

- Modification of natural clay with polyvinylpyrrolidone increases its sorption capacity with respect to Pb²⁺ ions from (70.01 ± 1.77) % to (98.03 ± 1.13) %;

- The adsorption process is quite fast for both original and modified clay. The equilibrium time was 30 min with initial metal concentration C₀ = 10 mg/L and a sorbent mass of 1 g per 100 mL of solution;

- The optimal concentration of the modifier in the composite material was 0.1% PVP solution;

- The bonding between adsorbents and metal ions are very strong. The amount of desorbed metal ions does not exceed 2% of the adsorbed amount;

- The adsorption of Cd²⁺ onto natural clay and Pb²⁺ onto modified clay is most clearly described by the monomolecular theory of Langmuir;

- The kinetics of studied metals adsorption on clay and modified clay is described by the pseudo-second order model.

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