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Sorption of colorants in ceramic systems from residual sludge from water treatment

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During the development of the textile industry it was found that the companies changed the types of dyes used, going from using natural dyes to synthetic dyes, due to the dyeing processes used, these dyes have final disposal of the water effluents. Dyes are currently classified as major pollutants, since when they meet aqueous media, more than 8000 toxic substances for human health are formed. Due to this, currently the research works focus on the manufacture of materials which allow to remove dyes efficiently. At the same time, the residual sludge, which is the product of water purification treatment, is underutilized, being finally discarded to the water torrents causing a decrease in the photosynthetic activity; therefore, it is important to create alternatives of use for this type of waste, which can be cataloged as clays. In this work the removal capacity of dyes by new ceramic systems based on sewage sludge from drinking water treatment it is study. Ceramic systems were obtained from thermal treatment of mixtures of red clay, bentonite and residual sludge supplied by the Algodonal Drinking Water Treatment Plant, in the municipality of Ocaña, Norte de Santander Colombia. For the sorption process, ceramic systems were sintered in a muffle up to 1100°C and subsequently the immersion test was carried out in solutions of methyl orange, rhodamine b and methyl violet. Results showed that the ceramics units formed removals of up to 45% for methyl orange, 27% for Rhodamine B and 78% for Methyl Violet.

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