

## Supporting information

### Cycloaddition of CO<sub>2</sub> to epoxides over a porous covalent triazine-based polymer incorporated with Fe<sub>3</sub>O<sub>4</sub>

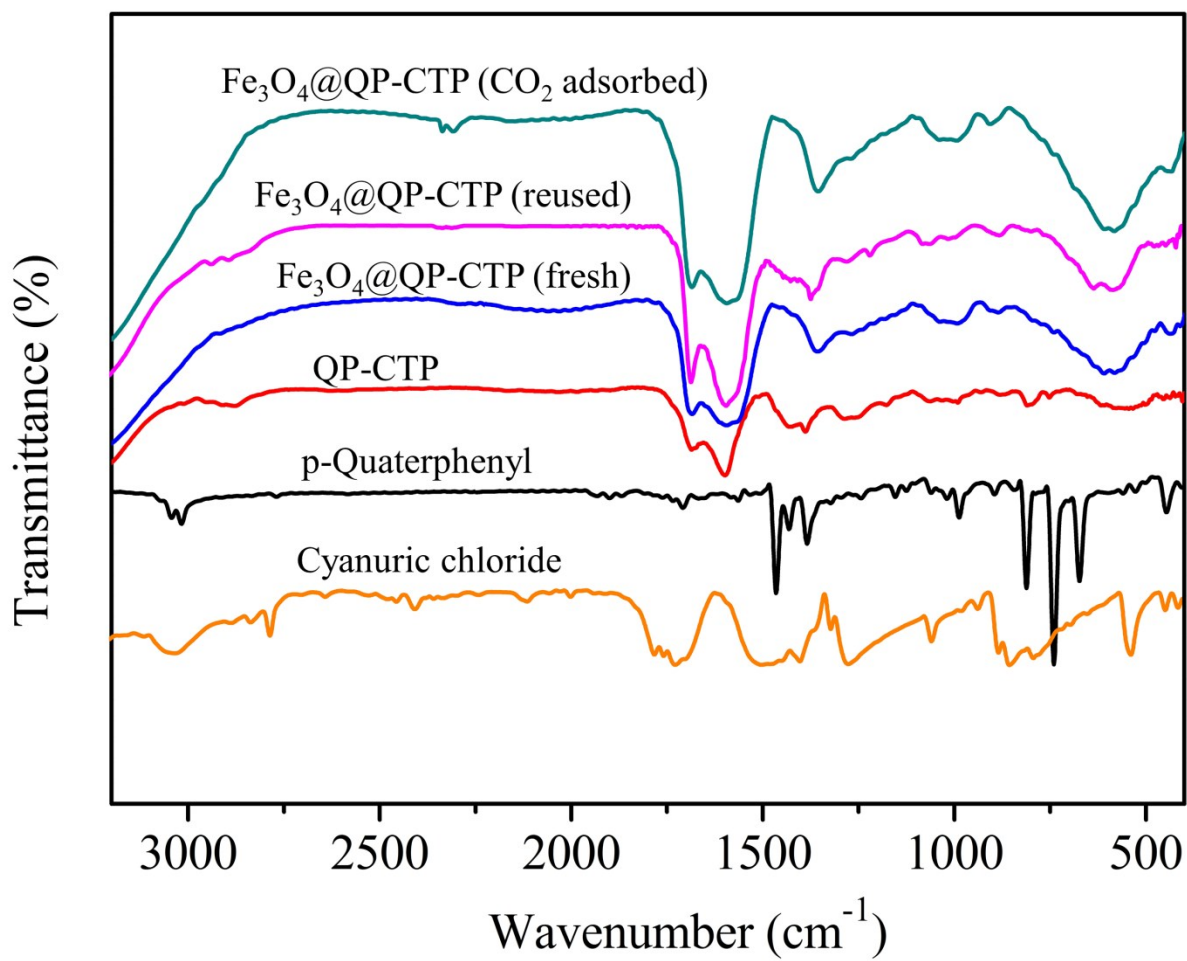
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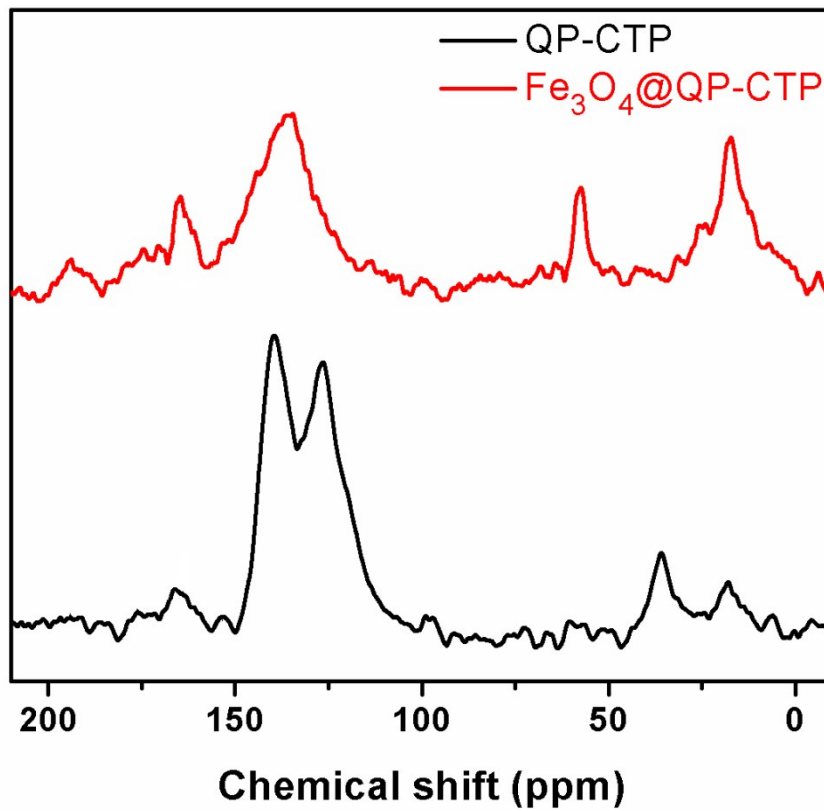
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#### Experimental procedure for cycloaddition of CO<sub>2</sub> with various epoxides

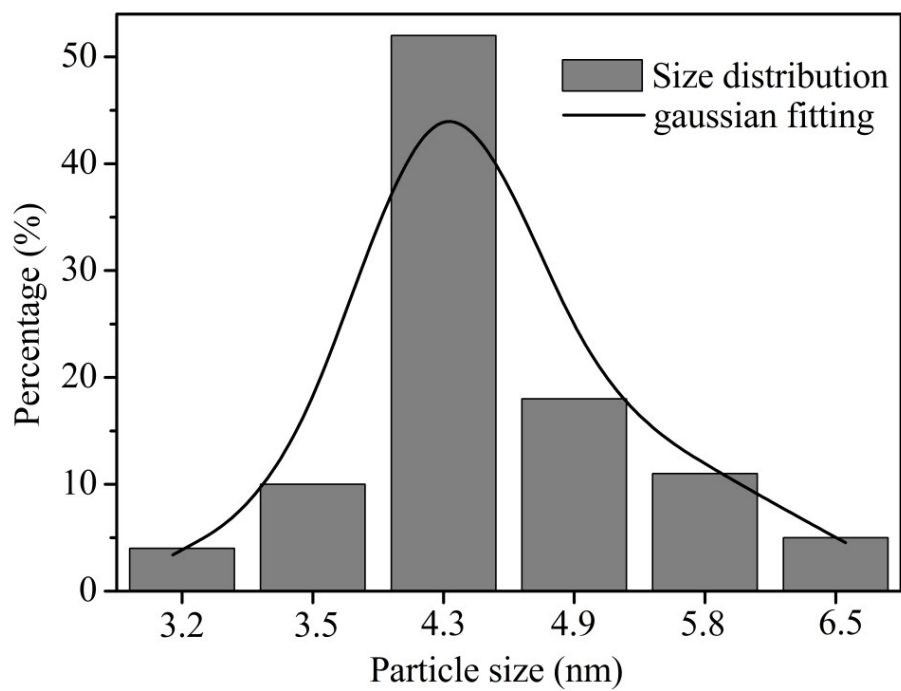
CO<sub>2</sub> cycloaddition reaction to the selected epoxides was performed using a 50 mL stainless steel high pressure reactor equipped with a magnetic bar under solvent-free conditions. The reactor