

EVALUATION OF THE MEMBRANES BASED ON THE MIXTURE BIOPOLYMERS FOR THE REMOVAL OF AMMONIA AND AMMONIUM IONS FROM WASTE WATERS

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Abstract

High concentrations of ammonia are commonly present in industrial wastewaters and fertilizer wastewaters which can promote the eutrophication phenomena. Although the removal of ammonium from contaminated water via polyelectrolyte was investigated in this work using a sodium poly acrylate supported on the chitosan membrane on a batch adsorption experiments. The concentration of ammonium in the receiving solution is essentially zero. Total ammonia removal could be accelerated by the driving force using the electrodes in each compartment for this liquid-liquid membrane contactor operation is the difference in ammonium partial pressure between the feed and the receiving solution. The results indicate that as prepared mixture adsorbent has faster adsorption kinetics and higher adsorption capacity than the chitosan membrane and other mixture polymers such as sodium alginate and polyvinyl alcohol/ chitosan at different ratio. All information obtained give an indication that the mixture polyelectrolyte/chitosan can be used as a novel type, fast-responsive and high-capacity sorbent material for NH_4^+ -N removal.

Keywords: mixture polymer, membrane, sodium polyacrylate, chitosan, ammonium, biopolymer.