

Supplementary Information

One-step Bulk Fabrication of CaO/Carbon Heterogeneous Catalyst from Calcium Citrate for Rapid Synthesis of Dimethyl Carbonate (DMC) by Transesterification of Ethylene Carbonate (EC)

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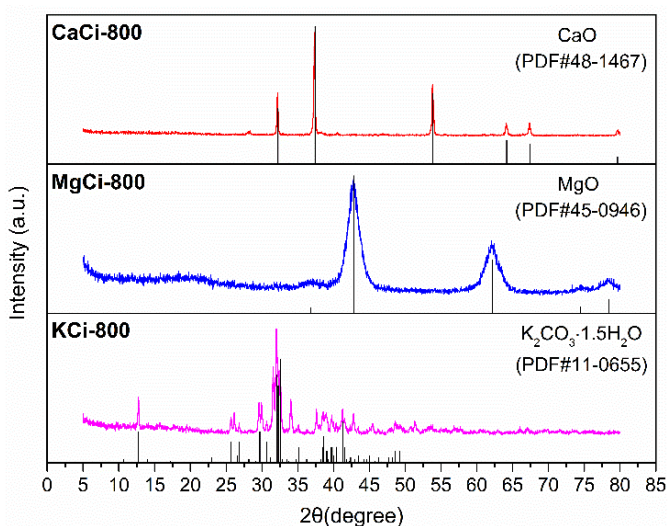


Fig. S1 XRD patterns of the activated citrate salts

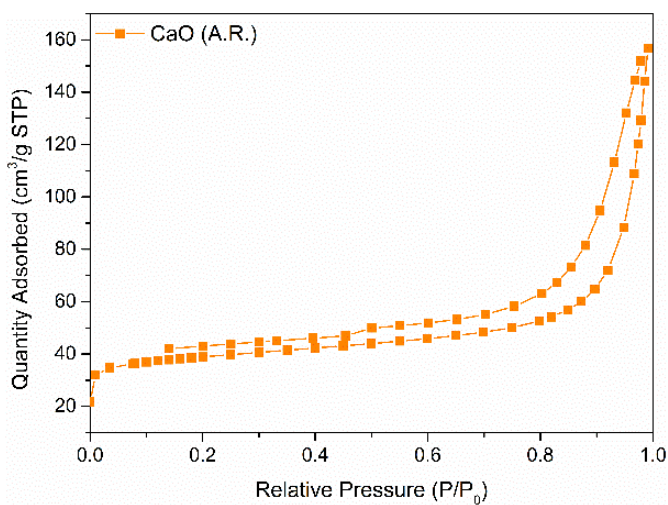


Fig. S2 N₂ adsorption-desorption isotherm of CaO (A.R.)

