

Microwave-Assisted Fabrication of Visible-Light Activated BiOBr-Nanoplate Photocatalyst

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Abstract : In recent years, visible-light activated photocatalysis has become a major field of intense researches for the higher efficiency of solar energy utilizations. Many attempts have been made on the modification of wide band gap semiconductors, while more and more efforts emphasize on cost-effective synthesis of visible-light activated catalysts. In this work, BiOBr nanoplates with band gap of visible-light range are synthesized through a promising microwave solvothermal method. The treatment time period and temperature dependent BiOBr nanosheets of various particle sizes are investigated through SEM. BiOBr synthesized under the condition of 160°C for 60 mins shows the most uniform particle sizes around 311 nm and the highest surface-to-volume ratio on account of its smallest average particle sizes compared with others. It exhibits the best photocatalytic behavior among all samples in RhB degradation.

Keywords : microwave solvothermal process, nanoplates, solar energy, visible-light photocatalysis

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