

Accepted Manuscript

Synthesis and antibacterial activity of a silver nanoparticle/silver titanium phosphate–nanocomposite nanobelt thin film formed on a titanium plate

Mitsunori Yada, Yuko Inoue, Tomohiro Morita, Shintaro Imamura, Toshio Torikai, Takanori Watari



PII: S0040-6090(17)30188-8
DOI: doi: [10.1016/j.tsf.2017.03.013](https://doi.org/10.1016/j.tsf.2017.03.013)
Reference: TSF 35861

To appear in: *Thin Solid Films*

Received date: 21 June 2016
Revised date: 28 February 2017
Accepted date: 7 March 2017

Please cite this article as: Mitsunori Yada, Yuko Inoue, Tomohiro Morita, Shintaro Imamura, Toshio Torikai, Takanori Watari, Synthesis and antibacterial activity of a silver nanoparticle/silver titanium phosphate–nanocomposite nanobelt thin film formed on a titanium plate. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Tsf(2017), doi: [10.1016/j.tsf.2017.03.013](https://doi.org/10.1016/j.tsf.2017.03.013)

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.

Synthesis and antibacterial activity of a silver nanoparticle/silver titanium phosphate–nanocomposite nanobelt thin film formed on a titanium plate

Mitsunori Yada, Yuko Inoue, Tomohiro Morita, Shintaro Imamura, Toshio Torikai, and Takanori Watari

Saga University, Department of Chemistry and Applied Chemistry, Faculty of Science and Engineering, 1 Honjo, Saga, 840-8502 (Japan).

Corresponding author: Mitsunori Yada, E-mail: yada@cc.saga-u.ac.jp

Abstract A silver nanoparticle/silver titanium phosphate–nanocomposite nanobelt thin film was synthesized on a titanium plate by Ag^+ ion exchange treatment of a titanium phosphate ($\text{Ti}_2\text{O}_3(\text{H}_2\text{PO}_4)_2 \cdot 2\text{H}_2\text{O}$) nanobelt thin film. Silver nanoparticles with sizes ranging from several nanometers to a few dozen nanometers were regioselectively deposited along the edges of the nanobelts to form the nanocomposite. The coexisting anions in the solution played a crucial role in the Ag^+ ion exchange reaction. In the presence of CH_3COO^- anions, Ag^+ ions were intercalated into the titanium phosphate nanobelts through ion exchange between Ag^+ and the H^+

Download English Version:

<https://daneshyari.com/en/article/5466281>

Download Persian Version:

<https://daneshyari.com/article/5466281>

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