

Synthesis and characterization of Bismuth / Bismuth Sulfide / Bismuth Vanadate nanocomposite by hydrothermal method

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Recently, there has been growing interest in the development of efficient photocatalysts for various applications, such as environmental remediation and optoelectronics. the synthesis of nanocomposites has received attention due to their unique properties and potential applications in various fields. Bismuth vanadate (BiVO_4) and bismuth sulfide (Bi_2S_3) are two promising materials with strong visible light absorption capabilities. in this article, bismuth / bismuth sulfide / bismuth vanadate nanocomposite is prepared by hydrothermal method using ammonium metavanadate, bismuth nitrate, and thioacetamide reagents and was synthesized in the presence of hydrazine. The purity, structure and morphology of the produced nanocomposite were identified by XRD and FT-IR analyze. This nanocomposite can have high photocatalytic capability and can be used for desulfurization of petroleum derivatives, and finally, by examining the photocatalytic performance of this nanocomposite in desulfurization of petroleum derivatives, its effectiveness was confirmed.

Keywords: Bi / Bi_2S_3 / BiVO_4 , nanocomposite, photocatalyst

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