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Adsorption of Reactive Black 5 Dye From Aqueous Solution By Coal Fly Ash

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Abstract

The fly ash (CC6), a waste generated in a coal-fired electric power generation, was used as adsorbent to remove Reactive Black 5 (RP 5) dye from aqueous solutions. The effect of contact time was investigated on the adsorption process. The amounts adsorbed at equilibrium were measured. The Langmuir and Freundlich isotherm models were tested for their applicability. The isotherm adsorption data fit accordingly to the Langmuir model with maximum adsorption capacity of 0.58 mg/g. The experimental results showed a high percentage removal of 44 to 91% for CC6. The high percentage removal of RB 5 dye onto fly ashes revealed that these materials could potentially be used as adsorbents in the reactive dye removal from textile wastewater

Keywords: adsorbent, dye, fly ash, reactive black 5.