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Preparation and Characterization of Adsorbent Based on Carbon for Pertechnetate Adsorption.

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Activated carbon can potentially be used as an adsorbent for removing Tc from aqueous solutions. We have prepared and tested five carbon materials for their capabilities for sorption of pertechnetate (TcO_4^-). A carbon materials were prepared by soaking of fibrous cellulose with different solutions containing inorganic materials suitable for creation of micropores and after drying, material was carbonized at 500-800 °C. Prepared carbon materials were characterized by BET, acid-base titration, XRD and TEM methods.

Sorption of TcO_4^- on carbon sorbents is fast. For some sorbents even 1 minute is enough to reach more than 99% sorption. Sorption of TcO_4^- is pH dependant. Maximum K_d was in acidic pH (pH 2-3) and reach about 7×10^4 . K_d were decreasing with increasing pH. In sample B sorption of TcO_4^- was high even at pH 8 ($K_d 5 \times 10^3$).

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