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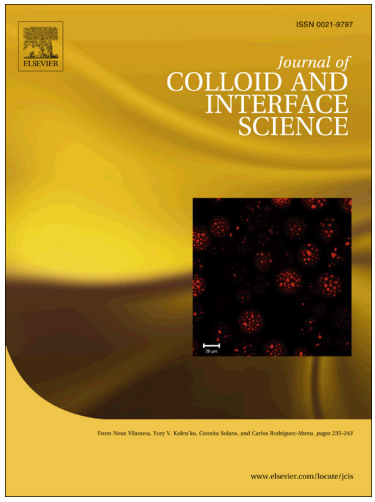

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Wojciech Konicki, Agnieszka Hełminiak, Walerian Arabczyk, Ewa Mijowska

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Removal of anionic dyes using magnetic Fe@graphite core-shell nanocomposite as an adsorbent from aqueous solutions

Wojciech Konicki[a,*], Agnieszka Hełminiak[b], Walerian Arabczyk[b], Ewa Mijowska[b]

[a]Department of Integrated Transport Technology and Environmental Protection, Maritime University of Szczecin, H. Pobożnego St. 11, 70-507 Szczecin, Poland.

[b]Institute of Chemical and Environment Engineering, West Pomeranian University of Technology, Pułaskiego St. 10, 70-322 Szczecin, Poland.

*Corresponding author

E-mail address: w.konicki@am.szczecin.pl

Fax: +48 91 48 09 643

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Abstract

In this study, magnetic Fe@graphite nanocomposite (Fe@G-N) with a core-shell structure was prepared by chemical vapor deposition CVD process for the adsorptive removal of anionic dyes from aqueous solutions. Fe@G-N was characterized by XRD, HRTEM, HAADF-STEM, FTIR, Raman spectroscopy, BET and zeta potential measurements, and then applied in adsorption of two kinds of anionic dyes, Acid Red 88 (AR88) and Direct Orange 26 (DO26). The effect of parameters like initial dye concentration (5-40 mg L^{-1}), pH solution (4-10) and temperature (20-60^{O}C) on the adsorption process was studied. The pseudo-first-order, pseudo-second-order kinetic models and the intraparticle diffusion model were used to describe the kinetic data. A kinetic study indicated that a pseudo-second-order model agreed

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