

Electronic Supplementary Information

Adsorption behavior of rhodamine B on nanoporous polymer

Yide Han, Weiwei Li, Jing Zhang, Hao Meng, Yan Xu and Xia Zhang*

Department of Chemistry, College of Science, Northeastern University, Shenyang,
Liaoning, 110819, P.R. China

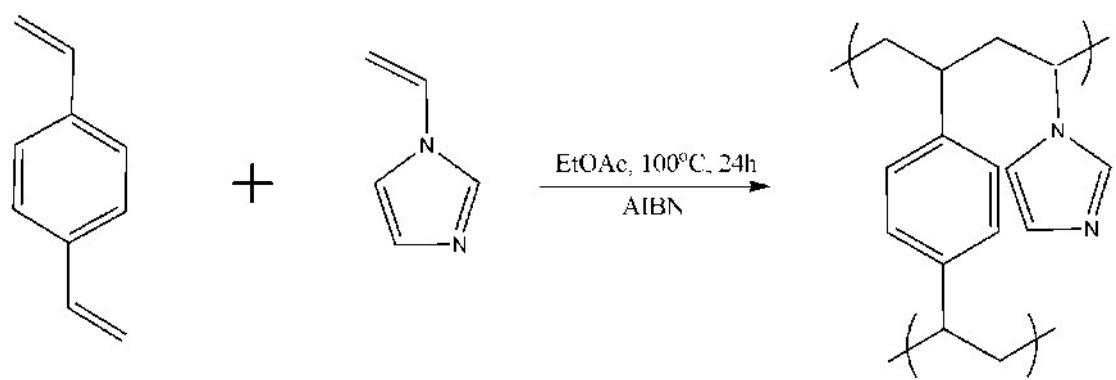
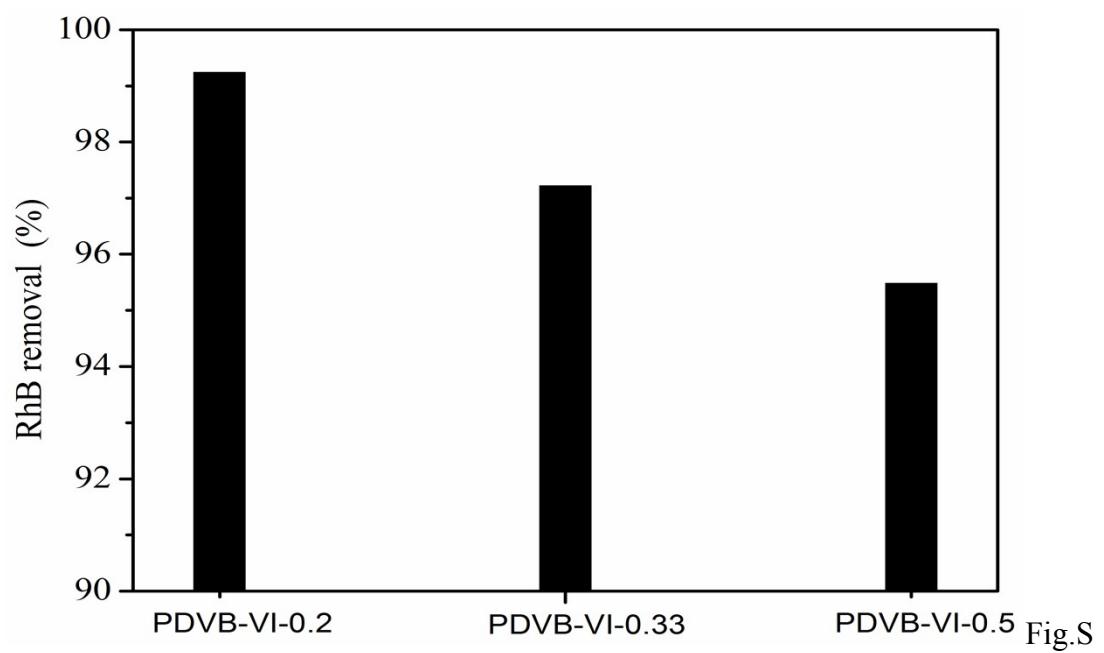


