Environmental Engineering and Management Journal *July/August 2009, Vol.8, No.4, 901-905*
http://omicron.ch.tuiasi.ro/EEMJ/

"Gheorghe Asachi" Technical University of Iasi, Romania

ON THE INFLUENCE OF ETS-10 POROSITY AND SURFACE PROPERTIES IN RETENTION OF SOME NANOIONS AND NANOMOLECULES

Robert Grădinaru[1], Sorin O. Vălu[1], Ştefan Postolache[1], Claudiu C. Pavel[1], Ion Sandu[2], Karin Popa[1*]

[1] *"Al.I. Cuza" University, Department of Chemistry, 11 - Carol I Blvd., 700506 - Iasi, Romania*
[2] *"Al.I. Cuza" University, Archeoinvest Platform, 22 - Carol I Blvd., 700506 - Iasi, Romania*

Abstract

Mesoporosity of about 7 nm in ETS-10 titanosilicate was generated by postsynthesis treatment with hydrogen peroxide under microwave irradiation, resulting in an increased external surface area of the materials (55 m^2/g). The influence of titanosilicate porosity and its surface modification by phosphorus atoms (ET(P)S-10) on the retention of some nanoions (α-emitting radioactive U(VI) and Th(IV) ions) and biomolecules (the proteins cytochrome c, papain, and γ-globulin) was investigated.

Key words: adsorption, ETS-titanosilicate, mesoporosity, proteins, radiocations

[*] Author to whom all correspondence should be addressed: e-mail: kpopa@uaic.ro; Phone: +40-232-201316; Fax: +40-232-201313