Accepted Manuscript

Title: BIFUNCTIONAL SILICA NANOSPHERES WITH 3-AMINOPROPYL AND PHENYL GROUPS. SYNTHESIS APPROACH AND PROSPECTS OF THEIR APPLICATIONS

Authors: Sofiya S. Kotsyuda, Veronika V. Tomina, Yuriy L. Zub, Iryna M. Furtat, Anastasia P. Lebed, Miroslava Vaclavikova, Inna V. Melnyk

PII: S0169-4332(17)31473-3

DOI: http://dx.doi.org/doi:10.1016/j.apsusc.2017.05.150

Reference: APSUSC 36085

To appear in: APSUSC

Received date: 3-2-2017 Revised date: 2-5-2017 Accepted date: 17-5-2017

article Please cite this as: Sofiya S.Kotsyuda, Veronika V.Tomina, L.Zub, Iryna M.Furtat, Miroslava Yuriy Anastasia P.Lebed, Vaclavikova. Inna V.Melnyk, **BIFUNCTIONAL SILICA NANOSPHERES** WITH **AMINOPROPYL** AND **PHENYL GROUPS.SYNTHESIS APPROACH** AND **PROSPECTS** OF THEIR APPLICATIONS. **Applied** Surface Sciencehttp://dx.doi.org/10.1016/j.apsusc.2017.05.150

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

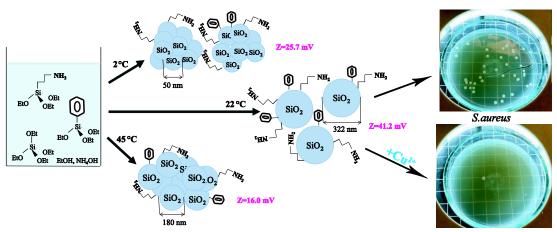


BIFUNCTIONAL SILICA NANOSPHERES WITH 3-AMINOPROPYL AND PHENYL GROUPS. SYNTHESIS APPROACH AND PROSPECTS OF THEIR APPLICATIONS

Sofiya S.Kotsyuda¹, Veronika V. Tomina², Yuriy L. Zub², Iryna M. Furtat¹, Anastasia P. Lebed¹, Miroslava Vaclavikova³, Inna V. Melnyk^{2,3*}

Kyiv, Generala Naumova str. 17, Ukraine, 03164

Graphical abstract



Highlights

- Silica particles with amino-/phenyl- groups were produced;
- Changes in synthesis temperature varies particles Z-potential from 16 to 41.2 mV;
- Bifunctional sorbents showed enhanced sorption of Cu(II) ions and methylene blue;
- Synthesized powder materials can be advanced for use as antibacterial agents.

Abstract

Spherical silica particles with bifunctional (\equiv Si(CH₂)₃NH₂/ \equiv SiC₆H₅) surface layers were synthesized by the Stöber method using ternary alkoxysilanes systems. The influence of the synthesis conditions, such as temperature and stirring time on the process of nanoparticles formation was studied. The presence of introduced functional groups was confirmed by

¹National University of Kyiv-Mohyla Academy, Kyiv, Skovoroda str. 2, Ukraine, 04070

²Chuiko Institute of Surface Chemistry of NAS of Ukraine,

³Institute of Geotechnics SAS, Kosice, Watsonova str. 45, Slovak Republic, 04001

^{*}Corresponding author: Inna Melnyk, Institute of Geotechnics, SAS, 45, Watsonova, Kosice 04001, Slovak Republic, tel: +421 55 7922612, fax: +421 55 7922604, e-mail: in.melnyk@gmail.com

Download English Version:

https://daneshyari.com/en/article/5351743

Download Persian Version:

https://daneshyari.com/article/5351743

<u>Daneshyari.com</u>