



ENHANCED SLIP CASTING METHOD FOR THE PRODUCTION OF CERAMIC NOVELTY ITEMS

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This study aimed to formulate a proposed enhanced slip casting method for the production of ceramic novelty items. Specifically, it attempted to answer the following questions: 1) What is the status of the current production of novelty items?; 2) What is the proposed enhanced slip casting method?; 3) Is there a significant difference between the thickness and the weight of the wares?; 4) How efficient is the proposed Enhanced Slip Casting Method for the Production of Ceramic Novelty Items?

This study was conducted at Northwestern University and it employed the single factor experimental research design and the PDSA model of improvement. Unstructured interview, document analysis, and laboratory equipment such as the Zahn cup viscometer and graduated cylinder were utilized in the data gathering. Meanwhile, the gathered data in a series of experiments were analyzed using weighted mean and tested the results for significance using t-test. The series of experiments, in three (3) replicates, aimed to determine what slip density and how much deflocculant is to be used in order to achieve a viscosity of 4.0 to 6.0 poise after the ageing period of three (3) days.

The results of the study showed that the slip with a density of 1.72 g/ml which had a deflocculant level of 0.50% proved to be promising. It had a viscosity of 4.32 poise after the ageing period of three (3) days, a casting rate of 0.4 mm/min, a cast thickness of 4.0 mm and a definite casting time of 10 minutes. From the results of the experiment, an enhanced production flowchart was developed and a trial production was conducted to test the efficiency of the proposed measure.

The results of the study showed that there is a significant improvement on the efficiency of the proposed enhanced slip casting method as to: a) the time spent on slip preparation, a 400% reduction in the slip preparation and the cost per liter of slip as well as down to 399.75%; b) the casting time, from a “no definite” casting time of 7 to more than 10 minutes to a “definite” casting time of 10 minutes; and c) forming rejects, a reduction of 246% was observed for the nightingale lamps. Similar findings were observed for the nursing bust, a reduction of 48.5% was noted; d) the number of cast per day, an increase of 221.4% was observed for the nightingale lamps and an increase of 90.9% was observed for the nursing bust; and e) for the thickness and weight of the wares, statistically, the results of the study showed that the decrease in the thickness and weight of the wares when a controlled slip was used is highly significant. Likewise, as to the potential saving due to the decrease in clay consumption, the potential savings is Php. 0.67 per piece for the nightingale lamp and Php. 0.82 per piece for the nursing bust.

The use of slips that were prepared using the enhanced method made a significant impact on the production of ceramic novelty items.