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SEPARATION OF URANIUM(VI) FROM SOILS BY EXTRACTION IN AQUEOUS PEG (1550) – Na_2SO_4 – Na_2CO_3 TWO-PHASE SYSTEMS. I. PRELIMINARY RESULTS

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Abstract

In this paper preliminary results of studies concerning the extraction of uranium(VI) from soils in aqueous PEG (1550) 20 % - Na_2SO_4 20 % - Na_2CO_3 10^{-2}-10^{-3} M two-phase systems are presented, as well as the spectrophotometric determination of extracted uranium with pirocatechol violet (PV). A special attention was given to the experimental factors (pH, redox potential, CO_3^{2-} anion concentration and initial uranium concentration), which was found to influence both the formation and stability of aqueous two-phase extraction system, and the values of extraction parameters. The experimental values of distribution coefficients, extraction degree and enrichment coefficients for U(VI) extraction indicate an acceptable separation at pH=4-5, and at pH=8-9, respectively. Under certain work conditions, the increasing of U(VI) concentration in initial solution and of CO_3^{2-} anion concentration determined an increase of extraction degree and of enrichment coefficient.

Key words: aqueous two-phase systems, extraction, spectrophotometry, uranium(VI)

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