Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

Facile Synthesis of Mesoporous FeNi-alloyed Carbonaceous Microsphere as Recyclable Magnetic Adsorbent for Trichloroethylene Removal

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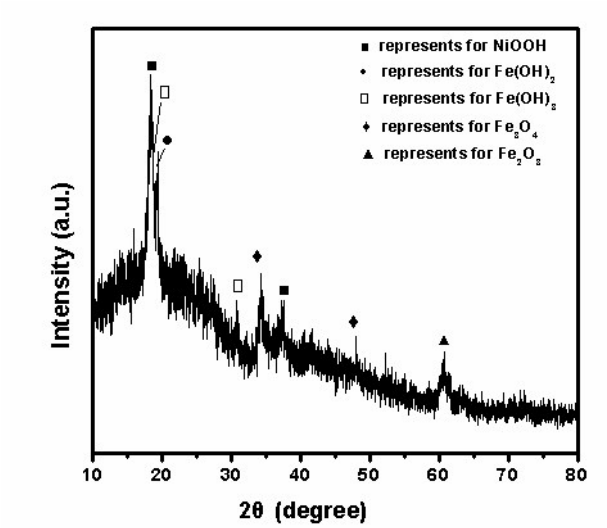

Fig. S1. XRD pattern of heterogeneous precursors of M(OH)x and MO_x formed after hydrothermal treatment.

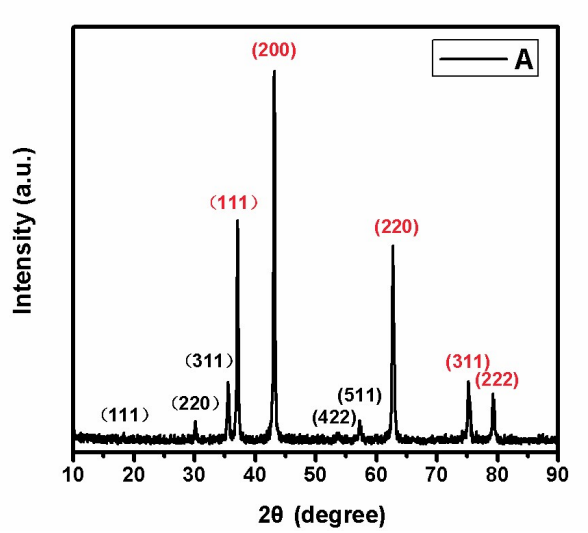

Fig. S2. XRD pattern of FeNi/CS calcined at 800℃.

Fig.S2 shows the XRD patterns of FeNi /CS calcined at 800 °C. In the pattern of the sample, the peaks at 37.2, 43.27, 62.88, 75.41 and 79.41 were observed, which were ascribed to the (1 1 1), (2 0 0), (2 2 0), (3 1 1) and (2 2 2) faces of NiO (PDF # 44-1159). Besides, we can also see the peaks appeared at 18.30, 30.1, 35.45, 53.45 and 56.98, which were due to the (1 1 1), (2 2 0), (3 1 1), (4 2 2) and (5 1 1) faces of Fe_3O_4 (PDF # 65-3107).

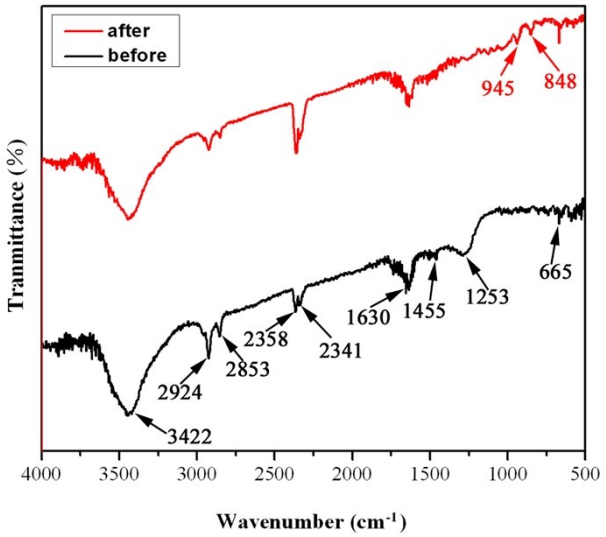

Fig.S3. FT-IR spectra of FeNi/CS-700 before and after adsorption of TCE.

Fig.S3 shows the FTIR spectra of the two samples. The absorption at 3422 was ascribed to the -OH vibrations of the adsorbed H_2O. The peak at 2853 and 2924cm^{-1} were attributed to C–H stretching vibration. The bands observed at 2341 and 2358 cm^{-1} were assigned to the CO_2 stretching vibration. Bending vibrations of C–H bonds can be observed at 1455cm^{-1}. The peaks at 1063 and 1253 cm^{-1} were attributed to the C-O stretching vibration. The band at 1632cm^{-1} was corresponding to the stretching vibrations of C=C. Comparing the two spectra, obvious characteristic vibrations of C-Cl in TCE molecules at about 848 and 945 cm^{-1} were observed, demonstrating that the adsorption of TCE on the surface of FeNi/CS-700 in the water.