عنوان مقاله:

Mitigation of Fluoride from Groundwater by Natural Clay as an Adsorbent

محل انتشار:

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خلاصه مقاله:

The aim of this study was to examine the potential of clay material for the elimination of excess fluoride from groundwater. This study is based on empirical laboratory research. The Natural clay material was gathered and dried in an oven at 105ºC for 24 hours. The effect of pH, contact time, adsorbent dose, temperature and adsorbent size was investigated. SEM, FT-IR and XRD were used to characterize the physical attributes (particle size, pore size and distribution, surface roughness) of the natural clay material. The removal efficiency of clay material was augmented by raising the adsorbent dose and contact time, and decreasing the initial concentration of F-. At low pH (pH=2), the maximum amount of fluoride adsorbed by the clay material (F-= 1.0 mg/L). The amount of fluoride adsorbed increased from 1.0 to 1.6 mg/L, (C0=2.3 mg/L) with the maximum temperature of 343K. This seems to be the mechanism is endothermic in nature. The results indicated that clay material can be successfully used as an effective adsorbent for F- removal. We concluded that clay material can be a cheap, efficient, and environmental friendly adsorbent of F- .from aqueous solutions

کلمات کلیدی:

Clay, Fluoride, Groundwater, Adsorbent dose