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PII: S0304-3894(16)30747-6
DOI: http://dx.doi.org/doi:10.1016/j.jhazmat.2016.08.025
Reference: HAZMAT 17952

To appear in: *Journal of Hazardous Materials*

Received date: 6-5-2016
Revised date: 24-7-2016
Accepted date: 8-8-2016

Please cite this article as: Wei Chen, Ting Huang, Yu-Xiang Hua, Tian-Yu Liu, Xiao-Heng Liu, Shen-Ming Chen, Hierarchical CdIn2S4 microspheres wrapped by mesoporous g-C3N4 ultrathin nanosheets with enhanced visible light driven photocatalytic reduction activity, Journal of Hazardous Materials http://dx.doi.org/10.1016/j.jhazmat.2016.08.025

<AT>Hierarchical $CdIn_2S_4$ microspheres wrapped by mesoporous g-C_3N_4 ultrathin nanosheets with enhanced visible light driven photocatalytic reduction activity

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<PA>*Corresponding authors Graphicalabstract The heterostructures fabricated by mesoporous g-C_3N_4 nanosheets wrapped onto the $CdIn_2S_4$ microsphere exhibits highly efficient photocatalytic activity and excellent photo-stability during recycling runs.

<ABS-HEAD>Highlights► We fabricated novel $CdIn_2S_4$/g-C_3N_4 catalysts through a simple hydrothermal route. ► Composite exhibited excellent stability because of the incorporation of g-C_3N_4. ► Composite is highly efficient photocatalyst for H_2 production and 4-NA reduction. ► The enhanced photocatalytic activity was ascribed to heterogeneous interface.

<ABS-HEAD>Abstract

<ABS-P>In this investigation, a series of hierarchical $CdIn_2S_4$/g-C_3N_4 nanocomposites were firstly synthesized by a facile one-pot hydrothermal strategy, wherein the mesoporous g-C_3N_4 nanosheets were in-situ self-wrapped onto $CdIn_2S_4$ nanosheets. Systematic characterization by XRD, FT-IR, UV-vis DRS, SEM, TEM, HAAF-STEM, XPS, photoelectrochemical tests were employed to analyze the phase structure, chemical composition, morphology and photocatalytic mechanism. The application, including photo-redox reaction and photocatalytic water splitting, were used to