Electronic Supplementary Material (ESI) for RSC Advances

Supporting information

Hydrotalcite reconstructed by in situ rehydration as a highly active solid base catalyst and its application in Aldol condensation

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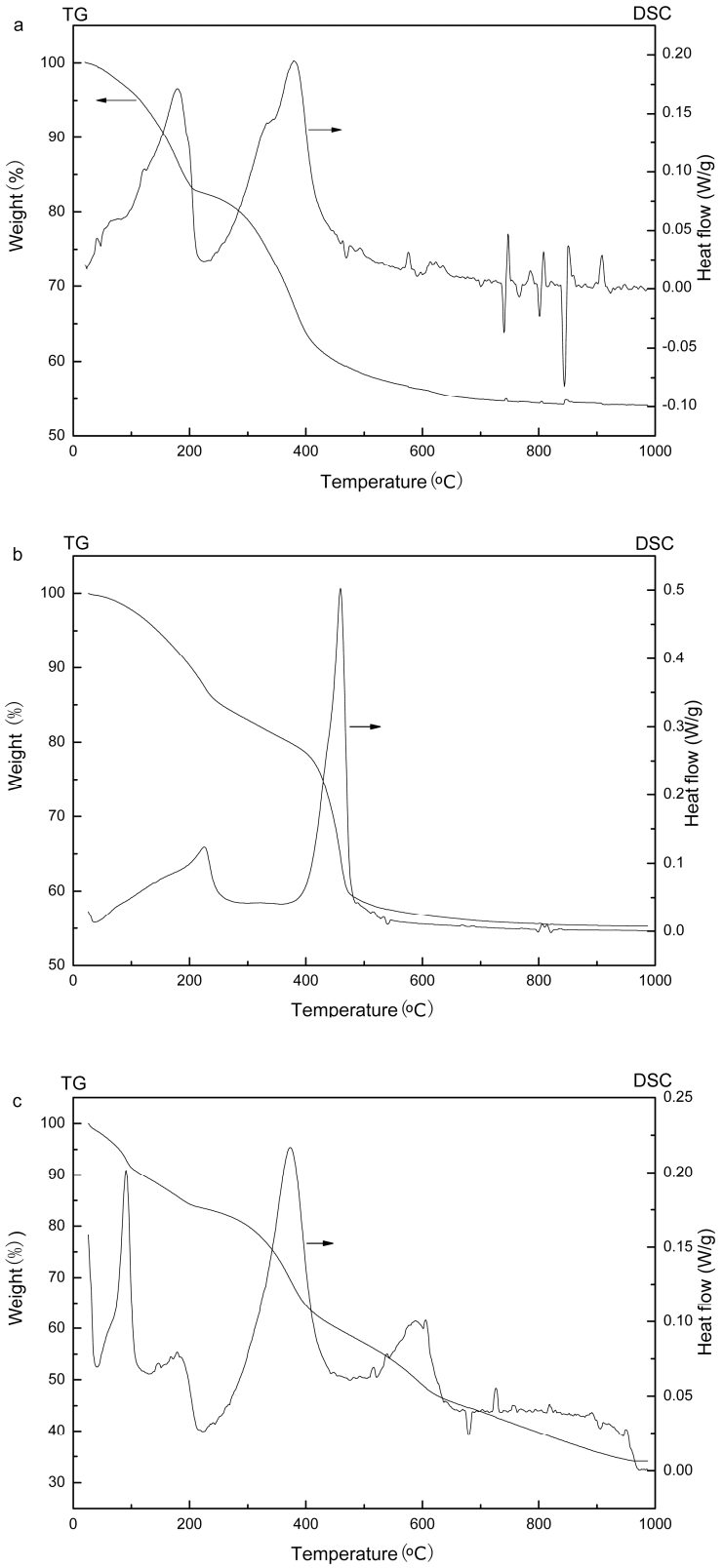

Fig. S1 TGA-DSC curves of (a) HT-3 as synthesized, (b) HT-R and (c) In-situ rehydrated HT-3 after reaction.

S1 TGA-DSC analysis

TGA experiments were carried out using Q600 SDT thermal analysis machine (TA Instruments, USA) under a flow of nitrogen. The sample weight used was about 10 mg, and the temperature ranged from room temperature to 1000 ºC with a ramping rate of 20 ºC /min. Fig. S1 exhibits TGA-DSC curves of HT-3 as synthesized, HT-R and in-situ rehydrated HT-3 after reaction. The curves showed that the weight loss of in-situ rehydrated HT-3 after reaction was higher than that of both HT-3 as synthesized and HT-R. This result confirmed that materials after the reaction were deposited on the surface.

Table S1 Elemental composition of hydrotalcites[a]

Sample	Mg/Al ratio
HT-2	2.01
HT-3	3.01
HT-4	3.82

[a] determined on EDS

Table S2 Effect of Mg/Al ratio on the catalytic activity of in-situ rehydrated hydrotalcite

In-situ rehydrated HT catalyst	Conversion of benzaldehyde (%)	Yield to benzal-acetone (%)	Selectivity to benzalacetone (%)
HT-2	56	39	71
HT-3	97	79	81
HT-4	15	2	13