Fig. S1 Scheme for the synthesis of PDVB-VI-x



2 Removal efficiency of RhB on nanoporous polymers.

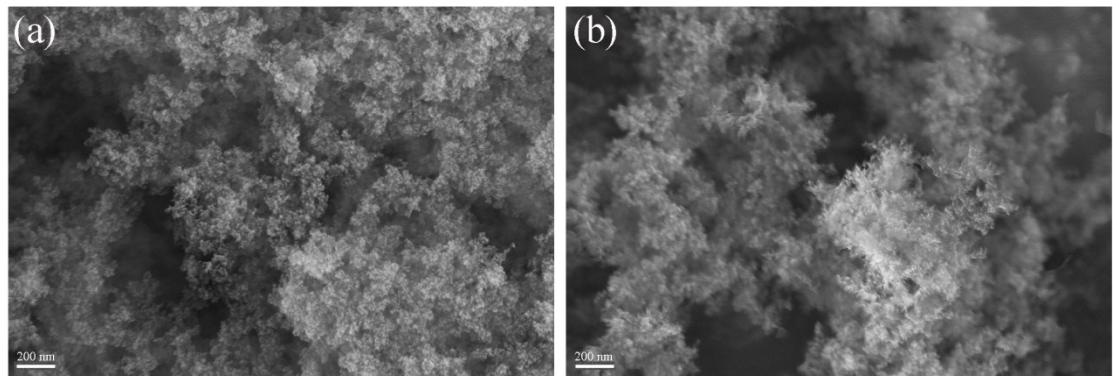


Fig. S3 SEM images of PDVB-VI-0.33 (a) and PDVB-VI-0.5 (b).

