

Title : THE DEVELOPMENT OF THE CLAY FROM BANMOH,
MAHASARAKHAM PROVINCE TO FORM THE SCULPTURE
USING THE SLIP CASTING TECHNIQUE

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The purposes of this research were 1) to study the physical quality of the clay from Banmoh, Khwao Subdistrict, Muang District, Maha Sarakham Province, 2) to study the quality of the ratio between the slip and the body for sculpturing the stoneware, and 3) to use the mixed body suitable for forming the product by slip casting technique.

The research yielded the followings :

1. The quality of the clay from Banmoh before firing, it was found that the shrinkage was 6.58%, the strength was 25.15 Kg/cm^2 .

1.1 After firing at 900°C , it was found that the shrinkage was 0.72%, the strength was 31.03 Kg/cm^2 , the water absorption was 12.27% , the colour of the body was orange-red.

1.2 After firing at 1000°C , the shrinkage was 2.11%, the strength was 93.81 Kg/cm^2 , water absorption was 12.04% , the colour was orange-red.

1.3 After firing at 1200°C , the shrinkage was 5.47%, the strength was 104.81 Kg/cm^2 , water absorption was 11.89% , the colour was red-brown.

1.4 After firing at 1250°C , the shrinkage was 5.76%, the strength was 136.81 Kg/cm^2 , water absorption was 11.07% , the colour was red-brown.

2. The physical quality of the body mixed by ratio between the slip and the body for sculpturing the stoneware, it was found that :

2.1 Formula no. 78 was most suitable to form the sculpture by slip casting technique.

2.2 Physical quality before firing Formula no 5.1 to 9 composed of 5% Banmoh clay, was found that the shrinkage was between 0.38% to 2.20%, the strength was between 4.86 to 9.14 Kg/cm². Compared with the Formula no 5.73 to 81 composed of 45% Banmoh clay, it was found that the shrinkage was between 2.72% to 5.90%, and the strength was between 25.15 to 50.33 Kg/cm².

2.3 Physical quality after firing, it was found that the shrinkage for each formula was on the standard scale which was not higher than 15%. It was found from Formula no. 9 that it composed of 45% feldspar and the water absorption was 0.66%, compared to the Formula no. 28, composed of 5% feldspar, the water absorption was 19.03%. Formula no. 79 yielded the highest strength – 289.96 Kg/cm², while the lowest strength of 82.88 Kg/cm² was from Formula no. 24. The colour of the body after firing was from white to gray.

3. For taking the proper quality body to form the product by applying the slip casting technique, it was found that Formula no. 78 was most qualified. This body was composed of 45% Banmoh clay, 20% Ranong kaolin, 30% feldspar, 5% quartz crystal, 25.87% of water whose specific gravity was 1.73, 2.10% defloculant, cast with water for 20 minutes, and 0.27 centimeter thick formed. Casted in plaster mold, it was found that the body was well stabilized, not attached to the wall of the mold, fast dried crackless, and easily taken off from the mold. The shrinkage was 7.22%, water absorption was 1.45%, the strength was 285.47 Kg/cm² and could well-coated to the surface of the product by feldspar enamel solution.