

Accepted Manuscript

Full Length Article

Enhanced photocatalytic activity of ternary $\text{Ag}_3\text{PO}_4/\text{GO}/\text{g-C}_3\text{N}_4$ photocatalysts for Rhodamine B degradation under visible light radiation

Jia Yan, Zhilong Song, Xin Wang, Yuanguo Xu, Wenjie Pu, Hui Xu, Shouqi Yuan, Huaming Li

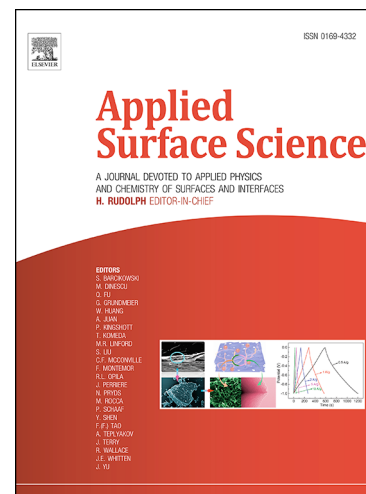
PII: S0169-4332(18)32667-9
DOI: <https://doi.org/10.1016/j.apsusc.2018.09.234>
Reference: APSUSC 40538

To appear in: *Applied Surface Science*

Received Date: 5 August 2018
Revised Date: 25 September 2018
Accepted Date: 26 September 2018

Please cite this article as: J. Yan, Z. Song, X. Wang, Y. Xu, W. Pu, H. Xu, S. Yuan, H. Li, Enhanced photocatalytic activity of ternary $\text{Ag}_3\text{PO}_4/\text{GO}/\text{g-C}_3\text{N}_4$ photocatalysts for Rhodamine B degradation under visible light radiation, *Applied Surface Science* (2018), doi: <https://doi.org/10.1016/j.apsusc.2018.09.234>

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.



Enhanced photocatalytic activity of ternary Ag₃PO₄/GO/g-C₃N₄ photocatalysts for Rhodamine B degradation under visible light radiation

Jia Yan^a, Zhilong Song^a, Xin Wang^a, Yuanguo Xu^a, Wenjie Pu^b, Hui Xu^a, Shouqi Yuan^{a,*},

Huaming Li^{a,*}

^a Institute for Energy Research, Jiangsu University, 301 Xuefu Road, Zhenjiang, Jiangsu, 212013,
P. R. China

^b School of Chemistry & Chemical Engineering, Jiangsu University, 301 Xuefu Road, Zhenjiang,
Jiangsu, 212013, P. R. China

Abstract: Single-component graphitic carbon nitride (g-C₃N₄) are faced with inadequate visible light absorption and low quantum efficiency arising from the rapid charge recombination, limiting their efficient photocatalytic degradation of organic pollutant under visible light radiation. Here, we demonstrated a ternary photocatalyst composed of Ag₃PO₄, graphene oxide (GO), and g-C₃N₄ synthesized by chemical precipitation method, in which Ag₃PO₄ as the photosensitizer and GO as the cocatalyst that significantly promoted the photocatalytic activity of g-C₃N₄ for Rhodamine B (RhB) degradation under visible light radiation. The ternary photocatalysts (Ag₃PO₄/GO/g-C₃N₄) exhibited enhanced absorption in the visible region and superior photocatalytic activity compared with single-component or binary composite photocatalysts for RhB degradation. The degradation rate toward RhB could reach to 94.8% under visible light irradiation for 50 min, and we found that it was the hole (h⁺), superoxide radical (O₂^{•-}) and hydroxyl radical (OH[•]) that played a major role in RhB degradation. Meanwhile, the ternary photocatalyst showed enhanced photocatalytic

Download English Version:

<https://daneshyari.com/en/article/10998083>

Download Persian Version:

<https://daneshyari.com/article/10998083>

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