



Removal of chromium (VI) metal ions using Amberlite IRA-420 anions exchanger

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ABSTRACT

Anions exchanger (Amberlite IRA-420) has been used for the removal of chromium (VI) metal ions, as HCrO_4^- and $\text{Cr}_2\text{O}_7^{2-}$ ions, from dichromate contaminated water. Operational conditions such as chromium (VI) metal ions concentration, adsorption time, adsorption temperature, adsorption pH, agitation speed, and finally adsorbent dosage have been investigated, and its impact on the removal process efficiency has been presented. Moreover, FT-IR and TGA analyses have been performed for the original Amberlite and chromium (VI) metal ions adsorbed Amberlite particles. Regeneration of the chromium (VI) metal ions (mainly as HCrO_4^- ions) adsorbed on Amberlite particles using sodium hydroxide has been studied. Finally, the reuse ability has been investigated.

Keywords: Anions exchanger; Adsorption; Chromium (VI) metal ions; Dichromate; Removal

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