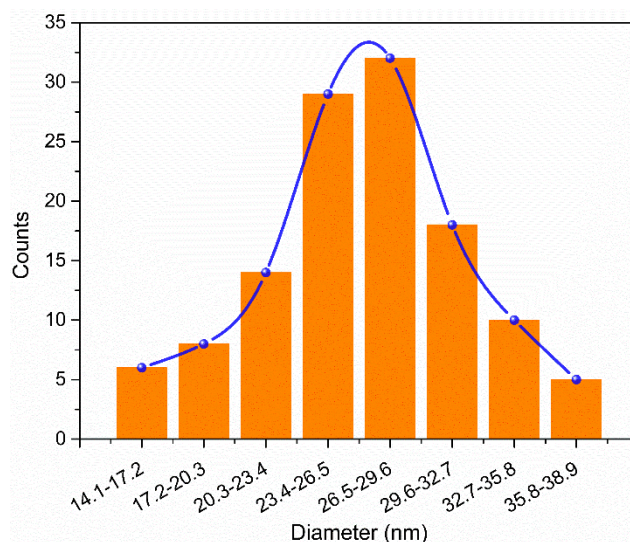


Fig. S3 Particle size distribution of CaCi-800

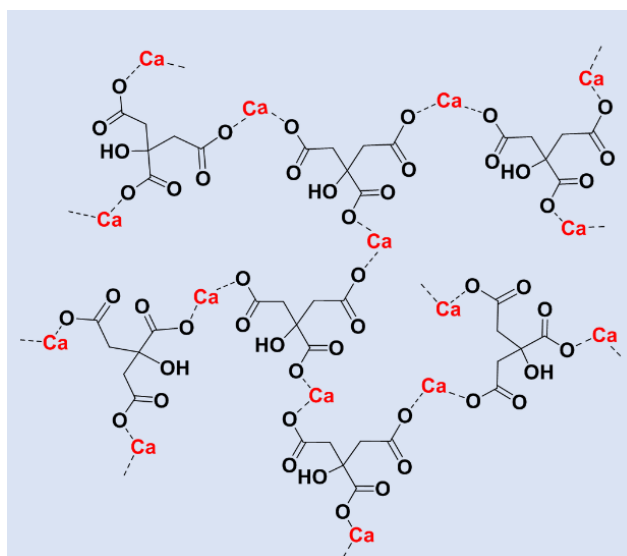


Fig. S4 The structural formula of calcium citrate

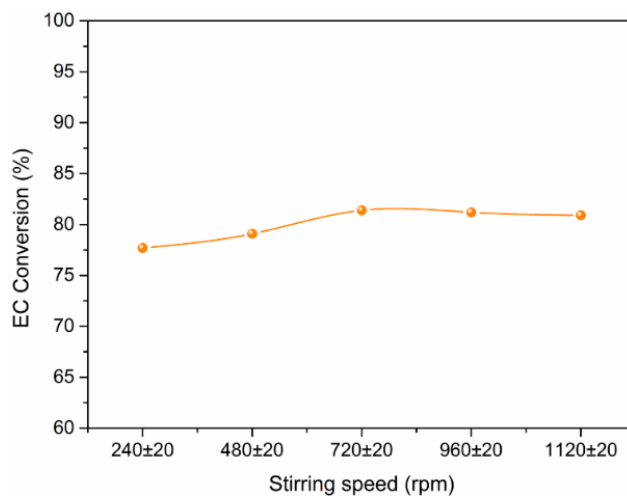


Fig. S5 Influence of the carbonization temperature on the transesterification reaction with the catalyst amount of 1.5 wt%, the reaction temperature of 65 °C and the stirring speed of 720±20 rpm

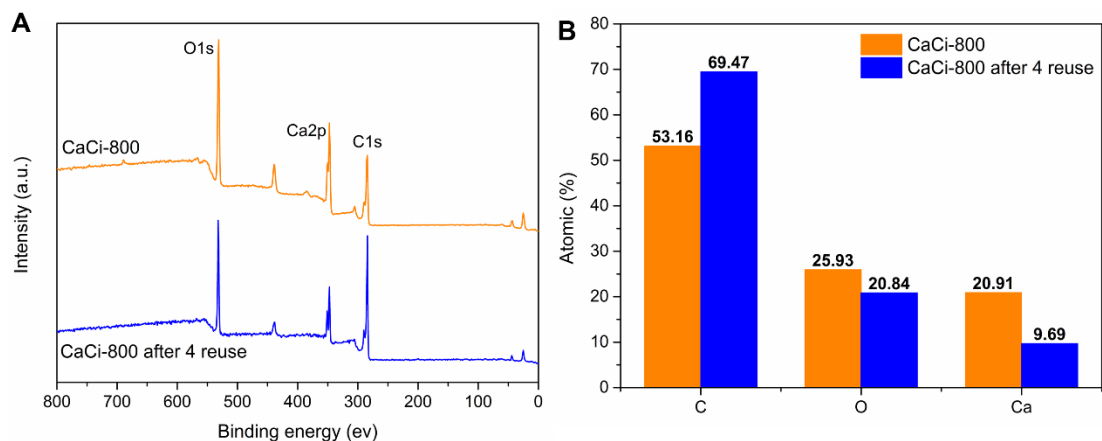


Fig. S6 (A) XPS spectra and (B) corresponding atomic percentage of fresh CaCi-800 catalyst and fourth reused catalyst washed by methanol

