

Photocatalytic and Photoelectrochemical Properties of Monoclinic Tungsten Oxide

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For water splitting using semiconductor and solar light, the different two systems are proposed ; photocatalyst based in powder suspension and photoelectrochemical cell(PEC) based in film electrode. WO_3 is a very attractive material in photoactive water splitting because of economic feasibility, high stability in aqueous solution, and photoactivity in visible light. This study focused on how physical properties of WO_3 influence photoactivity in two systems. WO_3 powders of monoclinic crystal structure was synthesized by hydrothermal method followed by additional calcination. For applying PEC system, a paste of WO_3 powder and organic additive was applied on F:SnO₂/glass substrate. These were characterized by XRD, SEM, TEM, UV spectra and BET analysis.