

The enhanced photo-stability of defective Ag₃PO₄ tetrahedron prepared using tripolyphosphate

Publons ID	(not set)
Wos ID	WOS:000916075800005
Doi	10.1016/j.arabjc.2022.104409
Title	The enhanced photo-stability of defective Ag ₃ PO ₄ tetrahedron prepared using tripolyphosphate
First Author	
Last Author	
Authors	Sulaeman, U; Ramadhanti, SF; Diastuti, H; Iswanto, P; Isnaeni, I; Yin, S;
Publish Date	JAN 2023
Journal Name	ARABIAN JOURNAL OF CHEMISTRY
Citation	7
Abstract	<p>Ag₃PO₄ is an excellent photocatalyst under visible light irradiation. However, the low stability due to photo-corrosion is still an obstacle in its application. It is a big challenge to improve stability using synthesis modification. Here, the photocatalyst stability enhancement was successfully prepared by tripolyphosphate. Photocatalyst was prepared by reacting AgNO₃ solution with STPP (sodium tripolyphosphate) solution to form a white suspension. The addition of phosphate solution to the white suspension produces yellow Ag₃PO₄ with a new type of defective photocatalyst. The XPS measurement showed that the increase of STPP concentration significantly decreased the Ag/P atomic ratio, indicating the silver vacancy formation on the surface of Ag₃PO₄. The photocatalytic reaction formed a metallic Ag with a lower d-space in the cube structure occurred in the silver vacancy of Ag₃PO₄. This defect increases the interaction of metallic silver and Ag₃PO₄. The enhanced photo-stability might be induced by metallic silver that can act as a photogenerated electron acceptor. (c) 2022 The Author(s). Published by Elsevier B.V. on behalf of King Saud University. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).</p>
Publish Type	Journal
Publish Year	2023
Page Begin	(not set)
Page End	(not set)
Issn	1878-5352
Eissn	1878-5379
Url	https://www.webofscience.com/wos/woscc/full-record/WOS:000916075800005
Author	Dr HARTIWI DIASTUTI, S.Si, M.Si