

Removal of Chromium using Chemically-treated Alginate Beads

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Alginate, which exists in natural polymer, is a polysaccharide from brown seaweed. Alginate is being applied in industry and engineering including the biomedical field because of its biocompatibility, non-toxicity and biodegradability. Alginate has high affinity and selectivity for heavy metal ions.

This study investigated the characteristics of removal of chromium using chemically treated alginate beads. Acid treated and sodium dithionite impregnated alginate beads could remove both of hexavalent chromium and trivalent chromium.

Removal rate of hexavalent chromium was increased with decreasing pH, and trivalent chromium removal rate was increasing with increasing pH. And Total chromium removal rate was increasing with increasing temperature.

This study demonstrates that hexa- and tri-valent chromium can be effectively removed using acid treated and sodium dithionite impregnated alginate beads.