

Accepted Manuscript

Title: Chemoresistive gas sensor based on ZIF-8/ZIF-67 nanocrystals

Authors: D. Matatagui, A. Sainz-Vidal, I. Gràcia, E. Figueras, C. Cané, J.M. Saniger



PII: S0925-4005(18)31385-6
DOI: <https://doi.org/10.1016/j.snb.2018.07.137>
Reference: SNB 25106

To appear in: *Sensors and Actuators B*

Received date: 15-1-2018
Revised date: 22-6-2018
Accepted date: 28-7-2018

Please cite this article as: Matatagui D, Sainz-Vidal A, Gràcia I, Figueras E, Cané C, Saniger JM, Chemoresistive gas sensor based on ZIF-8/ZIF-67 nanocrystals, *Sensors and Actuators: B. Chemical* (2018), <https://doi.org/10.1016/j.snb.2018.07.137>

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.

Chemoresistive gas sensor based on ZIF-8/ZIF-67 nanocrystals

D. Matatagui^{1*}, A. Sainz-Vidal¹, I. Gràcia², E. Figueras², C. Cané², J.M. Saniger¹

¹ Centro de Ciencias Aplicadas y Desarrollo Tecnológico (CCADET), UNAM, Mexico
City, 04510, Mexico

² Instituto de Microelectrónica de Barcelona (IMB), CSIC, Campus UAB, 08193 Bellaterra,
Spain

*Correspondence: daniel.matatagui@ccadet.unam.mx; Tel.: + 52 55 5622-8602

Abstract

In the present work, nanostructures of zeolitic imidazolate frameworks (ZIF-8 and ZIF-67) were combined to obtain a novel chemoresistive sensor, improving the response of ZIF-67 and facilitating measurement of ZIF-8 by decreasing the resistivity. The sensor detected concentrations as low as 10 ppm of toluene, ethanol, carbon monoxide, hydrogen and nitrogen dioxide, showing large resistance change. In the case of toluene and hydrogen for a 10 ppm concentration, the response of ZIFs combination based sensor was significantly higher than ZIF-67 based sensor; about 7.0 and 5.4 times, respectively.

Keywords Gas sensor, ZIF, VOC, nanocrystal, zeolite

Download English Version:

<https://daneshyari.com/en/article/7138776>

Download Persian Version:

<https://daneshyari.com/article/7138776>

[Daneshyari.com](https://daneshyari.com)