

As one of the most commonly used dyes, Rhodamine B (RhB) is widely used in industrial purposes, such as printing and dyeing in textile, paper, paints, leathers etc. However, the organic dyes will cause serious environmental and biological problems, even capable to induce irritation to the skin, eyes. Thus, the removal of dye from water is a great challenge and a pressing task. The convention methods for removal of RhB contains biochemical and physical-chemical methods, such as liquid membrane, ozonation and adsorption, which are expensive and not very effective. Based on Semiconductor heterogeneous photocatalysis, photocatalysts present promising application for the organic dye decomposition with superior activity.

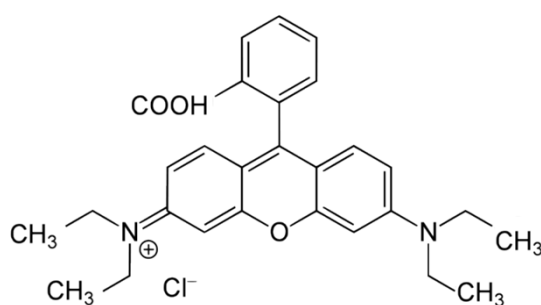


Fig. S1 The molecular structure of RhB

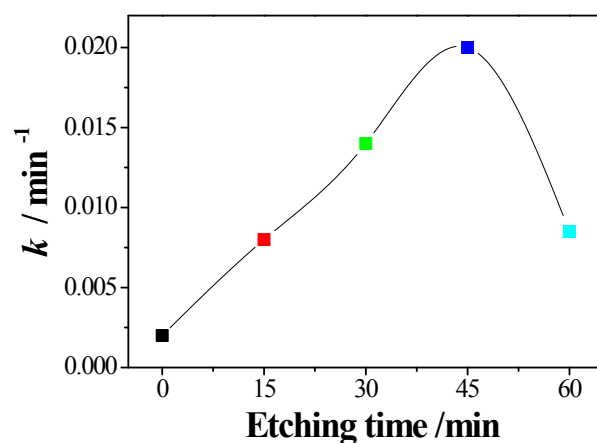


Fig. S2 The dependence of the kinetic constant on the etching time.

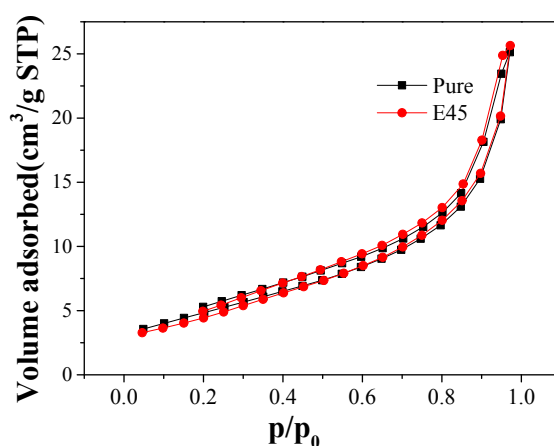


Fig. S3 Typical N<sub>2</sub> adsorption–desorption isotherm and pore-size distribution curve of E45 and pure Bi<sub>2</sub>MoO<sub>6</sub>.

The N<sub>2</sub> adsorption–desorption isotherm was shown in Fig. S3 and BET specific surface areas were calculated for the pure Bi<sub>2</sub>MoO<sub>6</sub> (17.72 m<sup>2</sup>/g) and E45 (16.82 m<sup>2</sup>/g), which indicate that the etching process did not increase the specific surface area.

- [1] H. Kaur and R. Kaur. *J. Mater. Environ. Sci.* 2014, 5 (6), 1830-1838.
- [2] I. Aslam, C. B. Cao, M. Tanveer, W. S. Khan, M. Tahir, M. Abid, F. Idrees, F. K. Butt, Z. Ali and N. Mahmood. *New J. Chem.*, 2014, 38, 5462-5469.
- [3] A.B. Dos Santos, F.J. Cervantes, J.B. Van Lier, *Bioresource Technol.*, 2007,98, 2369-2385.