Supplementary Data

Preparation of Ni₅P₄/Ni Porous Composite Using Ni Foam As Skeleton and Its Application in Restoration of Large Volume Effluent with A High Concentration of 4-Nitrophenol at Room Temperature

Xing Liu, Xiaomeng Dou, Xiangqing Li, Lixia Qin, Sheng Han*, Shi-Zhao Kang*

School of Chemical and Environmental Engineering, Shanghai Institute of Technology, 100 Haiquan Road, Shanghai 201418, China

* Corresponding author: Shi-Zhao Kang, Tel./fax: +86 21 60873061.

E-mail address: kangsz@sit.edu.cn (S.-Z. Kang)
**Supplementary Fig. S1**

**Fig. S1.** (A) SEM image of Ni foam-Ni$_3$P$_4$ (30%), (B) elemental mapping of P element and (C) elemental mapping of Ni element.
Supplementary Fig. S2

**Fig. S2.** SEM images of Ni foam-Ni$_3$P$_4$ (30%) after (A) stretched and (B) curled.
Fig. S3. Time-dependent UV-vis spectra of the solution containing 4-NP and NaBH₄ in the presence of Ni foam-Ni₃P₄ (30%), (a) 0 min, (b) 5 min, (c) 9 min, (d) 13 min, (e) 24 min and (f) 36 min.
**Supplementary Fig. S4**

**Fig. S4.** Time-courses of catalytic 4-NP reduction over Ni foam-Ni$_3$P$_4$ (30%), concentration of NaBH$_4$ (a) 0.06 mol L$^{-1}$, (b) 0.08 mol L$^{-1}$ (c) 0.1 mol L$^{-1}$ and (d) 0.12 mol L$^{-1}$, volume 100 mL.
Fig. S5. (A) Time-courses of catalytic 4-NP reduction over Ni foam-Ni$_5$P$_4$ (30%) at (a) 5°C, (b) 25°C, (c) 35°C and (d) 45°C; (B) time-course of catalytic 4-NP reduction in the presence of Ag nanoparticles at 45°C.
Supplementary Fig. S6

**Fig. S6.** Time-course of catalytic 4-NP reduction over the bare Ni foam.
Fig. S7. Time-courses of catalytic 4-NP reduction over Ni foam-Ni₃P₄ (30%) at stirring rate of (a) 200 r min⁻¹, (b) 300 r min⁻¹, (c) 400 r min⁻¹ and (d) 500 r min⁻¹.
Supplementary Fig. S8

**Fig. S8.** Time-courses of catalytic 4-NP reduction over Ni foam-Ni₅P₄ (30%) at pH = (a) 8.3, (b) 9.3, (c) 10.3, (d) 11.3, (e) 12.3 and (f) 13.3.