

Accepted Manuscript

Title: Investigating the effects of calcination temperatures on the structure of modified nanosilica prepared by sol–gel

Authors: Mohammed Hussein J.H. Al-Atia, Hayat K. Saeed, Asia R. Fliayh, Ali J. Addie



PII: S0927-7757(17)30147-4
DOI: <http://dx.doi.org/doi:10.1016/j.colsurfa.2017.02.020>
Reference: COLSUA 21375

To appear in: *Colloids and Surfaces A: Physicochem. Eng. Aspects*

Received date: 30-11-2016
Revised date: 30-1-2017
Accepted date: 6-2-2017

Please cite this article as: Mohammed Hussein J.H. Al-Atia, Hayat K. Saeed, Asia R. Fliayh, Ali J. Addie, Investigating the effects of calcination temperatures on the structure of modified nanosilica prepared by sol–gel, *Colloids and Surfaces A: Physicochemical and Engineering Aspects* <http://dx.doi.org/10.1016/j.colsurfa.2017.02.020>

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.

Investigating the effects of calcination temperatures on the structure of modified nanosilica prepared by sol–gel

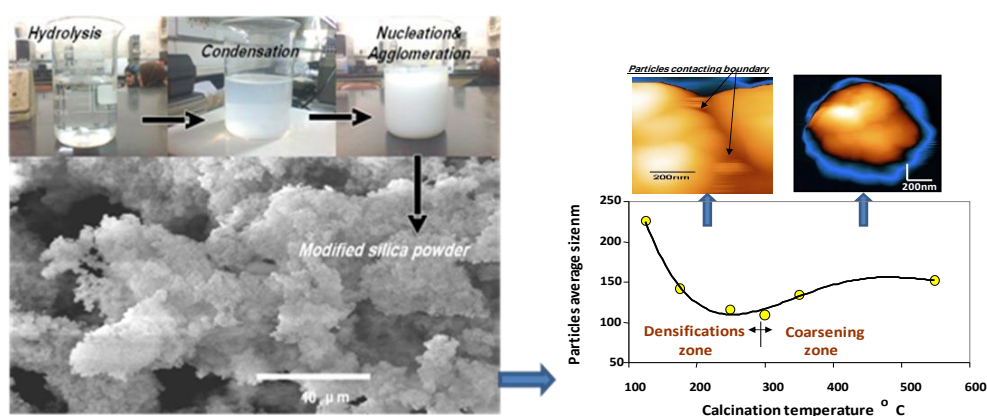
Mohammed Hussein J.H. Al-Atia*, Hayat K. Saeed, Asia R. Fliayh, Ali J. Addie

Directorate of Materials Research/Ministry of Science and Technology/Iraq

** Corresponding author*

E-mail address: mohammed57online@yahoo.com

Graphical Abstract



Highlights

- The densification by calcination of the dried, modified silica powders prepared by a mixed alkoxide sol–gel method without using an ammonia catalyst or surfactants is the critical process affecting the powder structure characteristics.
- The calcination process between 125°C and 550°C directly contributes the changes in the average particle size and size distribution, particle densification, particle coarsening and the stability of the amino group intensity.
- The changes in the silica particle structure and morphology is explained within two decoupled zones, particle shrinkage by densification up to 300°C, and growth by coarsening behaviours between 300°C and 550°C.

Download English Version:

<https://daneshyari.com/en/article/4982166>

Download Persian Version:

<https://daneshyari.com/article/4982166>

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