

ABSTRACT

The objective of this research is to study the effect of bagasse ash on properties of plastering cement. Bagasse ash, obtained from an electricity generating power plant, was used as a partial replacement of sand and limestone powder. The replacement percentages of bagasse ash were 0%, 10%, 15% and 20% by weight of fine aggregate. The physical and mechanical properties, thermal conductivity and sound absorption of plastering cement were investigated. Results show that the water requirement and porosity of the plastering cement were increased when increasing the amount of bagasse ash in fine aggregate, whereas the compressive strength, tensile strength and flexural strength and bonding at 28 days were decreased. The drying shrinkage was increased when the replacement percentages of bagasse ash in fine aggregate increased. On the other hand, the thermal conductivity was decreased when the replacement percentages of bagasse ash increased, along with the increase of the porosity and sound absorption coefficient. This is due to the fact that the bagasse ash particles have angular shape, rough surface and high porosity, resulting in more internal pores when mixed with cement particles. The plastering cement mixed with bagasse ash partially replacing limestone powder had properties comparable to the industry standard. Whereas the compressive strengths of plastering cement mixed with bagasse ash partially replacing sand were lower than the limited standard.