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PARTIAL REPLACEMENT OF FINE AGGREGATE BY SEA SAND IN GPCC

In construction industry, concrete is the most important material for construction. Concrete is composed of cement, coarse aggregate, fine aggregate and water. In this project we are going to use geopolymer cement which is the combination of flyash and GGBS which is rich in silica and alumina.
The use of the cement in concrete give high early strength and better durability. Common river sand, which is most commonly used fine aggregate, is expensive due to the excessive cost transportation from natural sources and also large scale depletion of the resources creates environmental problems. To solve this problem we are going to use sea sand as a replacement in a effective manner.
The scope of this paper is to study the properties of GPC by using sea sand as a fine aggregate in various proportions. Water scarcity problem is also reduced here since no water is added to concrete and no curing is required.
The test result shows that the use of geo-polymer concrete shows increase in compressive strength by 24.56%,42.80%,50.40%,53.44%,56.5% for the following mix ratios as compared with conventional concrete. The test result shows that the use of geo-polymer concrete shows increase in split tensile strength by 35.50%,26.93%,31.73%,31.8%,27.35% as compared with conventional concrete. The test result shows the use of geo-polymer concrete shows increase in flexural strength by 35.46%,26.17%,26.23%,24.32%,22.78% as compared with conventional concrete.

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