

Synthesis of Ag₃PO₄ using Hydrophilic Polymer and Their Photocatalytic Activities under Visible Light Irradiation

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Abstract	The highly active Ag ₃ PO ₄ photocatalysts were successfully synthesized using the hydrophilic polymer of PVA (polyvinyl alcohol), PEG (polyethylene glycol) and PVP (polyvinyl pyrrolidone). The products were characterized using X-ray diffraction (XRD), Diffuse reflection spectroscopy (DRS), Field emission scanning electron microscope (FE-SEM), Brunauer-Emmett-Teller (BET) specific surface area, and X-ray photoelectron spectroscopy (XPS). Photocatalytic activities were evaluated using decomposition of Rhodamine B (RhB) under visible light irradiation. The results showed that the PVA, PEG, and PVP increased the specific surface area and enhanced the photocatalytic activity of Ag ₃ PO ₄ . The highest photocatalytic activity could be observed in Ag ₃ PO ₄ synthesized with PVA, mainly due to an increase in electron excitation induced by PVA chemically adsorbed on the surface.
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