

Thesis Title	A Study of Mixture of Calcium Carbide Residue and Rice Husk Ash as Cementitious Material
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Abstract

In this study, calcium carbide residue, a by-product from acetylene gas, was mixed with rice husk ash, a residue from burning rice husk, to be used as cementitious material. The calcium carbide residue used in this study was sun-dried and then ground to small particle size retaining on sieve No. 325 not more than 10 percent by weight. The ground calcium carbide residue was divided into 2 portions, the first one was mixed with rice husk ash to form mortar, the second one was burned at 600°C for 3 hours. The burned calcium carbide residue was also mixed with rice husk ash to form mortar. For rice husk ash, it was also ground to small particle size retaining on sieve No. 325 not more than 10 percent by weight. Physical properties such as normal consistency and setting time of pastes made from the mixture of calcium carbide residue and rice husk ash were tested. The mixture was also used as cementing material to make mortars. Flow and compressive strengths of mortars were investigated.

The result showed that, normal consistency of paste of calcium carbide residue and rice husk ash required higher water with the increased of rice husk ash in the mixture. The setting times of the new cementitious material pastes were longer than those of the cement paste. The mortar made from calcium carbide residue to rice husk ash of 50:50 gave the highest compressive strength of 156 ksc at 28 days while the control mortar had 309 ksc at the same age or 2 time higher. At the age of 180 days, the compressive strength of mortar of calcium carbide residue-rice husk ash mixture increased to 191 ksc or equaled to 55 percent of the control mortar which was 347 ksc.

The research results suggested that both of materials can produce compressive strength of mortar high enough to use for some construction work without using any of cement. The compressive strength of mortar of 150 ksc can be used for making pipe of sewage, pedestrian pavement, lean concrete etc.

Keywords : Calcium Carbide Residue/ Rice Husk Ash/ Cementitious Material / Flow/ Compressive Strength.