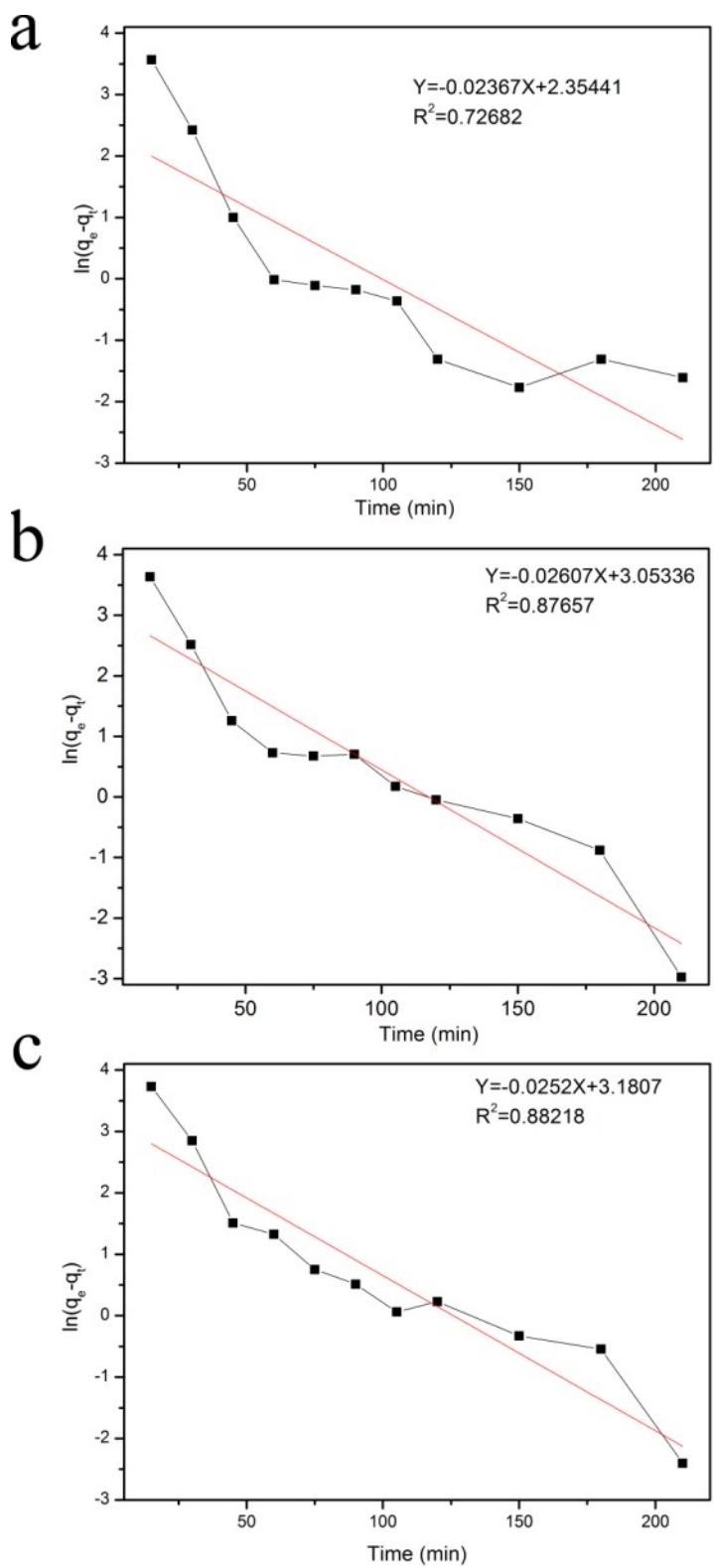


Fig. S4 Pseudo-first-order kinetics of RhB adsorption on PDVB-VI-0.2 at 298 K (a), 308 K (b) and 318 K (c).

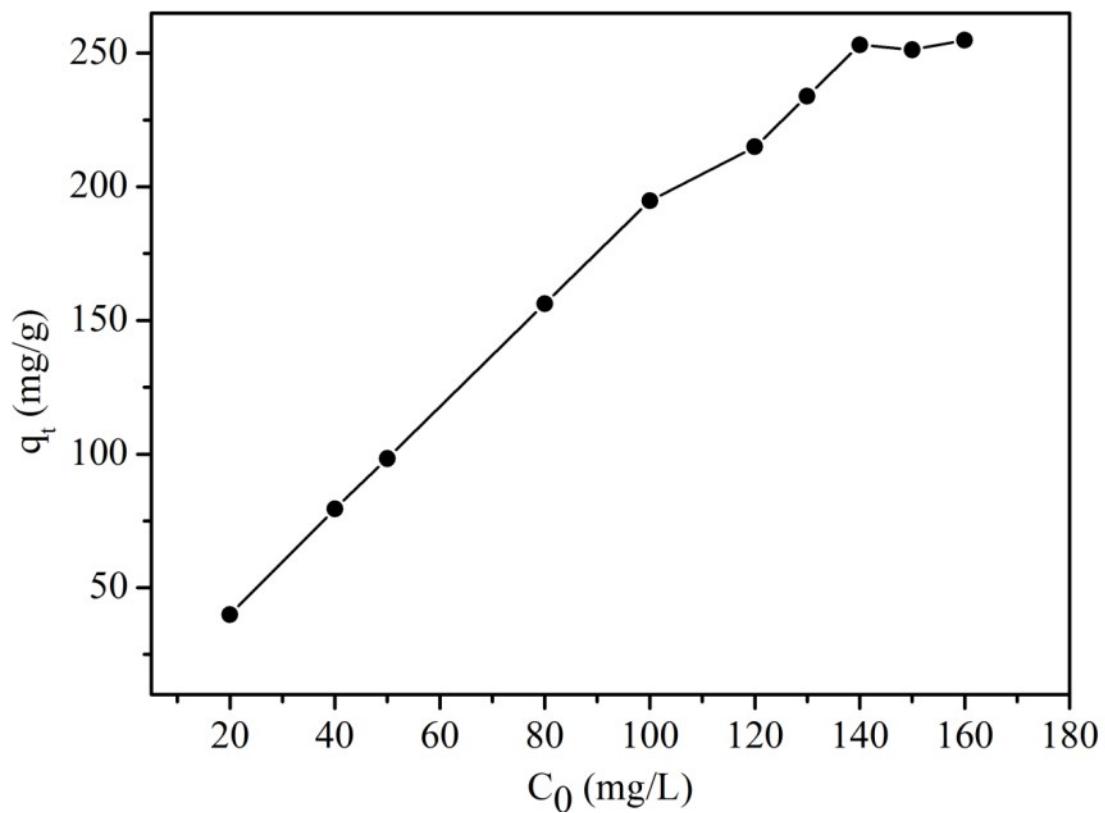


Fig. S5 PDVB-VI-0.2 was used to adsorb RhB in solution with different concentrations (mg/L)

Table S1 Comparison of PDVB-VI-0.2 adsorption capacity for RhB with other adsorptions.

