

# Web of Science

Search

Search Results

My Tools ▾

Search History

Marked List

Full Text from Publisher

 Look Up Full Text


Save to EndNote online ▾

Add to Marked List

232 of 723

## Preparation and characterisation of Pd-TiO<sub>2</sub>-hydroxyapatite nanoparticles for the photocatalytic degradation of cyanide under visible light

By: Mohamed, RM (Mohamed, R. M.)<sup>[1]</sup>; Baeissa, ES (Baeissa, E. S.)<sup>[1,2]</sup>

[View ResearcherID and ORCID](#)

### APPLIED CATALYSIS A-GENERAL

Volume: 464 Pages: 218-224

DOI: 10.1016/j.apcata.2013.05.043

Published: AUG 15 2013

[View Journal Impact](#)

### Abstract

Hydroxyapatite nanoparticles were successfully synthesised by an ultrasonic irradiation method. Pd-TiO<sub>2</sub>-hydroxyapatite nanoparticles with 3 wt% of Pd and 25 wt% of TiO<sub>2</sub> were successfully synthesised by an impregnation method. For comparison, Pd-TiO<sub>2</sub> (3 wt% Pd) has been also synthesised by an impregnation method. The catalytic performance was evaluated by photocatalytic oxidation of cyanide under visible light irradiation. Extended X-ray absorption fine structure (EXAFS) measurements revealed the presence of the peaks assigned to the Pd-Pd bond at approximately 2.54 angstrom. Terephthalic acid assay confirmed formation of hydroxyl radicals in cyanide solution treated with photocatalysts and the amount of the formed hydroxyl radicals in the case of Pd-TiO<sub>2</sub>-hydroxyapatite nanoparticle is the highest than that of Pd-TiO<sub>2</sub> and TiO<sub>2</sub> nanoparticles. The improved photocatalytic activity of the Pd-TiO<sub>2</sub>-HAP systems is due to the absorption of radiation in the visible light region, the small recombination rate of the electron-hole pair, and the high surface area. The photocatalytic degradation of cyanide was found to follow first-order kinetics. Recycling experiments confirmed the relative stability of the catalyst. (C) 2013 Elsevier B.V. All rights reserved.

### Keywords

**Author Keywords:** Synthesis; Characterisation; Pd-TiO<sub>2</sub>; Hydroxyapatite; Visible photocatalyst; Cyanide removal

**KeyWords Plus:** TITANIUM-DIOXIDE; AQUEOUS SUSPENSION; TIO<sub>2</sub>; HYDROXYAPATITE; OXIDATION; ACID; DYE; IMMOBILIZATION; IRRADIATION; ADSORBENTS

### Author Information

**Reprint Address:** Mohamed, RM (reprint author)

+ CMRDI, Adv Mat Dept, POB 87 Helwan, Cairo 11421, Egypt.

#### Addresses:

- [ 1 ] King Abdulaziz Univ, Fac Sci, Dept Chem, Jeddah 21589, Saudi Arabia

#### Organization-Enhanced Name(s)

King Abdulaziz University

+ [ 2 ] CMRDI, Adv Mat Dept, Cairo 11421, Egypt

**E-mail Addresses:** [mhmdouf@gmail.com](mailto:mhmdouf@gmail.com)

### Publisher

ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS

## Citation Network

23 Times Cited

36 Cited References

[View Related Records](#)

 [Create Citation Alert](#)

*(data from Web of Science Core Collection)*

### All Times Cited Counts

23 in All Databases

23 in Web of Science Core Collection

3 in BIOSIS Citation Index

1 in Chinese Science Citation Database

0 in Data Citation Index

0 in Russian Science Citation Index

0 in SciELO Citation Index

### Usage Count

Last 180 Days: 7

Since 2013: 77

[Learn more](#)

### Most Recent Citation

Grcic, Ivana. Six-flux absorption-scattering models for photocatalysis under wide-spectrum irradiation sources in annular and flat reactors using catalysts with different optical properties . APPLIED CATALYSIS B-ENVIRONMENTAL, AUG 15 2017.

[View All](#)

### This record is from:

**Web of Science Core Collection**  
- Science Citation Index Expanded

### Suggest a correction

If you would like to improve the quality of the data in this record, please [suggest a correction](#).

**Categories / Classification****Research Areas:** Chemistry; Environmental Sciences & Ecology**Web of Science Categories:** Chemistry, Physical; Environmental Sciences**Document Information****Document Type:** Article**Language:** English**Accession Number:** WOS:000323805300026**ISSN:** 0926-860X**Journal Information****Table of Contents:** [Current Contents Connect](#)**Impact Factor:** [Journal Citation Reports](#)**Other Information****IDS Number:** 210BW**Cited References in Web of Science Core Collection:** **36****Times Cited in Web of Science Core Collection:** **23**