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Acidic Dye Removal From Aqueous Solution Using Heat Treated and Polymer Modified Waste Containing Boron Impurity

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Abstract : In this study, we investigated the possibility of using waste containing boron impurity (BW) as an adsorbent for the removal of Orange 16 from aqueous solution. Surface properties of the BW, heat treated BW, and diblock copolymer coated BW were examined by using Zeta Meter and scanning electron microscopy (SEM). The polymer modified sample having the highest positive zeta potential was used as an adsorbent. Batch adsorption studies were carried out. The operating variables studied were the initial dye concentration, contact time, solution pH, and adsorbent dosage. It was found that the dye adsorption largely depends on the initial pH of the solution with maximum uptake occurring at pH 3. The adsorption followed pseudo-second-order kinetics and the isotherm fit well to the Langmuir model.

Keywords : zeta potential, adsorption, Orange 16, isotherms
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