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Adsorption of endocrine disruptor bisphenol A by carbonaceous materials: influence of their porosity and specific surface area

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ABSTRACT

Three carbonaceous materials of different textural and surface properties were investigated as suitable adsorbents of bisphenol A (BPA), for comparison reasons, to examine the role of pore size distribution and surface acidity/basicity in bisphenol A adsorption. Typical adsorption isotherms, kinetic, and thermodynamic studies were carried out and the relative parameters as: initial pollutant concentration, solution pH, ionic strength, temperature, desorption, were calculated. Attention was particularly paid to the effect of the carbon structure, examined by BET analysis and surface chemistry examined by potentiometric titration and Fourier Transform Infrared Spectroscopy, in order to elucidate the removal mechanism. Desorption tests of loaded samples followed, with water and organic solvents of varying polarity.

Keywords: Activated carbons; BPA removal; Desorption; Textural properties; FTIR; Surface charge.

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