

CHARACTERIZATION OF COMMERCIAL WHITE CLAYS

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The first industrial use of kaolinite was the manufacture of ceramic and porcelain. Only from the 1920s it has begun being applied in the paper industry, being preceded by the use of rubber industry. Since then kaolinite has come to be used in plastics, pesticides, animal feed, food and pharmaceutical products, fertilizers and others, and has currently a very wide range of industrial applications. Recently these materials have also been studied for the adsorption of heavy metals and consequent waste industrial treatment mainly due to its low cost.

According to the DMPN (National Department of Mineral Products) the Brazilian reserves of kaolinite reaches up to 4 billion of tons being the states of Amazonas, Pará and Amapá the major producers of this clay mineral, followed by São Paulo, Goiás, Santa Catarina e Paraná states. Due to its color, kaolinite is generally sold as “white clay”. Nevertheless, not all white clays are kaolinite in fact.

In this study three white clays commercially available, named CA, CB and CC were analyzed by x-ray diffraction, x-ray fluorescence, neutron activation analysis and gamma spectrometry in order to verify its composition, chemical and radiological characteristics. Also their ionic exchange capacity, percent of moisture, organic matter and loss on ignition were determined.

Although some common characteristics had been observed among the samples it was verified that only one of the commercial kaolinite were in fact composed by this clay mineral.