

HŽS-4

Ekstrakcija retkih elemenata zemljine kore iz letećeg pepela TCLP metodom

Jelena D. Lukić¹, Latinka J. Slavković-Beškoski², Katarina V. Trivunac³, Antonije E. Onjia³

¹ *Inovacioni centar Tehnološko-metalurškog fakulteta, Beograd, Srbija*

² *Laboratorija Anahem, Beograd, Srbija*

³ *Univerzitet u Beogradu, Tehnološko-metalurški fakultet, Beograd, Srbija*

Retki elementi zemljine kore (engl. Rare Earth Elements, REE) koriste se u proizvodnji uređaja visoke tehnologije, optičkih vlakana, superprovodnika, itd. Osim ruda koje su glavni izvor REE, u novije vreme oni se dobijaju iz nusproizvoda ili otpadnih materijala. Sve češće se ispituje mogućnost primene letećeg pepela kao sirovine za dobijanje REE. Uzorci letećeg pepela korišćeni u ovom radu potiču iz četiri termoelektrane sa teritorije Republike Srbije (Tent B, Morava, Kostolac i Kolubara). Ekstrakcija REE je vršena pomoću TCLP ekstrakcionog fluida. Metodom masene spektrometrije sa indukovano spregnutom plazmom analizirano je 17 elemenata (Sc, Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Th). Najviše koncentracije REE izmerene su u uzorku pepela iz termoelektrane Tent B.

Extraction of the Rare Earth elements from coal fly ash by the TCLP method

Jelena D. Lukić¹, Latinka J. Slavković-Beškoski², Katarina V. Trivunac³, Antonije E. Onjia³

¹ *Innovation Center of the Faculty of Technology and Metallurgy, Belgrade, Serbia*

² *Anahem Laboratory, Belgrade, Serbia*

³ *University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia*

Rare earth elements (REEs) are used as components in high-technology devices, fiber optics, superconductors, etc. In addition to ores, by-products or waste materials are being considered as alternative sources for obtaining REEs. The potential for extracting REE from fly ash is being intensively studied. The fly ash samples used in this work were obtained from four thermal power plants from the Republic of Serbia (Tent B, Morava, Kostolac and Kolubara). The REE were extracted by TCLP extraction fluid. The ICP MS method was used for the analysis of 17 elements (Sc, Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Th). The highest concentrations of REE were measured in the sample of fly ash from the Tent B power plant.

Zahvalnica: Ovo istraživanje je podržano od strane Fonda za nauku Republike Srbije, GRANT No 7743343, Serbian Industrial Waste towards Sustainable Environment: Resource of Strategic Elements and Removal Agent for Pollutants - SIW4SE, Program IDEJE.