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USE OF THE RESIDUE OF THE EMERALD EXPLORATION OF SERRA DA CARNAÍBA - BA IN MASS CERAMICS FOR PRODUCTION OF COATING PLATES

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Key words: Ceramic Flooring, Mineral Residue, Ceramic Flooring, Phlogopite

RESUMO

Ceramic plates are generally made up of three layers. The first is the holder or cookie. The second is the slip, which has a waterproofing function and ensures the adhesion of the third layer. And lastly the enamel, a glass layer that also waterproofs, in addition to decorate the top face of the ceramic coating. The main functions of this coating are to protect and decorate. Protect the base and structure of the building, such as floors and walls. And decorate, finishing the environment, providing visual and aesthetic comfort. The exploitation of emeralds in the Serra da Carnaíba - BA generates large volumes of emerald residues that are constantly abandoned in the environment. The main constituents of this residue are silicon oxide, iron oxide and molybdenite. In the process of burning this residue the present mica oxidizes, resulting in a by-product with golden tones. Another important factor that has been growing in recent years is the interest in the use of mineral residues as an additive in the production of ceramic material, trying to improve product quality and increase the variety of applications. The purpose of this work is to study the incorporation of residues from the exploration of emeralds in ceramic mass for the production of coating plates, seeking to add economic value and unique aesthetic characteristics to the final product. The main constituents of this residue are silicon oxide, iron oxide and molybdenite. In the process of burning this residue the present phlogopite oxidizes, resulting in a by-product with golden tones. Another important factor that

has been growing in recent years is the interest in the use of mineral residues as an additive in the production of ceramic material, trying to improve product quality and increase the variety of applications. The purpose of this work is to study the incorporation of residues from the exploration of emeralds in ceramic mass for the production of coating plates, seeking to add economic value and unique aesthetic characteristics to the final product. In this process, ceramic mixtures were prepared from raw materials characterized by fluorescence and X-ray diffraction (FRX and XRD). Five compositions will be prepared using indices of 5%, 10%, 20, 30 and 40% emerald residues that will coat the ceramic pieces in the form of a slip. The samples were prepared by pressing in a uniaxial press with a pressure of 3 MPa, being burned at 850, 900 and 1000. Subsequently will be made the technological tests of water absorption, apparent porosity, apparent specific mass, linear retraction and modulus of flexural rupture. Preliminary tests suggest that the residue of emeralds studied can be used as a slip, providing the formation of ceramic plates with interesting aesthetic characteristics; adding value and reducing the environmental impact caused by the disposal of this material directly into the environment.