

Accepted Manuscript

Nd₂O₃ nanostructures: Simple synthesis, characterization and its photocatalytic degradation of methylene blue

Sahar Zinatloo-Ajabshir, Sobhan Mortazavi-Derazkola, Masoud Salavati-Niasari



PII: S0167-7322(17)30252-0
DOI: doi: [10.1016/j.molliq.2017.03.115](https://doi.org/10.1016/j.molliq.2017.03.115)
Reference: MOLLIQ 7150

To appear in: *Journal of Molecular Liquids*

Received date: 19 January 2017
Revised date: 14 February 2017
Accepted date: 31 March 2017

Please cite this article as: Sahar Zinatloo-Ajabshir, Sobhan Mortazavi-Derazkola, Masoud Salavati-Niasari , Nd₂O₃ nanostructures: Simple synthesis, characterization and its photocatalytic degradation of methylene blue. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Molliq(2017), doi: [10.1016/j.molliq.2017.03.115](https://doi.org/10.1016/j.molliq.2017.03.115)

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.

Nd₂O₃ nanostructures: Simple synthesis, characterization and its photocatalytic degradation of methylene blue

Sahar Zinatloo-Ajabshir, Sobhan Mortazavi-Derazkola, Masoud Salavati-Niasari*

Institute of Nano Science and Nano Technology, University of Kashan, Kashan, P. O. Box. 87317-51167, I. R. Iran

* Corresponding author. Tel.: +98 31 55912383; Fax: +98 31 55913201; E-mail address: salavati@kashanu.ac.ir (M. Salavati-Niasari)

Abstract

Pure hexagonal Nd₂O₃ nanostructures have been synthesized via a simple precipitation way. For the first time, nanostructured Nd₂O₃ was produced with utilizing triethylenetetramine as a new precipitant and neodymium nitrate as a neodymium source. The analyses of XRD, FESEM, FT-IR, TEM, EDX, BET and DR-UV-vis were applied to characterize the as-prepared nanostructured Nd₂O₃. To evaluate the influence of various capping agents on the morphology, grain size and photocatalytic performance of Nd₂O₃, several experiments were performed. The results demonstrated that the kind of capping agent has substantial impact on the shape, grain size and photocatalytic performance of Nd₂O₃. In addition, application of the synthesized Nd₂O₃ samples as photocatalyst by photodegradation of methylene blue contaminant under ultraviolet illumination was investigated.

Keywords: Ceramic; Nd₂O₃; Nanostructures; Photocatalytic properties; Optical properties.

1. Introduction

...Rare earth metal oxides, particularly neodymium oxide (Nd₂O₃), have recently attracted enormous interest for application in catalysts, UV absorbent, luminescent materials, protective coatings and

Download English Version:

<https://daneshyari.com/en/article/5408551>

Download Persian Version:

<https://daneshyari.com/article/5408551>

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