was charged with an epoxide (propylene oxide, 1,2-epoxy-5-hexene, allyl glycidyl ether, styrene oxide, and cyclohexene oxide) and the reaction was carried out at different set of reaction conditions using Fe<sub>3</sub>O<sub>4</sub>@QP-CTP catalyst (epoxide: 20 mmol, CO<sub>2</sub> : 1 bar, Fe<sub>3</sub>O<sub>4</sub>@QP-CTP: 40 mg, TBAB: 0.5 mmol, and temperature: 25/50/80 °C up to 12 h reaction). After the reaction, the reactor was ice- cooled to 5 °C using a methanol-ice bath and CO<sub>2</sub> was vented off. After cooling to room temperature, ethyl acetate (10 mL) was added into the reaction mixture. The catalyst was separated using magnet and the supernatant was extracted with water to remove the co-catalyst from the reaction mixture. Finally, the collected organic layer was dried at 100 °C in vacuum for 24 h (except the cases with allyl glycidyl ether and styrene oxide). No further purification of the product was undertaken, as the vacuum was sufficient to remove the unreacted epoxides. In the case of allyl glycidyl ether and styrene oxide, they were purified by column chromatography with 20% hexane in chloroform as the eluting solvent.



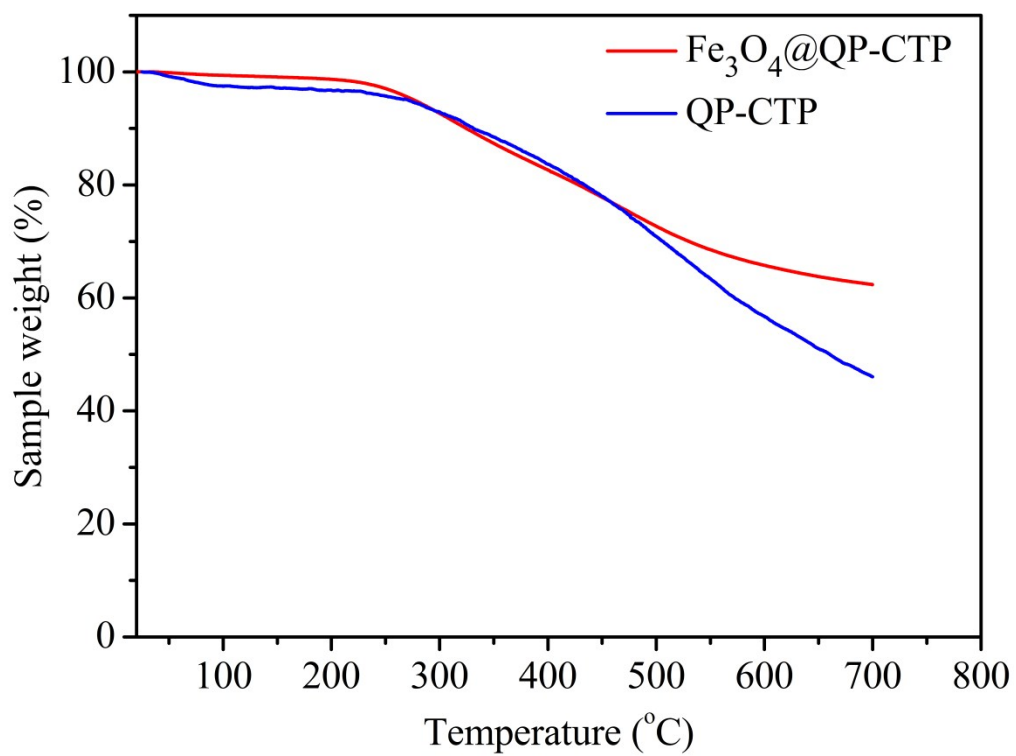
**Fig. S1.** FT-IR spectra of cyanuric chloride, p-quaterphenyl, QP-CTP, and Fe<sub>3</sub>O<sub>4</sub>@QP-CTP (fresh, reused and CO<sub>2</sub> adsorbed).



