

Studies on Mechanical Properties of GGBS Aggregate on Geopolymer Concrete

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ABSTRACT

The use of concrete has become more prevalent due to its versatile and low cost. Most of the coarse aggregate used in construction is obtained from quarries. Due to the increasing usage of natural resources, the demand for alternative materials has increased. This research aims at finding an eco-friendly and cost-effective material that can replace the conventional coarse aggregate. The use of an Eco-friendly material such as GGBS Clinker helps in reducing the impact of the environment on the society. This research looks at the benefits and drawbacks of GGBS clinker in concrete. The use of GGBS clinker as a substitute for conventional aggregate helps to prevent the depletion of conventional construction materials. Based on the results, it is concluded that GGBS Aggregate can be used by 100% replacement in Conventional concrete. It is observed that 7.23%, 3.5% and 3.67% decrease in Compressive, Flexural and Split tensile strength of GGBS Aggregate when compared to conventional concrete. The manufacture of G.G.B.S requires less than 20% of the energy and produces less than 10% of the CO₂ emissions compared to conventional aggregate.

Keywords: *Coarse aggregate, GGBS clinker, Durability, Eco friendly, Conventional aggregate.*