

Synthesis, Characterization, Photocatalytic Properties of a Series of Bismuth Vanadates by a Hydrothermal Method

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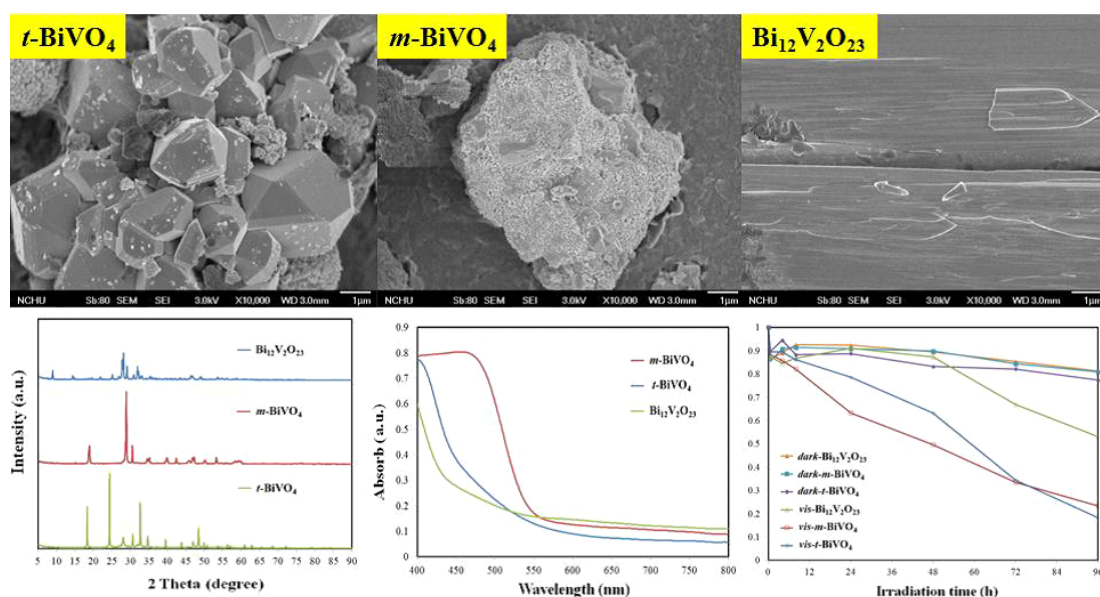
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A series of Bismuth Vanadates in different crystalline phases have been prepared by a hydrothermal method. The products are characterized by XRD, SEM-EDS, HR-TEM, DR-UV, BET, and HR-XPS. It is demonstrated that monoclinic bismuth vanadate (*m*-BiVO₄), tetragonal bismuth vanadate (*t*-BiVO₄), and Bi₁₂V₂O₂₃ can be selectively prepared through a facile solution-based hydrothermal method. UV-Vis spectra show the three materials being the indirect semiconductors with optical bandgaps of 2.2, 2.5, and 2.6 eV. The photocatalytic efficiency of the powder suspension is evaluated by measuring the Crystal Violet (CV) concentration. This is a study to show the superior activities of *m*-BiVO₄, *t*-BiVO₄, and Bi₁₂V₂O₂₃ being a promising visible-light-responsive photocatalyst.



Keywords : Bismuth Vanadates, Hydrothermal, Photocatalytic, Crystal Violet

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