

Effect of grinding on chemical and physical properties of rice husk ash

Sumrerng Rukzon^a, Prinya Chindaprasirt^b and Rattana Mahachai^c

^aDepartment of Civil Engineering, Rajamangala University of Technology Phra Nakhon, Bangkok 10300, Thailand

^bDepartment of Civil Engineering, Faculty of Engineering, Khon Kaen University, 40002, Thailand

^cDepartment of Chemistry, Faculty of Science, Khon Kaen University, 40002, Thailand

Received 10 May 2008.

Available online 14 May 2009.

Abstract

The effect of grinding on the chemical and physical properties of rice husk ash was studied. Four rice husk ashes with different finenesses, *i.e.* coarse original rice husk ash (RHA0), RHA1, RHA2, and RHA3 were used for the study. Ordinary Portland cement (OPC) was partially replaced with rice husk ash at 20% by weight of binder. The water to binder ratio (W/B) of the mortar was maintained at 110%±5% with flow table test. Specific gravity, fineness, chemical properties, compressive strength, and porosity test of mortars were determined. The differences in chemical composition of the rice husk ashes with different finenesses from the same batch are small. The use of RHA3 produces the mortars with good strength and low porosity. The strength of the mortar improves with partial replacement of RHA3 in comparison with normal coarse rice husk ash. The use of RHA3 results in a strong and dense mortar, which is due to the better dispersion and filling effect, as well as an increase in the pozzolanic reaction.

Key words: fineness; grinding; mortar; physical properties; rice husk ash

Corresponding author: Sumrerng Rukzon