

Srpsko hemijsko društvo



Serbian Chemical Society

**59. Savetovanje
Srpskog hemijskog društva**

**KRATKI IZVODI
RADOVA
KNJIGA RADOVA**

**59th Meeting of
the Serbian Chemical Society**

**Book of Abstracts
Proceedings**

**Novi Sad 1. i 2. jun 2023. godine
Novi Sad, Serbia, June 1-2, 2023**

CIP- Katalogizacija u publikaciji
Narodna biblioteka Srbije, Beograd

59. SAVETOVANJE SRPSKOG HEMIJSKOG DRUŠTVA,
Novi Sad, 1. i 2. jun 2023.

KRATKI IZVODI RADOVA/KNJIGA RADOVA
59th MEETING OF THE SERBIAN CHEMICAL SOCIETY
Novi Sad, Serbia, 1-2 June 2023
BOOK OF ABSTRACTS/PROCEEDINGS

Izdaje/Published by

Srpsko hemijsko društvo/Serbian Chemical Society
Karnegijeva 4/III, 11000 Beograd, Srbija

tel./fax: +381 11 3370 467; www.shd.org.rs, E-mail: office@shd.org.rs

Za izdavača/For Publisher

Dušan Sladić, predsednik Srpskog hemijskog društva

Glavni i odgovorni urednik/ Editor

Daniela Šojić Merkulov

Uređivački odbor/Editorial Board

Suzana Jovanović-Šanta, Stanislava Olič Ninković, Ksenija Pavlović, Aleksandar Oklješa

Priprema za štampu i štampa/Prepress and printing

Razvojno-istraživački centar grafičkog inženjerstva Tehnološko-metalurškog

fakulteta, Beograd / Research and Development Centre of Printing Engineering, Belgrade

Tiraž/ Circulation

30 primeraka/ 30 copies printing

ISBN 978-86-7132-081-8

Alkalno aktivirani leteći pepeo modifikovan polietileniminom kao adsorbent za uklanjanje metilensko plavog iz vode

Marina M. Maletić¹, Sara D. Žižović², Marija M. Vukčević², Milena D. Milošević³, Nataša V. Karić¹, Katarina V. Trivunac², Aleksandra A. Perić Grujić²

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

² *Univerzitet u Beogradu, Tehnološko-metalurški fakultet, Beograd, Srbija*

³ *Univerzitet u Beogradu, Institut za Hemiju, Tehnologiju i Metalurgiju, Institut od nacionalnog značaja za Republiku Srbiju, Beograd, Srbija*

U cilju iskorišćenja industrijskog otpada, leteći pepeo je modifikovan radi dobijanja efikasnih adsorbenata za uklanjanje metilensko plavog iz vode. Leteći pepeo je aktiviran u prisustvu NaOH na 550°C, i modifikovan različitim količinama polietilenimina. Karakterizacija polaznog i modifikovanih uzoraka izvršena je skenirajućom elektronskom mikroskopijom i infracrvenom spektroskopijom sa Furijeovom transformacijom. Ispitan je uticaj vremena kontakta i početne koncentracije adsorbata na adsorpcione kapacitete nemodifikovanog i modifikovanog letećeg pepela. Pokazano je da adsorpcione karakteristike zavise od količine dodatog polietilenimina, kao i da adsorpcija prati brzinu pseudo-drugog reda, a ravnotežni adsorpcioni podaci pokazuju bolje slaganje sa Frojndlihovom izotermom.

Alkali-activated fly ash modified with polyethyleneimine as adsorbent for methylene blue removal from water

Marina M. Maletić¹, Sara D. Žižović², Marija M. Vukčević², Milena D. Milošević³, Nataša V. Karić¹, Katarina V. Trivunac², Aleksandra A. Perić Grujić²

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

² *University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia*

³ *University of Belgrade, Institute of Chemistry, Technology and Metallurgy, National Institute of the Republic of Serbia, Belgrade, Serbia*

In attempt to reuse industrial waste, fly ash was modified and converted into efficient adsorbent for the removal of methylene blue from water. Fly ash was activated in the presence of NaOH at 550°C, and modified with different amounts of polyethyleneimine. The raw and modified samples were characterized by scanning electron microscopy and Fourier transform infrared spectroscopy. The influence of contact time and initial adsorbate concentration on the adsorption capacity of unmodified and modified fly ash was also examined. It has been shown that the adsorption characteristics depend on the amount of polyethyleneimine added, that the adsorption follows a pseudo-second-order rate, and the equilibrium adsorption data show better agreement with the Freundlich isotherm.

Acknowledgment: This research was supported by the Science Fund of the Republic of Serbia, GRANT No 7743343, Serbian Industrial Waste towards Sustainable Environment: Resource of Strategic Elements and Removal Agent for Pollutants - SIW4SE, Program IDEAS.