

OA6) Dendritic Fibrous Nanosilica (KCC-1) Templated g-C₃N₄ with Cobalt Oxide for Efficient Visible Light Driven Photocatalysis

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Photocatalysis has been studied various ways because it is the next generation technology to solve upcoming environmental problems. Among many photocatalyst materials, graphitic carbon nitride (g-C₃N₄) has been recently issued because it can be driven by visible light for photocatalysis from appropriate band energy level. However, due to the low surface area with fast charge carrier recombination, bulk g-C₃N₄ has low photocatalytic activity. Herein, we fabricated the 3D porous g-C₃N₄ from dendritic fibrous nanosilica (KCC-1) with cobalt oxide for efficient visible light driven photocatalysis. From the unique structure of KCC-1 which has an opened porous structure, it gives the highly opened porous structure to enhance mass transportation for reaction. Additionally, cobalt oxide was uniformly deposited on 3D porous g-C₃N₄ with small amount of platinum for slow charge carrier recombination. So, we fabricated 3D porous g-C₃N₄ with 4 nm sized nanoparticles which has 4 times higher rate constant than bulk case in dye degradation.