Acyclic polyamine modified starch for amido black 10B removal in basic solution

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**ABSTRACT**

Four acyclic polyamine modified starches, CAS1, CAS2, CAS3 and CAS4 were synthesized by using ethylenediamine, diethylenetriamine, triethylenetetramine and tetraethylenepentamine, respectively. Their interactions with amido black 10B in aqueous solution at pH value of 10 were investigated. It was found that the adsorption was predominantly governed by hydrogen bonding. The removal process of AB10B increased smoothly and followed the pseudo-second-order equation. The Langmuir isotherm gave satisfying fits to equilibrium data and the capacities followed the order CAS2 > CAS1 > CAS3 > CAS4. The thermogravimetric analyses indicated the fact that the interaction of CAS2 with amido black 10B was strongest, bringing on the highest adsorption capacity. In the presence of NaCl, the capacities increased slightly.

**Keywords:** Acylic polyamine; Modified starch; Amido black 10B; Adsorption; Thermogravimetry

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