

The Use of Rice Husk Ash as a Stabilizing Agent in Lateritic Clay Soil

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Abstract : Rice Husk (RH) is the major byproduct in the processing of paddy rice. The management of this waste has become a big challenge to some of the rice producers, some of these wastes are left in open dumps while some are burn in the open space, and these two actions have been contributing to environmental pollution. This study evaluates an alternative waste management of this agricultural product for use as a civil engineering material. The RH was burn in a controlled environment to form Rice Husk Ash (RHA). The RHA was mix with lateritic clay at 0, 2, 4, 6, 8, and 10% proportion by weight. Chemical test was conducted on the open burn and controlled burn RHA with the lateritic clay. Physical test such as particle size distribution, Atterberg limits test, and density test were carried out on the mix material. The chemical composition obtained for the RHA showed that the total percentage compositions of Fe₂O₃, SiO₂ and Al₂O₃ were found to be above 70% (class "F" pozzolan) which qualifies it as a very good pozzolan. The coefficient of uniformity (Cu) was 8 and coefficient of curvature (Cc) was 2 for the soil sample. The Plasticity Index (PI) for the 0, 2, 4, 6, 8, 10% was 21.0, 18.8, 16.7, 14.4, 12.4 and 10.7 respectively. The work concluded that RHA can be effectively used in hydraulic barriers and as a stabilizing agent in soil stabilization.

Keywords : rice husk ash, pozzolans, paddy rice, lateritic clay

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