Keywords : Self Curing, Super Absorbents Polymer (SAP), Special Concrete, Quarry Dust, Poly Ethylene Glycol.

Muthuraman P et al /International Journal of ChemTech Research, 2017,10(8): 485-489.
