Kinetics back-extraction of Tc (VII) by DFG from 30% TBP solution using Lewis cell

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Abstract

In the PUREX process, which primarily used for uranium and plutonium separation, significant attention is paid to deep uranium purification from transplutonium elements and fission products, particularly from the technetium.

The uranium purification from technetium is one of the most intricate tasks in the process of spent nuclear fuel (SNF) reprocessing.

The uranium recycling, which is implemented through the separation process, requires the uranium reclaim be highly decontaminated from technetium in order to avoid problems arising during the volatile compounds of Tc formation at the sublimation stage.

In this study the kinetics back-extraction of Tc (IIV) from 30% TBP/dodecane into nitric acid solution containing diformil hydrazide (DFG) using Lewis cell was performed. The different parameters the back-extraction rate of Tc(VII) such as nitric acid, DFG, Tc concentration, influence of temperature and stirring speed were separately studied.