

## Abstract Details

**Title:** Investigating the Consequences of Replacing Cement with GGBFS and RHA on Properties of Concrete Mixture

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### Abstract:

**Objective:** As concrete is most generally used man-made construction material. So far it is not possible to get a material like this. So an effort has been made to investigating the consequences of replacing cement with GGBFS and RHA on properties of concrete mixture.

**Methods/Analysis:** Here cement has been replaced with different percentages of GGBFS and RHA. Different concrete specimens were prepared with GGBFS replaces 0, 5, 10, 15, 20, 25, 30, 35, 40, 45 and 50% of cement and RHA replaces 0, 5, 10, 15, 20, 25, 30, 35, 40 of cement. Curing period was taken to be 3, 7 and 14 days. Concrete slump test and UCS (Uniaxial compression strength test) were performed to measure the consistency and compressive strength of the specimen.

**Findings:** It is evident from results that there is a considerable effect on the consistency as GGBFS percentage goes on increasing and the finally it is found to be satisfactory. In case of RHA, consistency percentage increases quickly and seems too favorable at all percentages as we are increasing the percentage of RHA in the mixture. On increasing the GGBFS percentage from 0% to 5% then the 3 days, 7 days and 14 days strength shows reductions of 5.2%, 11.2% and 4.3% respectively. The further increase in GGBFS percentage indicates a spiky reduction in the compressive strength. The effects of RHA also found to be decreasing the compressive strength of concrete mixture. There is a decrease of 84.6%, 86.66% and 86.31% in compressive strength for 3 days, 7 days and 14 days.

**Improvement:** By considering different proportions of GGBFS and RHA and simultaneously some additive we can get different results. Curing period can be increased upto 21 and 28 days for more deep analysis of characteristic properties of GGBFS and RHA.

**Keywords:** Ground Granulated Blast Furnace Slag (GGBFS), Rice Husk Ash (RHA), Cement and Concrete.