Supporting Information for

Controlled Synthesis of Magnetic Pd/Fe\textsubscript{3}O\textsubscript{4} Spheres via an Ethylenediamine-Assisted Route

Hai-Qun Wang, Xiao Wei, Kai-Xue Wang,* and Jie-Sheng Chen*

School of Chemistry and Chemical Engineering, Shanghai Jiao Tong University,
Shanghai 200240, People’s Republic of China

The Fourier transform infrared spectroscopy

The Fourier transform infrared (FTIR) spectrum provides direct proof for the existence of related substances. The peaks located at 1636 cm\textsuperscript{-1} and 1396 cm\textsuperscript{-1} are attributed to N-H bending vibration and C-N stretching vibration, respectively, indicating the existence of en in the obtained magnetic nanoparticles. The absorption bands located at about 2968-2860 cm\textsuperscript{-1} are assigned to the C-H stretching band, whereas the band at 1082 cm\textsuperscript{-1} corresponds to C-O stretching vibration, implying the presence of few residual EG molecules in the nanoparticles. The strong band appearing at 586 cm\textsuperscript{-1} is characteristics of Fe-O vibrations, revealing the existence of Fe\textsubscript{3}O\textsubscript{4}. 
Fig. S1 FTIR spectrum for the Pd/Fe₃O₄ hollow (or solid) spheres.

Fig. S2 XRD patterns of the as-synthesized products in different reaction times.

◆: peaks of Pd
Fig. S3 GC traces for the reaction product obtained at different reaction times:

(a) 0 min, (b) 290 min and (c) 470 min (catalyst: hollow Pd/Fe$_3$O$_4$ spheres).

Fig. S4 The EDX spectrum of Pd/Fe$_3$O$_4$ solid spheres.