Electronic Supplementary Material (ESI) for RSC Advances.

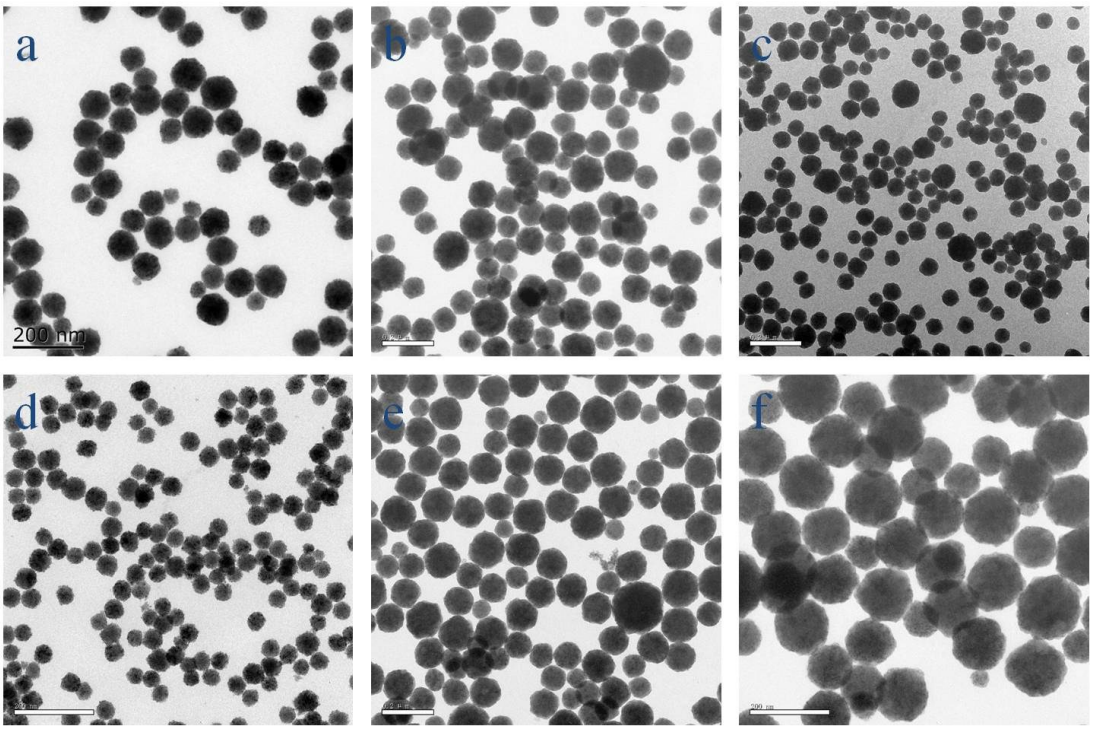

Fig. S1 TEM imagines of C2 hydrothermal treated for (a) 4 h, (b) 8 h, (c) 12 h, (d) 16 h, (e) 24 h and (f) 32 h.

Table S1 The surface area and pore structure parameters of C2-C7.

Sample	C2	C3	C4	C5	C6	C7
BET ($m^2 \cdot g^{-1}$)	79	70	60	69	55	70
Pore size (nm)	9.6	15.4	13.9	15.4	16.4	17.3
Pore volume ($mm^3 \cdot g^{-1}$)	0.069	0.115	0.131	0.164	0.155	0.161

The BET surface area of C2-C7 are displayed in table S1. It was apparent that the specific surface declined as the Co content increased, C6 showed the smallest surface area among C2-C7. Although the specific surface decreased due to the addition of Co, the presence of Co provides more active sites for NO adsorption.

TPD experiments were conducted to test the reversibility of NO adsorption. The TPD profiles of NO on three typical samples of C2, C6 and C6-$_{10:115}$ are shown in Fig. S2. As the temperature was increased from 50 to 700 °C, NO desorption was observed on these samples. All the samples showed three main temperature ranges (α, β and γ), suggesting that NO adsorbed on three different sites [1]. The low temperature peak α was ascribed to the desorption of NO from weakly bonded sites and the peak β and γ in high temperature range was due to the strongly adsorbed species, i.e., nitrates [2]. The NO desorption amount was consistent with NO capacities of these sorbents.

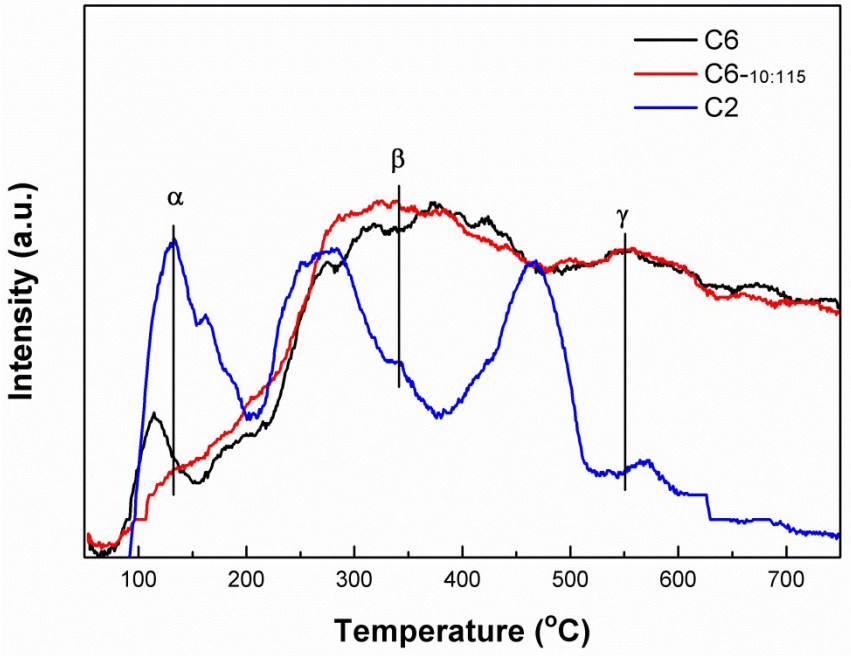

Fig. S2 TPD profiles of C2, C6 and C6-$_{10:115}$.

Table S2 Peak area of different catalysts based on H_2-TPR results.

Catalyst	C6-$_{125EG}$	C6-$_{10:115}$	C6-$_{20:105}$	C6-$_{60:65}$	C6-$_{105:20}$	C6-$_{125H2O}$
Peak area α	312	501	820	0	0	0
Peak area β	5427	7157	6406	3266	3290	1918
Peak area γ	1553	1183	557	660	300	301

References

[1] J. Xu, Y. J. Wang and Y. F. Zhu, *Langmuir*, 2013, **29**, 10566.

[2] B. Azambre, L. Zenboury, A. Koch and J. V. Weber, *J. Phys. Chem. C*, 2009, **113**, 13287.