



ABSTRACT BOOK

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PO2.27

A study of physical properties and photocatalytic ability of g-C₃N₄ nanosheets synthesized by heating Urea in Ar atmosphere at different heating time

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The influence of heating time on polymerization processes of g-C₃N₄ nanosheets in Ar atmosphere was investigated through X-ray diffraction (XRD) analysis, scanning electron microscopy (SEM), FTIR and UV-vis absorption, and photoluminescence (PL) techniques. Results show that the formation of crystal structure and physical properties of obtained g-C₃N₄ nanosheets depended strongly on heating time. g-C₃N₄ crystals with some degree of disorders were formed after heating at 550 °C for 1.5 h, however disorders disappeared after extended heating time to 2.5 h. The photocatalytic activity of g-C₃N₄ nanosheets synthesized at different heating times was evaluated by the degradation of Rhodamine B (RhB) aqueous solution under Xenon lamp irradiation. The highest photocatalytic ability was observed at g-C₃N₄ nanosheets synthesized at 550°C for 2.0 h, 95 % of RhB 10ppm was decomposed after 2h stirring in Xenon lamp irradiation.

Keywords: nanosheets, photocatalytic, heating time, g-C₃N₄.

References:

- [1] F. Dong, L. Wu, Y. Sun, M. Fu, Z. Wu, and S. C. Lee, J. Mater. Chem. 21 (39), 15171 (2011).
- [2] G. Zhang, M. Zhang, X. Ye, X. Qiu, S. Lin, and X. Wang, Adv. Mater. 26 (5), 805-809 (2014).
- [3] L. Shi, T. Wang, H. Zhang, K. Chang, and J. Ye, Adv. Funct. Mater. 25 (33), 5360-5367 (2015).