Material	Surface area of adsorbent	Adsorption capacity	Concentration	Contact time	pH	Source
Reduced graphene oxide	298.2 m ² /g	29.44 mg/g	0.5- 10 mg/L	120 min	6.4	S1
Jute stick powder	32.6 m ² /g	87.7 mg/g	-	60 min	7.0	S2
Carbonaceous adsorbent	380 m ² /g	91.1 mg/g	-	30 min	5.5-6.5	S3
Iron-pillared bentonite	-	98.62 mg/g	10-50 mg/L	1440 min	5.0	S4
PDVB-VI-0.2	737 m ² /g	260.42 mg/g		60 min	3-11	This work
BPH active carbon	522.7 m ² /g	263.85 mg/g	100-600 mg/L	240 min	5.7	S5
Active carbon(scrap tires)	720 m ² /g	307.2 mg/g	20-50 mg/L	300 min	4	S6
Active carbon (Rice husk)	1803 m ² /g	478.15 mg/g	100-600 mg/L	300 min	-	S7
Covalent triazine framework	2071 m ² /g	483.8 mg/g	-	55 min	1-11	S8
Fe ₃ O ₄ magnetic nanoparticles-graphene oxide	-	690 mg/g	-	10 min	7.0	9S

- S1. J. N. Tiwari, K. Mahesh, N. H. Le, K. C. Kemp, R. Timilsina, R. N. Tiwari, K. S. Kim, Carbon 2013, 56, 173–182.
- S2. G. C. Panda, S. K. Das, A. K. Guha, Journal of Hazardous Materials 2009, 164, 374–379.
- S3.. A. Bhatnagar, A. K. Jain, Journal of Colloid and Interface Science 2005, 281, 49–55.
- S4 .M. Hou, C. Ma, W. Zhang, X. Tang, Y. Fan, H. Wan, Journal of Hazardous Materials 2011, 186, 1118–1123.
- S5. H. M. H. Gad, A. A. El-Sayed, Journal of Hazardous Materials 2009, 168, 1070–1081.
- S6. L. Li, S. Liu, T. Zhu, Journal of Environmental Sciences, 2010, 22, 1273–1280.
- S7. L. Ding, B. Zou, W. Gao, Q. Liu, Z. Wang, Y. Guo, X. Wang, Y. Liu, Colloids and Surfaces A: Physicochem. Eng. Aspects, 2014, 446, 1–7.
- S8. T. Wang, K. Kailasam, P. Xiao, G. Chen, L. Chen, L. Wang, J. Li, J. Zhu, Microporous and Mesoporous Materials 2014, 187, 63–70.
- S9. J. Chen, Y. Hao, Y. Liu, J. Gou, RSC Advances, 2013, 3, 7254–7258

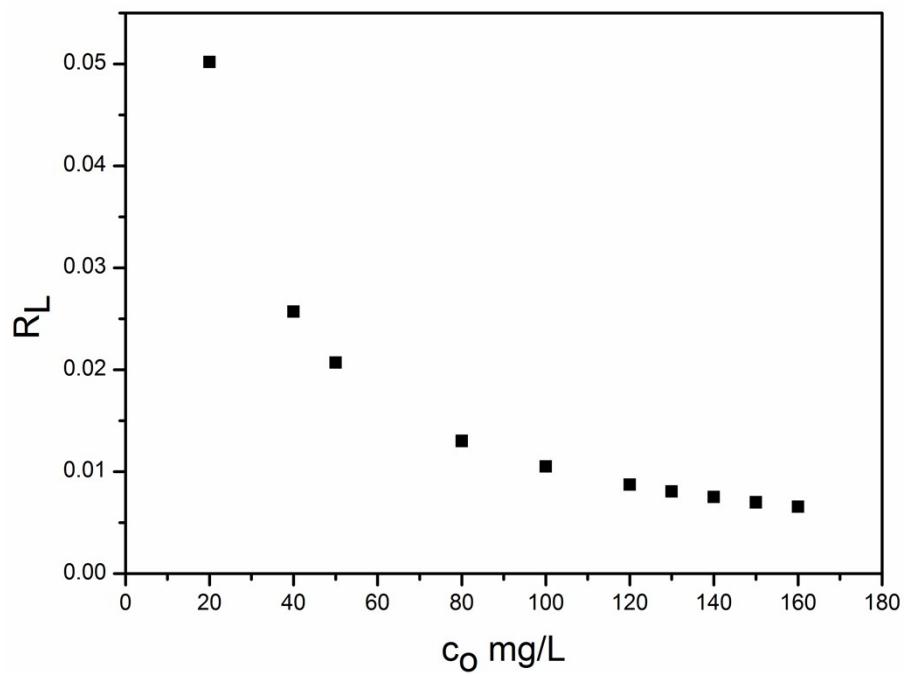


Fig. S6 Separation factor R_L for adsorption of RhB by PDVB-VI-0.2.

