

Advanced Functional Hydrogels of Uniform shape based on Ferric – Phyllosilicate/ humic acid/ Alginate for recovery of Lithium cations into the Sea

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Abstract

Lithium is one of the important cation among trace metal ion into the sea. In this paper, we propose a novel adsorbent based on Ferric – Phyllosilicate/humic acid/Alginate for effective recovery of Lithium cations. In the present work, we have synthesized a novel hydrogel with uniform shape based on 3-Aminopropyl functionalized ferric phyllosilicate (AFPS) /humic acid (HA) /alginate (AL). 3-Aminopropyl functionalized ferric phyllosilicate (Fe-aminoclay) which had the amine group on silica and Internal Ferric ions will promote the interaction between the FPS, HA, AL more strongly. This interaction would results in a well-defined grafted -network to form a stable hydrogel with uniform shape [1]. Adsorption ability of biosorption material toward of lithium cation was investigate under different condition such as contact time, initial concentration, pH. Adsorption characteristics were examined by means of a kinetic model which used pseudo-kinetic second order equation. [2] Freundlich & Langmuir Adsorption isotherm equation was used to explain Adsorption isotherm.