Supplementary Information

Kinetic and Mechanistic Investigation for Copolymerization of CO2 and

Cyclohexene Oxide Catalyzed by Trizinc Complexes

Yonghang Xu^{*a,b,†*}, Limiao Lin^{*a,†*}, Chunting He^{*a*}, Jiaxiang Qin^{*a*}, Shuanjin Wang^{*a*}, Zhong Li^{*b*}, Min Xiao*^{*a*}, Yuezhong Meng*^{*a*}

 ^a The Key Laboratory of Low-carbon Chemistry & Energy Conservation of Guangdong Province/State Key Laboratory of Optoelectronic Materials and Technologies, School of Materials Science and Engineering, Sun Yat-sen University, Guangzhou 510275, China.
^b School of Materials Science & Energy Engineering, Foshan University, Foshan 528000, PR China.

[†]Y.X. and L.L. contributed equally to this work.

Entry	Temp./ºC	Yield/g ^f	
		РСНС	c-CHC
1	70	8.12	0.16
2	80	11.28	0.56
3	90	15.38	1.85
4	100	23.67	6.04
5	110	17.94	6.10
6	120	16.00	7.04

Table S1. Yields of PCHC and *c*-CHC at varying reaction temperatures

Entry	Time/h	n _{CHO} ^a	n_{site}/mmol^b
1	5	3.05	1.06
2	10	3.00	0.872
3	20	2.68	0.937
4	30	2.39	0.879
5	40	3.84	0.968

Table S2. Moles of active zinc sites in the copolymerization of CO_2 and CHO using **1b** with varying reaction times ^{*a*}

^a Moles of converted CHO. ^b Moles of active sites in the reaction calculated via moles of

converted CHO and number-average molecular weights of polymers.



Fig. S1 DSC thermograms of PCHCs synthesized at 80, 90 and 100 $^{\circ}$ C in turn (9.86 mmol/L catalyst, 5 MPa CO₂, 20 h).



Fig. S2 The resultant yields of PCHC and *c*-CHC in unrefined product synthesized at the temperatures ranging from 70 to 120 °C.



Fig. S3 Space filling models of complex 1a and 1b each showing the steric hindrance around the three zinc atoms.



Reaction Coordinate

Fig. S4 Illustration of the potential energy surface variation for the simultaneous ring-opening of

CHO on two side zinc sites.