

EFFECT OF RICE HUSK ASH ON THE PROPERTIES OF ORDINARY PORTLAND CEMENT AND PORTLAND SLAG CEMENT WITH AND WITHOUT SUPERPLASTICIZERS

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ABSTRACT

The use of industrial and biogenic wastes in concrete as supplementary cementing materials is the present vital issue to obtain a sustainable environmental solution, Some of the commonly used supplementary pozzolonic and cementing materials are rice hush ash (RHA), silica fume, ground granulated blast furnace slag, fly ash and ash from timber etc. These wastes can be found as natural materials, by-products or industrial wastes. These materials are also obtained with requiring low cost, energy and time. Due to the pozzolanic reactivity, rice husk ash is used as supplementary cementing material in mortar and demonstrated significant influence in improving the mechanical and durability properties of mortar. In this paper a critical review of the influence of RHA on various properties of mortar cubes made of partial replacement of cement by rice husk ash admixture with 5%, 10% and 15% of total powder content by weight both with and without the presence of Superplasticizer. Strength of cubes with Ordinary Portland Cement (OPC) and Portland Slag Cement (PSC), after 3,7,28 ,90 days and 365 days of curing and also durability tests after 60 days, were analysed to evaluate the effect of addition content, the time of curing and the compressive strength changes. Based on the available documented literature and results obtained it can be concluded that RHA could be used as supplementary cementing material up to a certain level of replacement without sacrificing the strength of mortar. Proper consumption of the RHA contributes in solving environmental pollution and to improve the environmental friendliness of concrete or mortar to make it suitable as a “Green Building” material.

KEYWORDS: Compressive Strength, Durability, Ordinary Portland Cement (OPC), Portland Slag Cement (PSC), Rice Husk Ash (RHA)