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Adsorption of Arsenate and Chromate from Waters on Hydrophobized Zeolitic Media


of

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Abstract: A laboratory setup was used to examine the uptake of chromate and arsenate from aqueous solutions by octadecylammonium acetate [ODA]-modified inland clinoptilolite. In trials, a natural variety of montmorillonite was compared to organic, i.e. surfactant loaded clinoptilolite. and some inorganically substituted (Ag, Pb) monoforms. The arrangement of the surface-attached ODA chains was the important factor for differences in the adsorption states of the guest species (oxyanions). A novel nano-structure inorganic-organic composite was prepared and was characterized by SEM, thermogravimetry, HR TEM, UV-VIS diffuse reflectance and powder XRD spectral analytical methods. Finally, the adsorption isotherms of the studied system were expressed. An approach was proposed for the regeneration of exhausted surfactant-immobilized clinoptilolite with inorganic salt solutions under a dynamic regime.

Key Words: Octadecylammonium-clinoptilolite, adsorption, anion-exchange, chromate and arsenate oxyanions, montmorillonite

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