Application of Characterization Technique for Industrial Wastewater Treatments

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There are a lot of components in industrial wastewaters including organic and inorganic compounds. Therefore, it is not easy to quantitative analysis of adsorption behaviors. In order to overcome this difficulty, characterization technique of unknown compositions seems to be an excellent candidate. Here, the single component isotherm data of each species dissolved in industrial wastewaters on porous activated carbon and polymer resins were assumed be represented by Freundlich and Langmuir isotherms, respectively. Competitve adsorption equilibrium data were predicted by employing ideal adsorbed solution theory. Although there were some deviations between experimental and predicted results of adsorption breakthrough curves obtained in a fixed−bed, the adsorption dynamics were satisfactorily simulated based on the proposed simple model. This result will be widely applied for the adsorption analysis of drinking water and wastewater treatments.