

<b>Research Title</b>	Development of Ceramic Body from New Underground Resource for Productivity Increasing
<b>Name</b>	Miss.Pakawadee Sirilar
<b>Organization</b>	Program of Ceramics Engineering Technology Industrial Technology Loei Rajabhat University
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### ABSTRACT

The objectives of this research were 1) to prepare ceramic body with replacing granite waste to kaolin clay, feldspar and silica by slip casting, 2) to test and analyze physical property of body with replacing granite waste to kaolin clay, feldspar and silica and 3) to compare physical property of body with replacing granite waste to kaolin clay, feldspar and silica. Sampling of 7 proportional formulas by replacing two types of materials with 0, 50 and 100% replacement were used and all formulas were prepared by wet milling for control particle size less than 150 micron. Casting properties were tested and analyzed, and then the specimens were formed by plaster mold casting and fired at three different temperatures: 1075, 1100 and 1125 degree Celsius. Electric kiln was used with heating rate of  $4\pm 1$  degree Celsius/min for firing. Physical properties such as drying and firing shrinkage (ASTM C326-09), bending strength (ASTM C674-88), water absorption (ASTM C373-88) and pyroplastic deformation after firing were tested and analyzed, respectively.

The results found that, physical properties of ceramic bodies with replacing granite waste to kaolin clay and silica after 1075 degree Celsius fired were suitable for produce earthen ware product. While body with replacing granite waste to silica after 1100 and 1120 degree Celsius fired were suitable for produce stone ware product. But body with replacing granite waste to feldspar was not suitable for all ceramic product after 1075, 1100 and 1120 degree Celsius fired. And physical properties of the body with replacing granite waste to all kinds of raw materials unsuitable for produce porcelain product.

**Keywords:** granite, shrinkage, water absorption, bending strength, pyroplastic deformation