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COBALT ADSORPTION IN KAOLINITEE.S. Souza^a and P.S.C. Silva^a eliel.souza1@hotmail.com

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The adsorption process has been used as an efficient method for the removal of metallic ions from effluents. In this work, it is presented the studies to evaluate the adsorption capacity of Co in kaolinite, a low cost adsorbent, aiming at the removal of this ion from aqueous solutions. The specific surface area (S) was analyzed in 25 samples prepared in different ways: kaolinite, bentonite and activated carbon and, mixtures of kaolinite-bentonite and kaolinite-activated carbon. These mixtures were prepared by adding to kaolinite 10, 20, 30, 40 or 50% of activated charcoal or bentonite. Samples of kaolinite-activated charcoal mixture and raw kaolinite were also calcined at 600 and 1000°C for 4h. The adsorption parameters investigated for these adsorbents were: contact time, pH, solute initial concentration, ionic competition and ionic strength. It was found that the optimized contact time and pH, for the purpose of this work, were 30 min and pH 6. Under these conditions the cobalt ion removal efficiency was greater than 80%. It was verified that the presence of Cr and Zn ions, as well as the increase in ionic strength caused a decrease in the adsorption capacity of Co in the adsorbent mixture. The Langmuir and Freundlich isotherms presented R² equal to 0.906 and 0.597, respectively. The parameters determined by these isotherms indicated a spontaneous process, i.e., energetically favorable, for the adsorption of Co under the conditions that this work was carried out.

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CHEMICAL CHARACTERIZATION OF THE CLAY DEPOSIT KNOWN AS PERUVIAN BLACK MUDI.C. Alves^a, P.F.M. Gouvêa and P.S.C. Silva^a isiscalves001@gmail.com

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In Peruíbe city, state of São Paulo, the largest continuous natural deposit of clay in the world can be found, containing of a material popularly known as Peruíbe Black Mud (PBM). This deposit has 83 thousand tons with a depth of 75m, distributed in 5 hectares, making the municipality a tourist point. This sludge is characterized by large amounts of fine particles, high organic matter content, high sulfite reducing bacteria content and a consequent high ion reduction potential; it is used in psoriasis, peripheral dermatitis, acne and seborrhea treatments, as well as in myalgias, arthritis and non-rheumatic joint processes. Ten samples of the in natura mud were collected along the deposit, in depth ranging from 1 to 1.5m and also 6 samples that were matured with see water, with the objective of verifying the homogeneity of the chemical composition through the evaluation of its elemental content, for the physical-chemical characterization, measurements of pH, moisture, organic matter and loss on ignition were made. The elemental concentrations were determined by