

MINERALOGY AND GENESIS OF THE “GRAY KAOLIN” OF THE CORDOBÉS FORMATION (DEVONIAN) OF URUGUAY

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The kaolin deposits of the Cordobés Formation (Devonian of Uruguay) have been mined for more than five decades as raw material for the Ceramic Industry. The main deposits are located in the vicinities of Blanquillo and San José de las Cañas, Durazno state. The mineralogical composition of this kaolin was studied by means of Differential Thermal Analysis, X-Ray Diffraction techniques and Cation Exchange Capacity. The mine profiles studied have 3 to 7 meters, and show a vertical gradual variation, presenting yellowish white kaolins with some concretions of iron oxides and occasional gypsum in the upper part, light gray kaolin poor in iron oxide in the medium level and dark gray kaolin in the lower level. Analytic results indicate an increase in the illite/kaolinite rate, an increase in the organic matter content and sulfides and the disappearance of the sulfates and iron oxide from the surface toward deeper levels. These evidences suggest the incidence of post depositional supergenic weathering processes acting on the dark gray clays. This process originated a surface horizon rich in kaolin, as well as the oxidation of the sulfides and the deposition of the iron oxides in fractures and in concretions. This supergenic process is difficult to be aged and would be responsible for the genesis of the kaolins deposits. This project was sponsored by the Comisión Sectorial de Investigación Científica of the Universidad de la República Oriental del Uruguay.