

Preparation of potential-oxoacidity diagram for electrochemical reduction process of pyroprocessing

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Pyroprocessing is considered as a promising alternative technology to aqueous process treating spent nuclear fuels. It consists of a series of electrochemical processes and an electrochemical reduction is the first step to convert oxides into metals. A high temperature molten salt electrolyte is used for the reduction process and electronic potential is applied on oxides to be reduced acting as a working electrode and a inconsumable counter electrode. The concentration of oxygen ion in the electrolyte and the applied potential are most important factors determining the state of oxides. In this work, we prepared potential-oxoacidity diagram based on thermodynamic properties. The diagrams would provide fundamental informations to choose and optimize the electrochemical process focused on the reduction of actinides.

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