IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal
Impact Factor: 7.301
Volume 3, Issue 4, June 2023

Strength and Durability Studies on Concrete by Replacing Cement with GGBS and Fine Aggregates with Plastic Waste

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Abstract: *There is no doubt concrete is most useful thing in construction industry but it has a negative impact also, just like a coin has two faces. Raw materials used in manufacturing of concrete affects the environment in one or the another negative way. Like manufacturing of cement produce carbon dioxide whereas the production of aggregates adds dust to the environment. Production of fine aggregates also impact the geology of the area from they were extracted. A step taken in this direction is the use of waste products along with or in replacement of cement. Many of these materials are already in use, like silica fume, fly ash etc. In this study, plastic fine aggregates were used in place of natural fine aggregates. Plastic aggregates were produced by little processing of waste plastic. Plastic is the biggest threat to the environment, and it is affecting the environment rapidly. Some recent studies show that it can be used construction industry due to some of its properties like inert behavior, resistance to degradation etc. Also use of waste plastic can help in reducing plastic waste. Various experiments were performed to test the mechanical properties of the concrete with plastic fine aggregates. Concrete was prepared using plastic fine aggregates in varying proportions of 0, 5, 10,and 15%. opc is replaced by ggbs in 0, 10, 20, 30% proportion.*

Keywords: fine aggregate, ggbs, plastic wastes, resistance to degradation

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