World Academy of Science, Engineering and Technology
International Journal of Structural and Construction Engineering
Vol:9, No:04, 2015

Heating and Cooling Scenario of Blended Concrete Subjected to 780 Degrees Celsius

Authors : J. E. Oti, J. M. Kinuthia, R. Robinson, P. Davies

Abstract : In this study, The Compressive strength of concretes made with Ground Granulated Blast furnace Slag (GGBS), pulverised Fuel Ash (PFA), rice Husk Ash (RHA) and Waste Glass Powder (WGP) after they were exposed 7800C (exposure duration of around 60 minutes) and then allowed to cool down gradually in the furnace for about 280 minutes at water binder ratio of 0.50 was investigated. GGBS, PFA, RHA and WGP were used to replace up to 20% Portland cement in the control concrete. Test for the determination of workability, compressive strength and tensile splitting strength of the concretes were carried out and the results were compared with control concrete. The test results showed that the compressive strength decreased by an average of around 30% after the concretes were exposed to the heating and cooling scenario.

Keywords : concrete, heating, cooling, pulverised fuel ash, rice husk ash, waste glass powder, GGBS, workability
Conference Title : ICCCE 2015 : International Conference on Civil and Construction Engineering
Conference Location : Venice, Italy
Conference Dates : April 13-14, 2015