Supporting Information

Ni^{2+}/Surfactant–assisted route to porous α-Fe_2O_3 nanoarchitectures

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Fig. S1

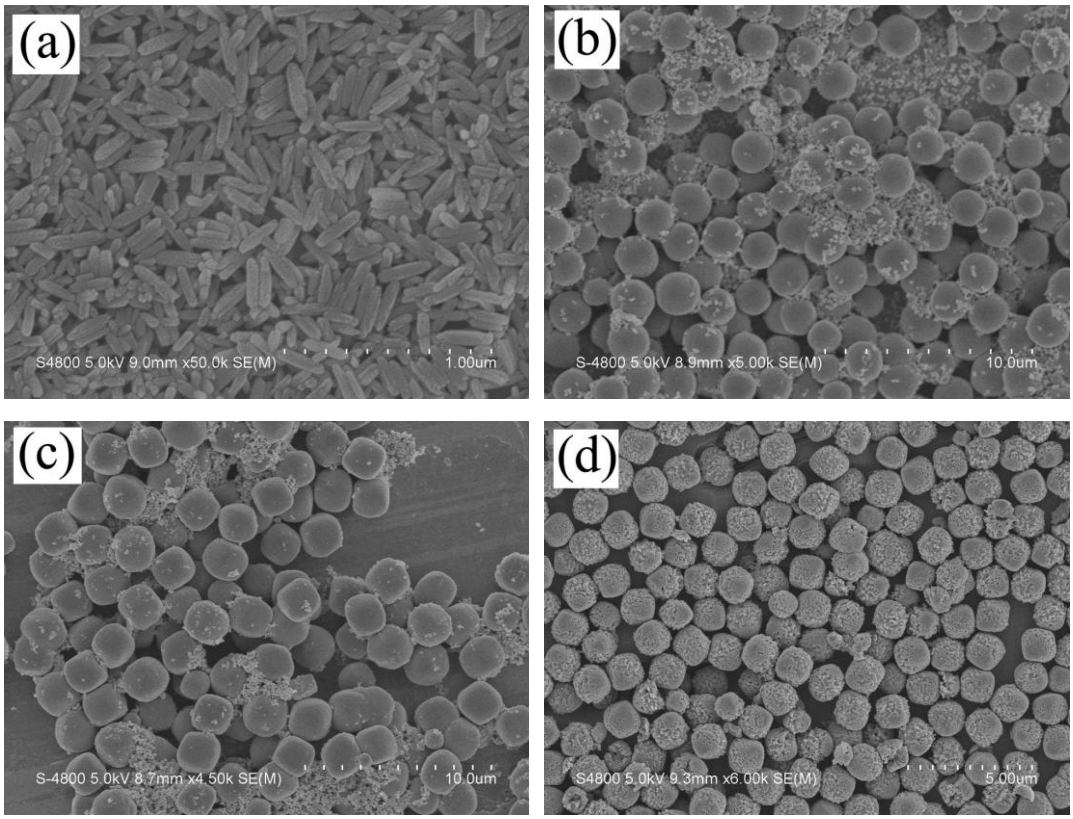

Fig. S1. SEM images of the as-prepared products at different reaction temperatures for 24 h. (a) 120 ^{o}C; (b) 140 ^{o}C; (c) 160 ^{o}C; (d) 180 ^{o}C.

