

## KORAT SPECIAL CLAY

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### Abstract

In searching for clay used in ceramic industry, the clay has to be characterized and heat-treated. The evaluated results will indicate its application. In this study, Korat clay depositing at Suranaree University of Technology (SUT) was collected and divided into three groups; i.e. white clay, reddish brown clay, and the mixture of the two types. All of them were washed through 150 mesh sieve and dried prior to characterization. To study the behaviour under heat-treatment, only the mixed clay was fabricated into test bars and fired at 600-1,200 C. From our study, these clays changed their colors to brown after firing at 1,200 C due to iron oxide content (2.63% for the white and 5.98% for the reddish brown clay). The glassy phase was found after heat-treatment at 1,100 C. The highest fired density of the mixed clays was  $2.12 \text{ g/cm}^3$ . Its compressive strength and bending strength were  $173 \pm 2.0 \text{ MPa}$  and  $59 \pm 1.8 \text{ MPa}$  respectively. When the temperature was increased to 1,200 C, the density decreased to  $1.18 \pm 0.04 \text{ g/cm}^3$  and the strength decreased to  $44 \pm 2.2 \text{ MPa}$  and  $15 \pm 1.1 \text{ MPa}$  for the compressive and bending tests. The clay linearly expanded 53% corresponding to 40% porosity at 1,200 C. The product exhibiting these characteristics after high temperature heat-treatment is very promising for light weight aggregate production to be used in light weight concrete, light weight brick or as filter aids.

**KEY WORDS** : Korat clay, Lightweight aggregate