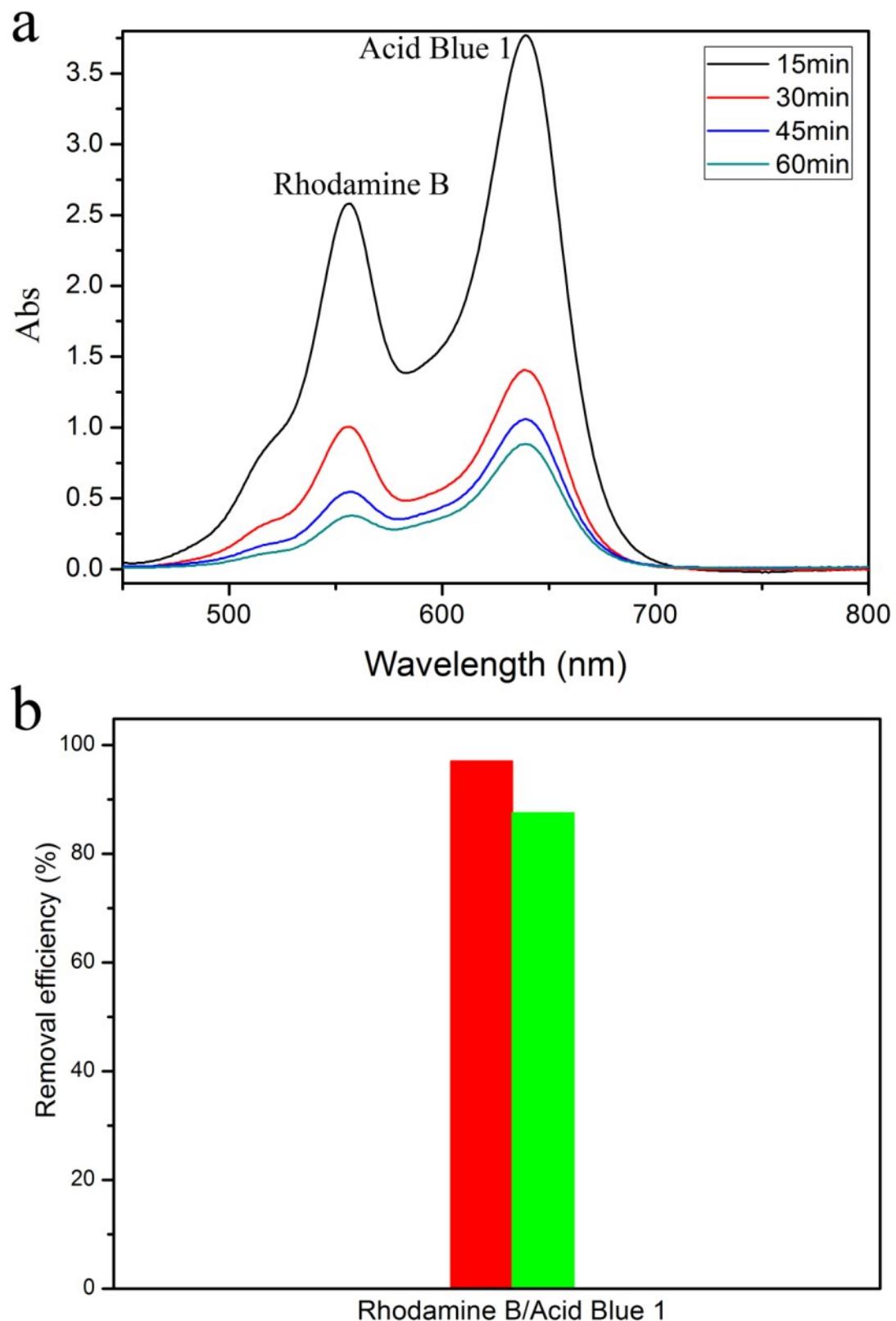


Fig. S7 (a) UV-Vis spectra of the binary mixture solution of RhB and Acid Blue 1 after the addition of PDVB-VI-0.2; (b) Comparison of the removal efficiency for dyes in the mixture of RhB and Acid Blue 1.