Fig. S2

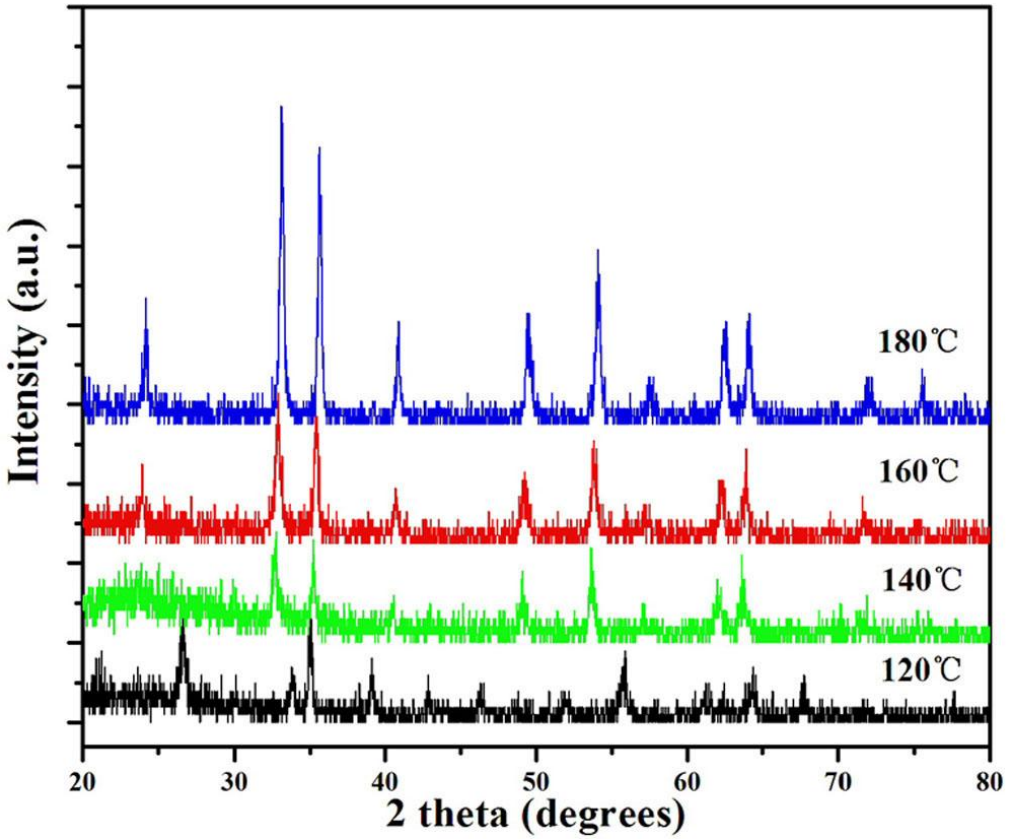

Fig. S2. XRD patterns of the as-prepared products at different reaction temperatures for 24 h. (a) 120 ^{o}C; (b) 140 ^{o}C; (c) 160 ^{o}C; (d) 180 ^{o}C.

The XRD patterns of the samples prepared at different reaction temperatures are presented in Fig. S2. The patterns of the products obtained at 120 ^{o}C is well indexed to FeO(OH) (JCPDS No. 75-1594). When the reaction temperature ranges from 140 ^{o}C to 180 ^{o}C, all peaks of the XRD patterns are matched with the phase of a-Fe_2O_3 (JCPDS No. 33-0664). It is observed that with the increase of temperature the relative intensity of the peaks would be great enhancement.

