

## Resumen nº 100

### **PRODUCTION OF TILES BY THE SLIP CASTING PROCESS WITH INCORPORATION OF MINERAL RESIDUE**

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#### **ABSTRACT**

The slip casting is an ancient and widely used in the production of ceramic parts due to its relative low cost of investments and be a relatively simple technique. This technique of forming liquid ceramic materials has advantages over other forming methods, such as ease of conforming parts of relatively complex shapes with uniform walls, parts with internal cavities or oval, plus excellent microstructural homogeneity arise in suspensions deflocculate. Gold is found basically associated with the sulfides and Genesis gold-copper pairs and encyclopedia in mudslides, being extracted from old rocks. According to the Brazilian Mineral Yearbook (2012), in 2011 the Brazil produced about 65 tons of gold, positioning itself as the 13th largest producer, being the State of Bahia, responsible for 10.3% of this total. In the city of Jacobina monthly production is on the order of 340 kg of gold, generating 190,000 tons of solid waste. The solid waste generated in the processing process of particle size less than 150 features gold mesh, colored tending to red. The purpose of this work is to produce ceramic tiles using clays of Rio Grande do Norte - RN with incorporation of residue of gold mineral exploration of the city of Jacobina-Bahia processing by liquid phase. The raw materials were characterized by EDX, XRF and optical microscopy. We prepared four groups of samples as patterned color of clay, and all were sintered at temperatures of, 850°C, 900°C, 950°C, 1000°C and 1100°C, with isotherm of 1 hour and heating rate of 10°C/min. The raw materials were characterized through the trials of x-ray Fluorescence, x-ray Diffraction, differential Thermal Analysis and Thermogravimetric Analysis. The final product was analyzed via water absorption test, lost to fire, Apparent Porosity, Apparent Density and tensile strength to bending; In addition to the scanning electron microscopy, analyzing its physical and mechanical properties. The use of solid waste of gold mining in the formulation of the ceramics by slip casting process presented satisfactory results, indicating the possible use of this mineral residue effective in reducing firing temperature and adding improvements in mechanical properties of the final product.

Key Words: slip casting, waste, solid residue, ceramic