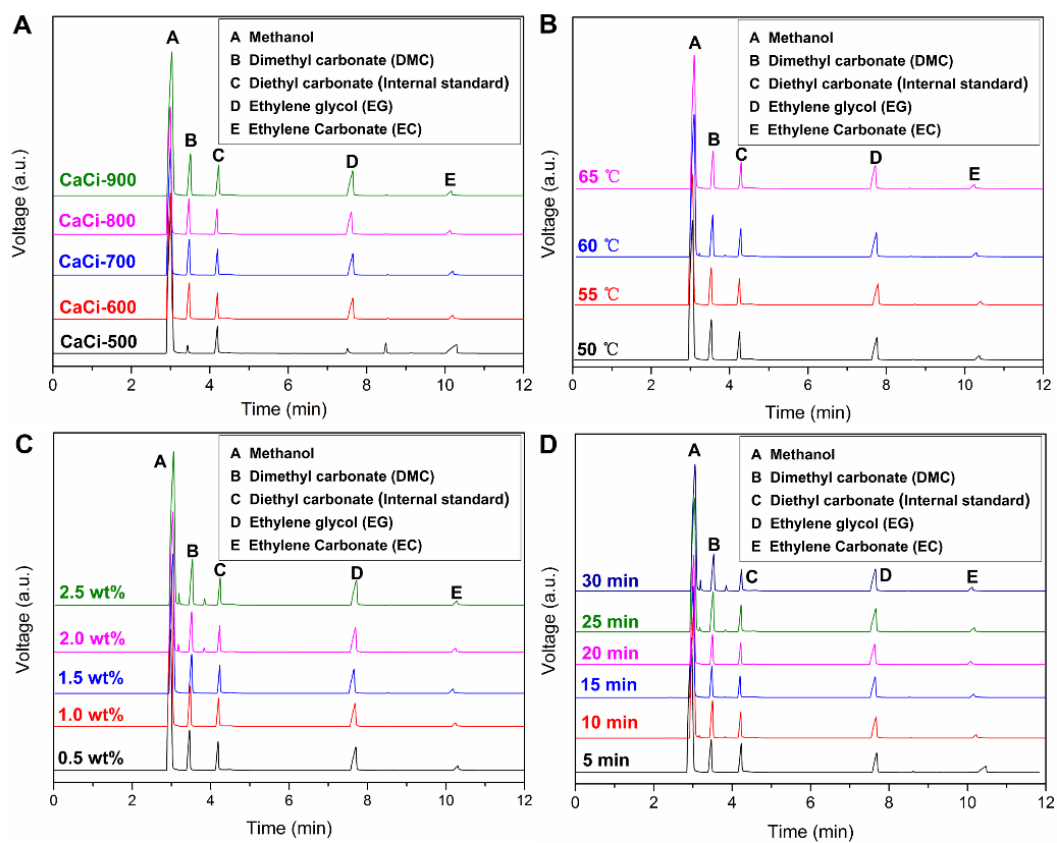


Fig. S7 Experimental chromatograms under different process conditions: (A) Carbonization temperature, (B) Reaction temperature, (C) Catalyst amount and (D) Reaction time

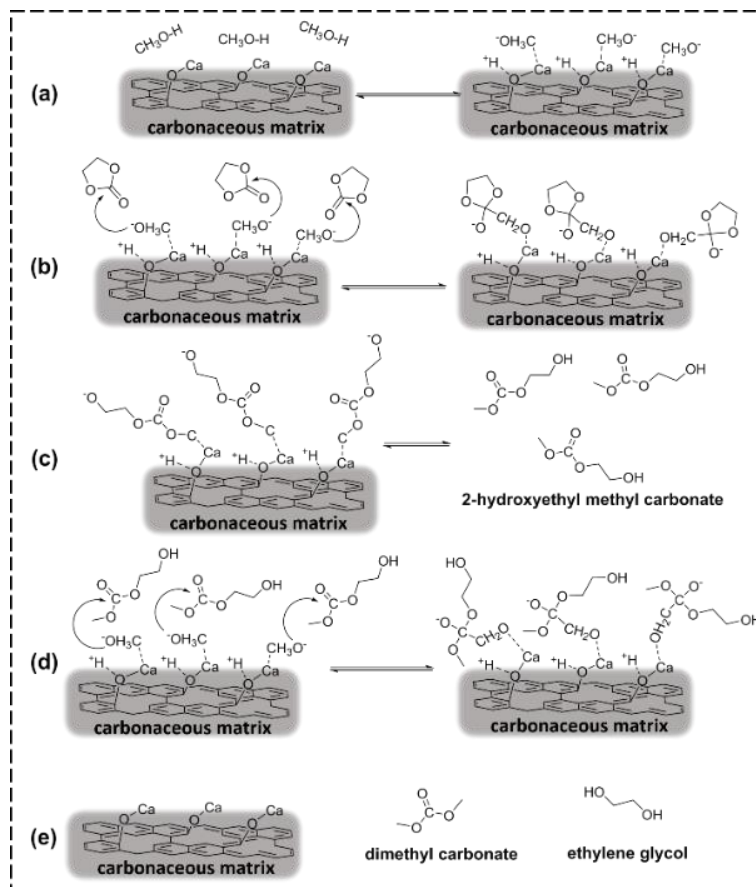


Fig. S8 Possible reaction pathway of DMC synthesis of EC with methanol