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Geopolymer Concrete A Ecofriendly Concrete

Vaibhav A. Kalmegh
Assistant Professor, Department of Civil Engineering,
Bapurao Deshmukh College of Engineering, Sevagram, Wardha, Maharashtra, India

Abstract: *Concrete became most popular material due to its low cost, versatility, availability of ingredients and excellent resistance to water and played significant role in development of the world for last one and half century but cement is the main ingredient for the concrete production. There are different sources of carbon di oxide emission during cement production. The largest source is combustion of fossil fuels to operate rotary kiln and other on is de-carbonation of limestone in the kiln during manufacturing of cement. The raw materials such as lime stone, clay and other minerals are required for the manufacture of cement, but quarrying of these raw materials is also causes environmental degradation. The climate change and environmental pollution is major problem of the world is facing today also responsible to the global warming. Therefore, to preserve the global environment from the impact of cement production then reduced the amount of Portland cement and replacing it with material which has lower manufacturing temperature. Also, to produce environmental friendly concrete, we have to replace the cement with the industrial by products such as fly ash and other geo-based materials. Thus the Geopolymer concrete is a good solution for producing an environmental friendly type of concrete. The geo-polymer concrete is one of the revolutionary developments related to novel materials resulting in low-cost and environmentally friendly material as best alternative to cement concrete. In this work cement is replaced with fly ash by 50%, 75% and 100% and alkaline solution which is the combination of sodium hydroxide and sodium silicate with different proportion i.e. 9M and 12M were used to determine compresive strength for M25 and M30 grade of concrete and compare with the conventional concrete. From the analysis it is observed that the Geopolymer concrete can be used under conditions similar to those suitable for ordinary portland cement concrete also, shows the good alternative to ordinary portland cement concrete.*

Keywords: Geo-polymer. sodium hydroxide, sodium silicate, Alkaline solution,Fly Ash, Compressive Strength

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