

Supporting Information

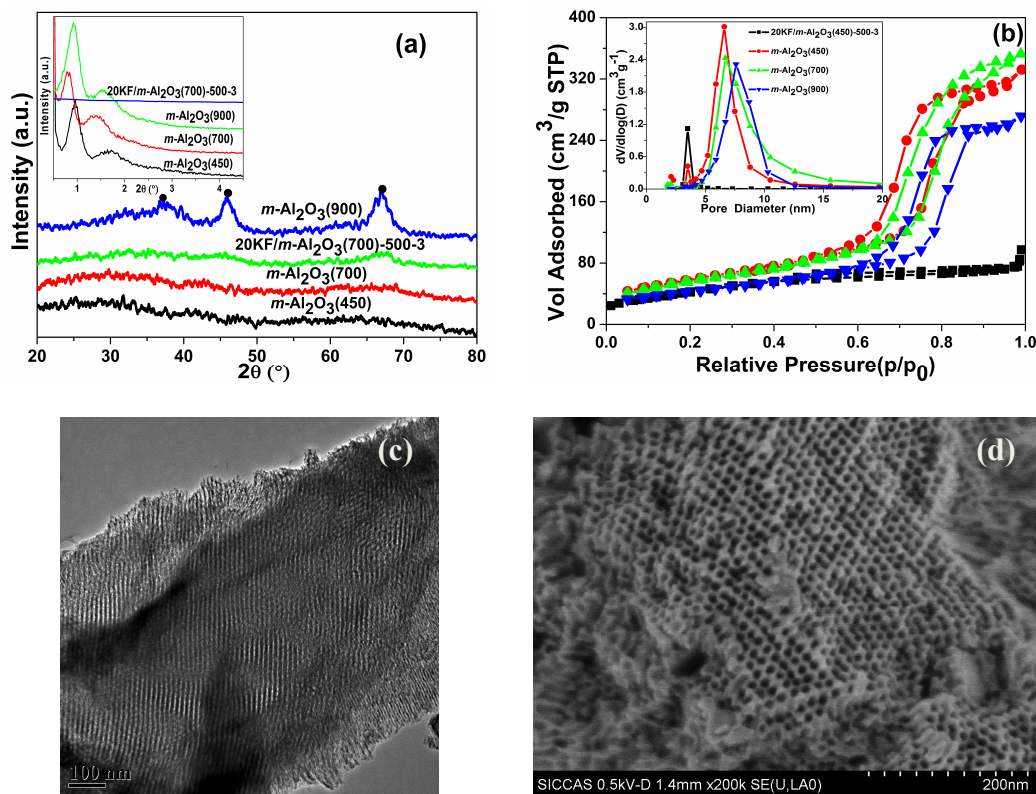


Fig. S1 Wide angle XRD patterns and the corresponding small angle XRD patterns (inset) (a), N₂ adsorption–desorption isotherms and the corresponding pore-size distributions (inset) (b) of 20KF/*m*-Al₂O₃(700)-500-3 and *m*-Al₂O₃(a) (a: the calcination temperatures (□)); (c) TEM and (d) SEM images of *m*-Al₂O₃(700); (●) Al₂O₃

Table S1 Texture properties of materials

Materials	S _{BET} (m ² g ⁻¹)	V _{BJH} (cm ³ g ⁻¹)	D _{BJH} (nm)
<i>m</i> -Al ₂ O ₃ (450) ^a	212	0.52	6.59
<i>m</i> -Al ₂ O ₃ (700) ^a	209	0.55	6.66
<i>m</i> -Al ₂ O ₃ (900) ^a	152	0.42	7.58
20KF/ <i>m</i> -Al ₂ O ₃ (700)-500-3 ^a	158	0.17	3.45
CaO	1.77	0.025	-

^a*m*-Al₂O₃(a) and 20KF/*m*-Al₂O₃(700)-500-3 were prepared by the similar method to *m*-CaAl₂O₄(a) and zKF/*m*-CaAl₂O₄(700)-b-c, respectively, accompanied with the following changes: higher amount of Al species (20 mmol) and without calcium nitrate tetrahydrate.

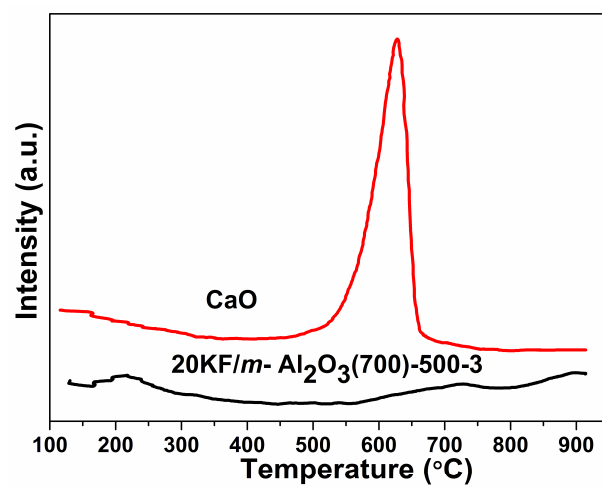


Fig. S2 CO₂-TPD profiles of CaO and 20KF/*m*-Al₂O₃(700)-500-3

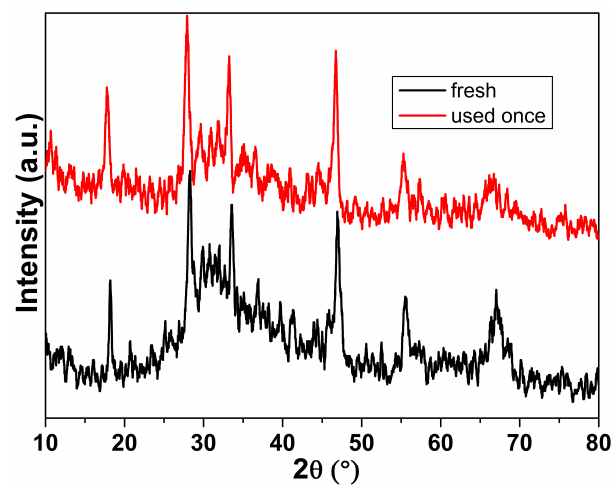


Fig. S3 Wide angle XRD patterns of the fresh and reused catalyst (30KF/*m*-CaAl₄(700)-700-3)