

Provided for non-commercial research and education use.
Not for reproduction, distribution or commercial use.



This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/copyright>



Contents lists available at ScienceDirect

Materials Research Bulletin

journal homepage: www.elsevier.com/locate/matresbu

Synthesis and characterization of new composites: PANI/Na-AISBA-3 and PANI/Na-AISBA-16

Maria L. Martínez, Froilán A. Luna D'Amicis, Andrea R. Beltramone, Marcos B. Gómez Costa, Oscar A. Anunziata

Grupo Fisicoquímica de Nuevos Materiales-CITeQ, Facultad Regional Córdoba, Universidad Tecnológica Nacional, 5016 Córdoba, Argentina

ARTICLE INFO

Article history:

Received 24 September 2010

Received in revised form 14 February 2011 Accepted 23 March 2011

Available online 30 March 2011

Keywords:

A. Composites

A. Nanostructures

A. Polymers

C. Infrared spectroscopy

C. X-ray diffraction

ABSTRACT

The new aluminosilicate materials (Na-AISBA-3 and Na-AISBA-16) were synthesized for application in the preparation of composites. Silica mesoporous materials were obtained following the sol–gel method and post-synthesis alumination. These methods were effective for the synthesis of SBA-3 and SBA-16, showing XRD patterns and other characteristics in agreement with the literature.

Aniline-saturated hosts were prepared by adsorption of aniline (exposed to the equilibrium vapors from liquid aniline) into the mesoporous materials. Polyaniline/Na-AISBA-3 (PANI-3) and polyaniline/Na-AISBA-16 (PANI-16) composites have been synthesized by an in situ polymerization of aniline-saturated hosts. TG, FTIR, XRD, SEM and TEM were used to characterize the resulting composites. These studies show that PANI is generated inside the channel of the hosts. PANI-16 has an amount of emeraldine salt higher than PANI-3 composite. The electrical conductivity measurements confirmed that PANI and mesoporous materials were true hybrid nanocomposites. The conductive properties of these composites were compared with those of other composites

(polyaniline/Na-AMCM-41 and polyaniline/ Na-AISBA-15) reported.

© 2011 Elsevier Ltd. All rights reserved.
