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UFACTURE OF BATHROOM TILES FROM POWDERED
OYSTER SHELLS AND EGGSHELLS

RESEARCH STUDY

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**MANUFACTURE OF BATHROOM TILES FROM POWDERED
OYSTER SHELLS AND EGGSHELLS**

**A research study submitted to the faculty of
Laboratory School, College of Education,
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**In partial fulfillment of the requirements
for graduation**

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ABSTRACT

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Adviser: Engr. Renato B. Cubilla

This study entitled “Manufacture of Bathroom Tiles from Powdered Oyster Shells and Eggshells” was undertaken to produce bathroom tiles from oyster shells and eggshells. It also aims to: (a) determine how oyster shells and eggshells could be manufactured into tiles; (b) determine the characteristics of the tiles produced from oyster shells and eggshells; (c) determine the best proportion of oyster shells and eggshells in making tiles; and (d) determine the cost of production tiles from oyster shells and eggshells. The study was conducted at Cavite State University, College of Engineering and at Mr. and Mrs. Espineli’s residence in Alfonso, Cavite from August 2003 to January 2004.

The proportions used in the study were; *Treatment 0*. Commercial Tiles (bought); *Treatment 1*. 50% egg white, 25% eggshells and 25% oyster shells; *Treatment 2*. 50% egg white, 30% eggshells and 20% oyster shells; and *Treatment 3*. 50% egg white, 20% eggshells and 30% oyster shells.

Highly significant results were obtained from the sensory evaluation of texture, color and general acceptability of the tiles produced. However, non-significant results were obtained from volume, mass and density of initially dried and oven-dried tiles.

The highest breaking strength was observed in *Treatment 0* or commercial tiles (6.20) followed by *Treatment 1* composed of 50% egg white, 25% eggshells and 25%

oyster shells (0.45). Meanwhile, the lowest breaking strength (0.25) was observed in Treatment 2 (50% egg white, 30% eggshells and 20% oyster shells).

It was proven that the commercial tiles are still the most advisable material for bathroom tiles, although *Treatment 1* (50% egg white (binder), 25% eggshells and 25% oyster shells) can also be utilized.

In terms of economic feasibility, *Treatment 2* composed of 50% egg white, 30% eggshells and 20% oyster shells with a cost of P7.79.

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INTRODUCTION

Tile production is one of the world's oldest industries. The earliest known examples of brick/tile making is dated back in 4500 years to the Region of Sargon I and Akkad in Babylonia. From this early industry of tile making, the ancient people of Sargon and Babylonians described tiles as thin slabs of glazed or unglazed fired clay or anything hard and brittle. Due to the outburst of technology, tiles at present are improved and are being used structurally or decoratively on floors, walls and roofs. They can be thin slabs of glass, plastics, stone, asphalt, clay, acoustically absorbent materials such as asbestos, as well as hollow ceramic blocks used structurally (Dickey, 1990).

Oysters found throughout the world usually form large beds that extend to warm waters from the tidal zone to a depth of 30 meters (100 feet). These marine bivalves belong to the family *ostreidae* and are known of their hard, elastic but firm shells. The shells of the oysters are irregularly oval in shape and consist of a left and right valve joined together at the narrow anterior end by an elastic ligament that acts as a hinge.