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Preparation and Visible-light Photocatalytic Activity of Bismuth Tungstate/Lotus

Fiber Composite Membrane

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Abstract: Bismuth tungstate/lotus fiber composite membrane ($\text{Bi}_2\text{WO}_6/\text{LF}$) were prepared. The composite membranes were characterized by scanning electron microscopy (SEM), energy dispersive spectrum (EDS) and X-ray diffraction (XRD). The photocatalytic activity of $\text{Bi}_2\text{WO}_6/\text{LF}$ under visible light irradiation was investigated. The result shows that photocatalytic activity of the $\text{Bi}_2\text{WO}_6/\text{LF}$ increase with the rise of Bi_2WO_6 content in the composite membrane. $\text{Bi}_2\text{WO}_6/\text{LF}$ with 1 % Bi_2WO_6 possesses excellent photocatalytic activity for methylene blue and degradation efficiency of methylene blue reach 94 % after being irradiation for 270 min. $\text{Bi}_2\text{WO}_6/\text{LF}$ could be potentially applied in sewage disposal and environmental remediation.

Keywords: bismuth tungstate, lotus fiber, Thin films, composite, photocatalytic activity, Polymers.

1. Introduction

Semiconductor photocatalytic oxidation technique, a promising method for degrading contaminants, has attracted increasing attention in sewage disposal. Bismuth tungstate (Bi_2WO_6) is a promising semiconductor material, which possesses excellent photocatalytic activity due to its narrow band gap

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