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PRODUCTION OF CERAMIC BLOCKS WITH THE INCORPORATION OF SOLID WASTE OF GOLD EXPLOITATION OF JACOBINA-BAHIA

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ABSTRACT

Gold is found basically associated with the sulfides and Genesis gold-copper pairs and encyclopedia in mudslides, being extracted from old rocks (arqueoóic and Proterozoic) and Quaternary-land. 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. In this way, the mineral extraction is considered a highly degrading activity due to the large volume of material that she moves in the form of ore and waste. The purpose of this work is to develop ceramic blocks incorporating waste of gold exploration in traditional pottery. The raw materials were characterized through the trials of x-ray Fluorescence, x-ray Diffraction, differential Thermal Analysis and Thermogravimetric Analysis. Mixtures of clay and solid waste, in a proportion of 5, 10, 20 and 30% by weight have been compressed and burned to 800, 900 and 950^{o}C with isotherm of 1:0 and heating rate of 10ºC/min. Technological tests were carried out fire loss, water absorption, 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 gold residue in ceramic mass provided a final product with technological properties that meet the technical standards for block production, while reducing the time and firing temperature, resulting in the production of parts with different colors.

Key Words: waste, recycling, solid residue, ceramic