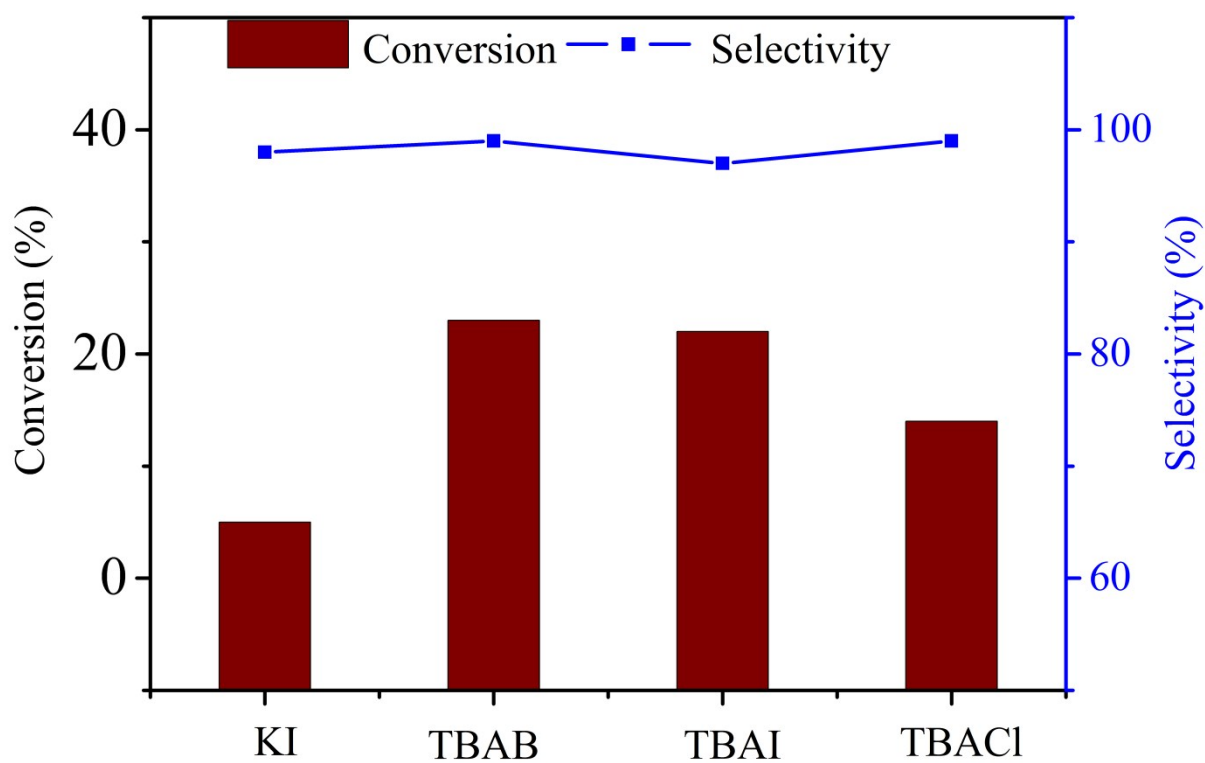
**Fig. S2.** Solid state  $^{13}\text{C}$  CP-MAS NMR of QP-CTP and  $\text{Fe}_3\text{O}_4@QP\text{-CTP}$ .



