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Study Of Ggbs With High Performance Concrete

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ABSTRACT: Indian steel and copper industries are seeing an enormous growth. The byproduct produced by these industries like ground granulated blast furnace slag (GGBS) are hazardous to the atmosphere thus they are needed to be disposed off properly. Considering the long term performance and stability of structures, this study suggests replacing some percentage of cement with GGBS to develop high performance concrete. In this study an experimental investigation was done to know the use of GGBS in concrete as a replacing agent of cement. To accomplish this C-40, C-50 and C-60 high performance cement were used to prepare a concrete mix with a w/c ratio of 0.35 with suitable superplasticizers. Tests were conducted to confirm the use of GGBS as a replacing agent. Cement was replaced with 40-60% with GGBS respectively. Concrete control specimens without replacement were also cast for comparison. After casting the cube moulds specimens were tested for various tests like tensile strength test, compressive strength test, flexure strength test. From the study, based on the findings the replacement of cement with GGBS is found to have least strengths with that of control mix.

Keywords: GGBS, High Performance Concrete, super plasticizer

1. INTRODUCTION

Indian steel and copper industries are seeing an enormous growth. The byproduct produced by these industries like ground granulated blast furnace slag (GGBS) are hazardous to the atmosphere thus they are needed to be disposed off properly. . The necessity of high performance concrete is increasing because of demands in the construction industry. Efforts for improving the performance of concrete over the past few years suggest that Mineral & chemical admixtures when used with cement replacement materials can improve the strength and durability characteristics of concrete. Pozzolanic materials like Alccofine (GGBS) and