

Kijja Ketprechasawat 2011: Improvement of Bottom Ash by Fly Ash and Lime Powder.  
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This research attempted to study the improvement of bottom ash by fly ash and lime powder. The study focussed on the effect of particles size distribution of bottom ash, quantity of fly ash and lime powder and curing times on the engineering properties of the mixes. Bottom ash, fly ash and lime powder used in the experiment were supplied by the BLCP POWER, an electricity generating plant in Rayong. Three mixes of material were (1) bottom ash as raw material and fly ash and lime powder as additives (2) bottom ash and fly ash as raw materials and lime powder as additives (3) bottom ash as raw material and lime powder as additive. Percentages (by dry weight) of additive (s) used in each mix were 10, 20, 30, 40 and 50.

Experimental results showed that maximum CBR of 293% was achieved for mix 1 when the proportion of raw material to admixtures was 60:40 where the proportion of fly ash to lime powder was 75:25. For mix 2, the maximum CBR of 209% was obtained when the raw materials and admixture were mixed at 70:30 with bottom ash : fly ash ratio of 80:20. The maximum CBR for mix 3 was 172% when bottom ash was mixed with lime powder at the proportion of 60:40. The presence of admixture(s) resulted in the drop in Plasticity Index to between 3 and 5%, but the gain in maximum dry density and lower optimum moisture content. CBR for soaked and unsoaked samples increased with curing time. The lowest coefficients of permeability of mixes were  $4.105 \times 10^{-7}$ ,  $5.412 \times 10^{-7}$  and  $3.751 \times 10^{-7}$  cm/sec when the proportion of admixtures was 20%.

The optimum proportion of raw material : admixtures of 60:40, 70:30 and 60:40 for mix 1, 2 and 3 respectively will yield optimum CBR which comply to the standard of Department of Highways (DOH) for base-course material.

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