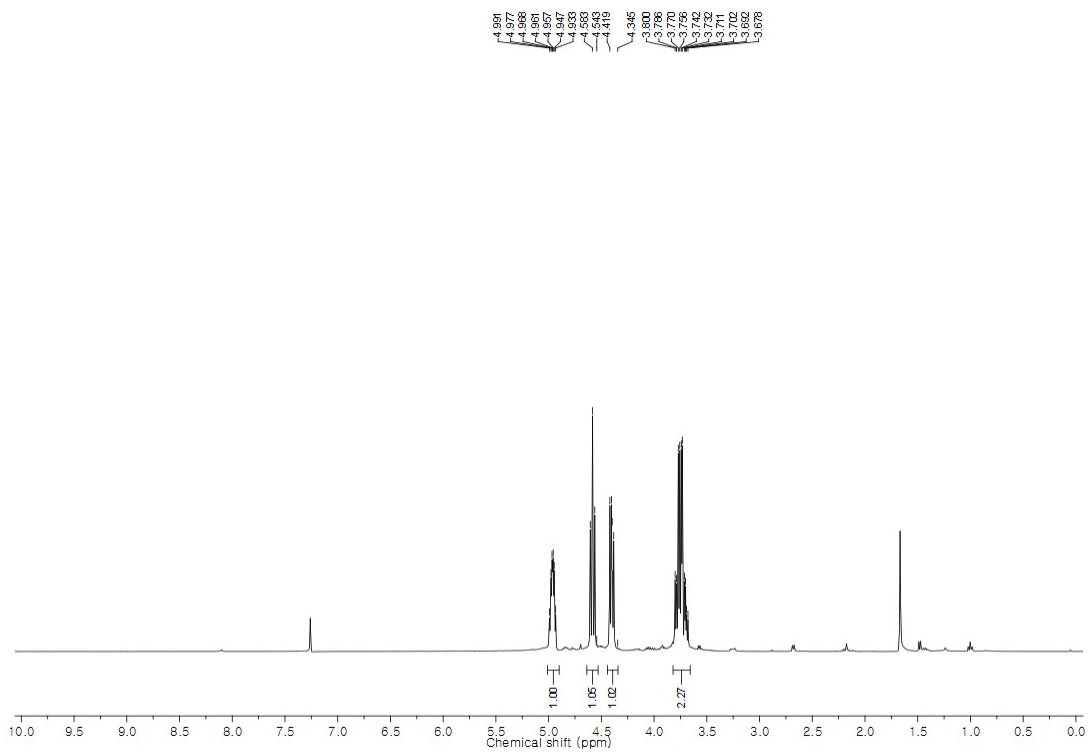
**Fig. S3.** Histogram plot of Fe<sub>3</sub>O<sub>4</sub> distribution over QP-CTP.



