

EXTRACTION OF La(III) IONS FROM AQUEOUS SOLUTIONS USING MODIFIED ACTIVATED CHARCOAL

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Salts of rare earth metals are widely used in various fields of technology, so the development of new and improvement of known methods of extracting these elements from various sources is a relevant. In this work, the activated charcoal (BAU), model solutions containing La(III) ions of various concentrations had been chosen as objects of investigation. It is known that the adsorption of inorganic cations is strongly influenced by the acid-base properties of BAU, in particular, the presence of carboxyl or other groups with low pK values on their surface, therefore, BAU was modified by ethylenediaminetetraacetic acid (EDTA) [1].

Experiments on the study of sorption in static conditions had been carried out by the mathematical planning method under the influence of various conditions (pH of aqueous solutions, temperature, and initial concentration of REE). Interpretation of experimental data had been carried out on the basis of models of Langmuir, Freundlich, BET and Fowler-Guggenheim.

In this case, the process of sorption of La(III) ions in BAU modified by EDTA is adequately described by the Fowler-Guggenheim equation [2]. This equation characterizes the intermolecular interaction of adsorbate-adsorbate in a monolayer. The optimum parameters for extraction of La(III) ions from aqueous solutions on the modified BAU sorbent had been established. Also the thermodynamic characteristics of sorption processes had been calculated.

References:

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