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Graphitic carbon nitride embedded in hot-melt adhesive polyester and hydrophilic cellulose blend fibers for the efficient elimination of antibiotics under solar irradiation

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Keywords: cellulose, hydrophilic, g-C₃N₄, low melting sheath-core composite fiber, photocatalysis, aquatic environment

ABSTRACT

For a supported catalyst, the interface properties of the carrier material influence the contact efficiency between the catalysts and the target substrates, which has a significant effect on the catalytic activity. As a carrier material, low melting sheath-core composite polyester fiber (LMPET) can be used to immobilize powder catalysts for realizing recyclability. However, due to the hydrophobic interface of LMPET, the contact between photocatalysts and the substrates is insufficient in aqueous solution. In this study, the surface properties of LMPET were changed from hydrophobic to hydrophilic by blending viscose fiber with a 20% proportion. Graphitic carbon nitride (g-C₃N₄) was then embedded to the blend fiber by a hot-melt adhesive method. The obtained composite was labeled as g-C₃N₄@LMP/V20. g-C₃N₄ achieved

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