EFFECT OF ADDITIVES ON THE QUALITY OF RICE HULL ASH CEMENT

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Since rice hull is a major agricultural by-product in Sri Lanka, it is of interest to investigate the use of this material in the production of cement. Investigations have been made on the production and properties of rice hull ash cement. The compressive strength of the product was found to be in between the values for ordinary portland and masonry cements.(1) In the present study, investigations have been made to improve the quality of rice hull ash cement by mixing it with additives such as portland cement, plaster of Paris or clay.

Rice hull ash cement has been made by grinding rice hull ash with hydrated lime in the ratio 8 : 3 respectively. Rice hull ash was obtained by burning rice hull under open atmosphere in a cylindrical vessel. The samples were made by mixing rice hull ash and hydrated lime with various percentages of (i) portland cement (ii) plaster of Paris and(iii) burnt china clay. The products were then subjected to determine compressive strength. Some of these products were also hydrated and subjected to DTA and X-ray diffraction analysis.

It has been observed that the compressive strength of the products increases considerably with the increase of portland cement content. However, the addition of plaster of Paris was found to decrease the compressive strength of the products. Compressive strength of the product can be maintained at a reasonably high level even after addition of 30 - 40% burnt china clay. A relationship between the nature of hydrated products and their compressive strength also will be presented.

References :

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