

عنوان مقاله:

Adsorptive Removal of Cr(VI) and Cu(II) Ions from Water Solution using Graphene Oxide-Manganese Ferrite (GMF) Nanomaterials

محل انتشار:

ماهنامه بین المللی مهندسی، دوره 31، شماره 8 (سال: 1397)

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خلاصه مقاله:

Chromium (Cr) and copper (Cu) are heavy metals known for their dangerous effect towards human health and could enter into human body mainly through ingestion. Over the years, different treatment methods have been used to eliminate heavy metal from raw water source and these include (co)precipitation, coagulation/flocculation, adsorption and ion- exchange. Nonetheless, adsorption is the most prominent method due to its high adsorption capacity and low cost. In this work, graphene oxide-manganese ferrite (GMF) nanomaterials were synthesized and used to remove Cr(VI) and Cu(II) ions from water solution based on adsorption mechanism. The synthesized nanomaterials were characterized using FTIR, BET and TEM prior to use in adsorption process. Batch adsorption studies were carried out to study the adsorption capacity and kinetic properties of the nanomaterials in eliminating two selective heavy metal ions. At optimum pH value, the maximum adsorption capacity for Cr(VI) and Cu(II) are 34.02 mg/g and 66.94 mg/g, respectively. The experimental data revealed that the adsorption isotherm best fitted Langmuir model and followed Pseudo second order.

کلمات کلیدی:

nanomaterial, heavy metals, Adsorption, Removal

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