Fig. S3

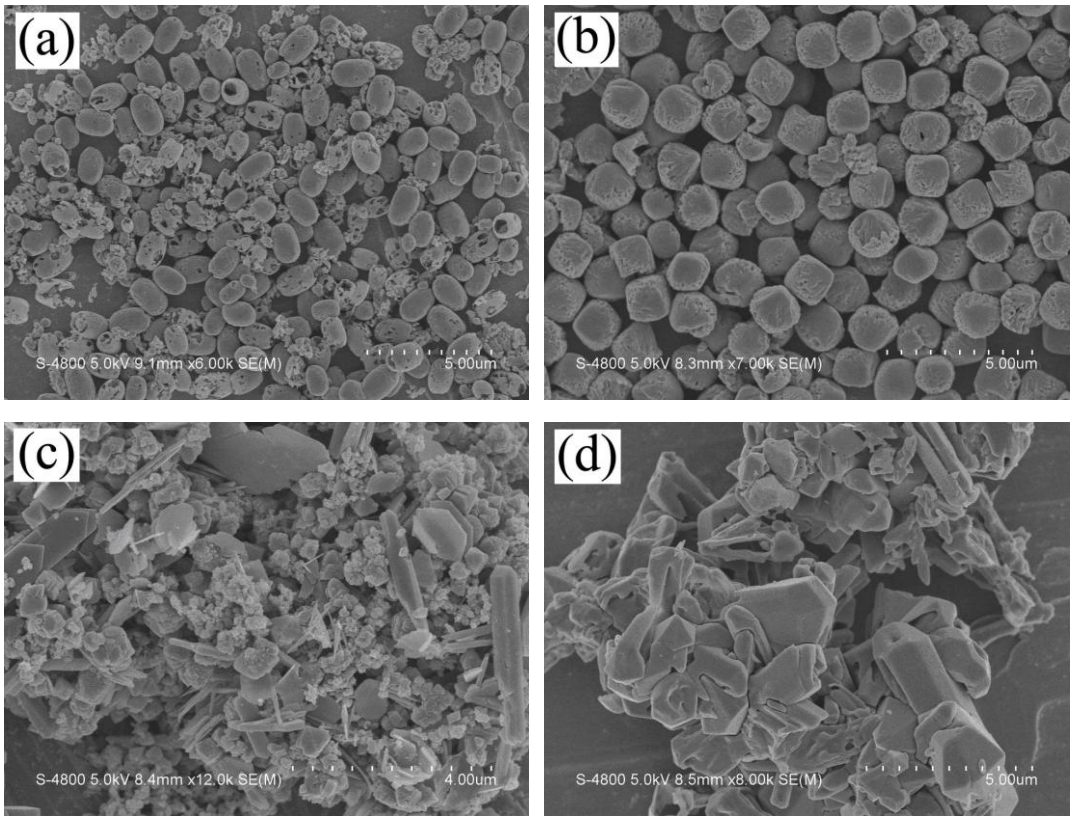

Fig. S3. SEM images of the as-prepared products the reaction of $FeCl_3$ with different ions under the same conditions. (a) $CoCl_2$; (b) $ZnCl_2$; (c) $CuCl_2$; (d) NaCl.

Fig. S4

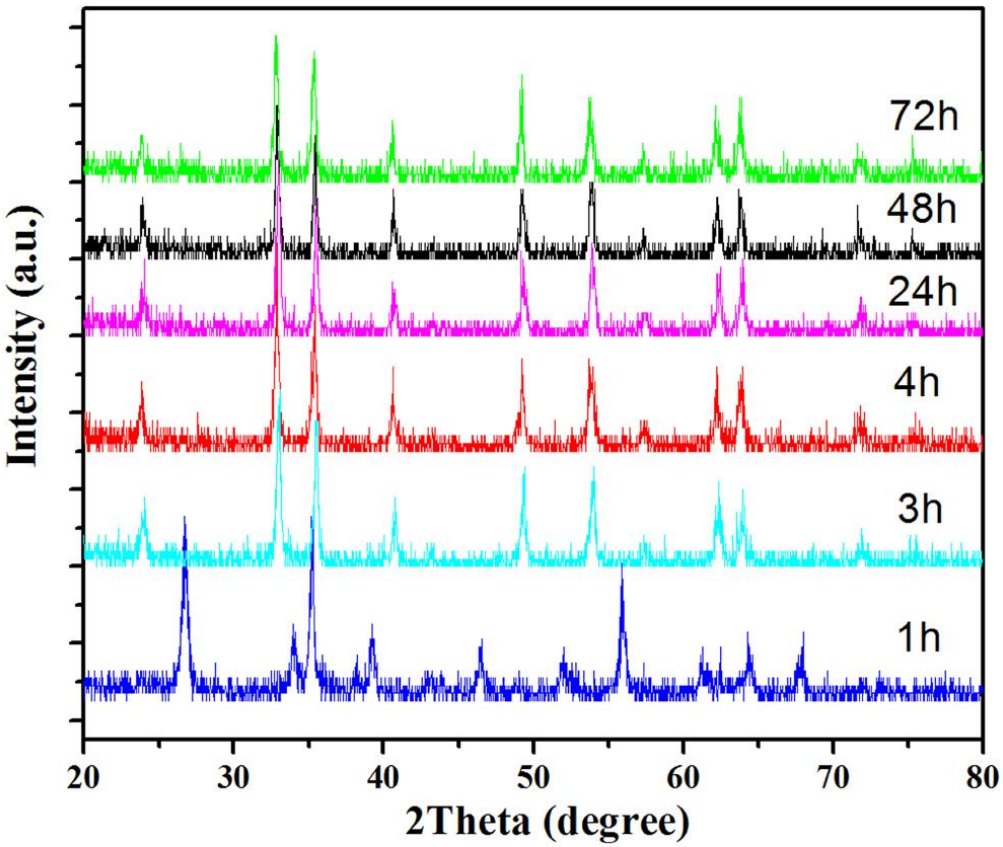

Fig. S4. XRD patterns of the as-prepared products at 200 ^{o}C with different reaction time. (a) 1 h; (b) 3 h; (c) 4 h; (d) 48 h; (e) 72h.

Fig. S4. shows the corresponding XRD patterns of the time-dependent products, which clearly shows that the phases of the products change with the reaction time. The XRD patterns of the products obtained within 1 h is well indexed to iron oxide hydroxide chloride (JCPDS No. 80-1770). When the reaction time was prolonged to 3 h or longer, all peaks of the XRD patterns are matched with the phase of a-Fe_2O_3 (JCPDS No. 33-0664).