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Experimental design data for the zinc ions adsorption based on Mesoporous modified chitosan using Central Composite Design method

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Highlights

- A novel composite adsorbent synthesized from SBA-15 and chitosan.
- Zn²⁺ removal was optimized using design of experiment under CCD.
- Fe₂O₃@SBA-15-CS-AEAPTMS is a useful adsorbent for removal Zn²⁺.
- The adsorption equilibrium, kinetics and thermodynamics were studied.

Abstract

In the present study, new generation of silica-based mesoporous adsorbents were introduced for the removal of heavy metals with the aim of developing new adsorption technologies in water treatment. The magnetic nanoadsorbent, prepared by modification of SBA-15 with [3-(2-Aminoethylamino) propyl] trimethoxysilane (AEAPTMS)-functionalized chitosan, was applied for the removal of Zn²⁺ from aqueous solution. The synthesized Fe₂O₃@SBA-15-CS-AEAPTMS nanoadsorbent was thoroughly characterized using XRD, TEM, FTIR and BET analysis. In order to determine the optimum condition of Zn²⁺ adsorption on Fe₂O₃@SBA-15-

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