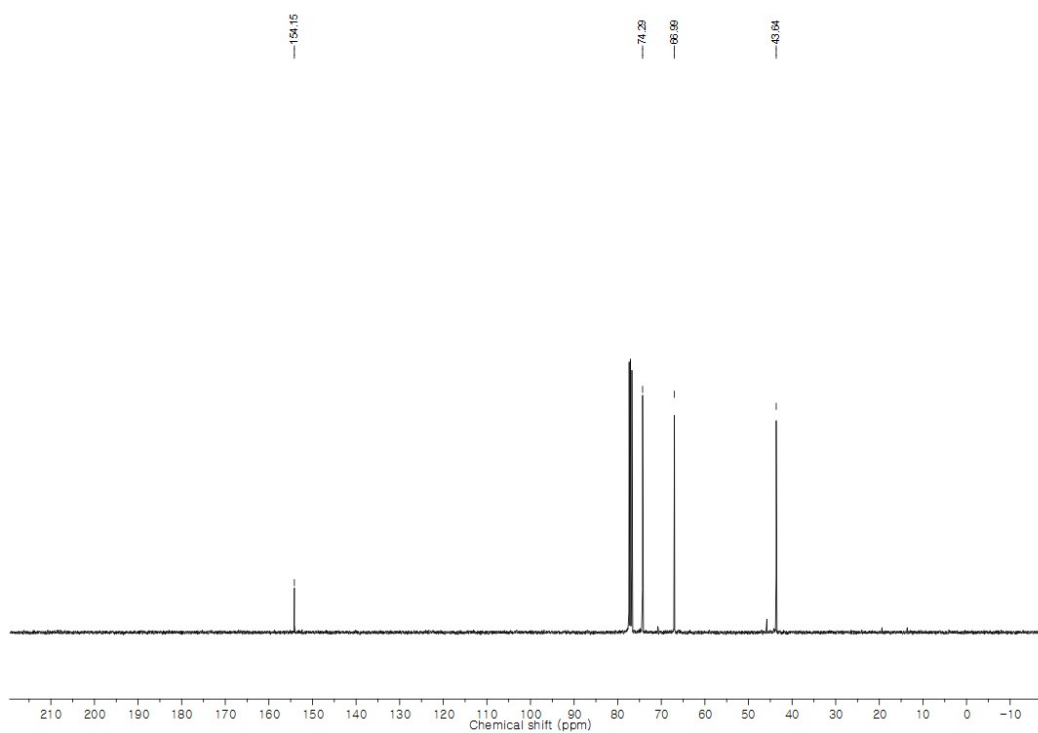
**Fig. S4.** TGA of QP-CTP and Fe<sub>3</sub>O<sub>4</sub>@QP-CTP.



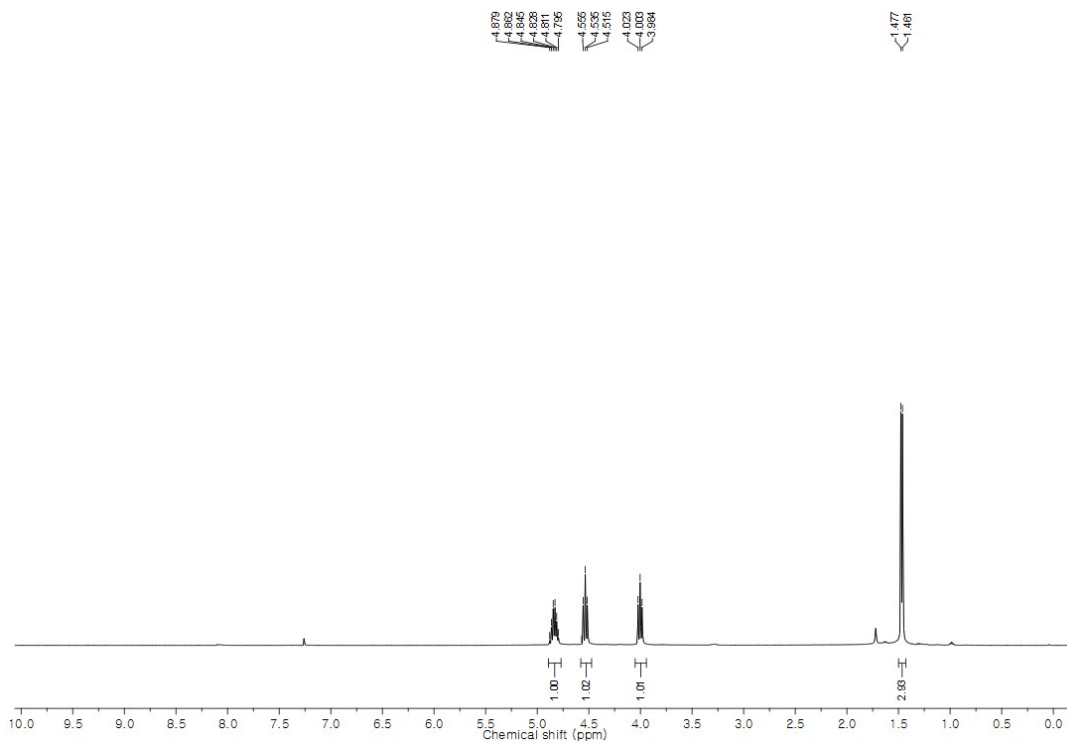
**Fig. S5.** Effect of co-catalyst over CO<sub>2</sub> cycloaddition to ECH (reaction conditions: ECH-20mmol, CO<sub>2</sub> pressure: 0.1 MPa, and co-catalyst: 0.5 mmol).



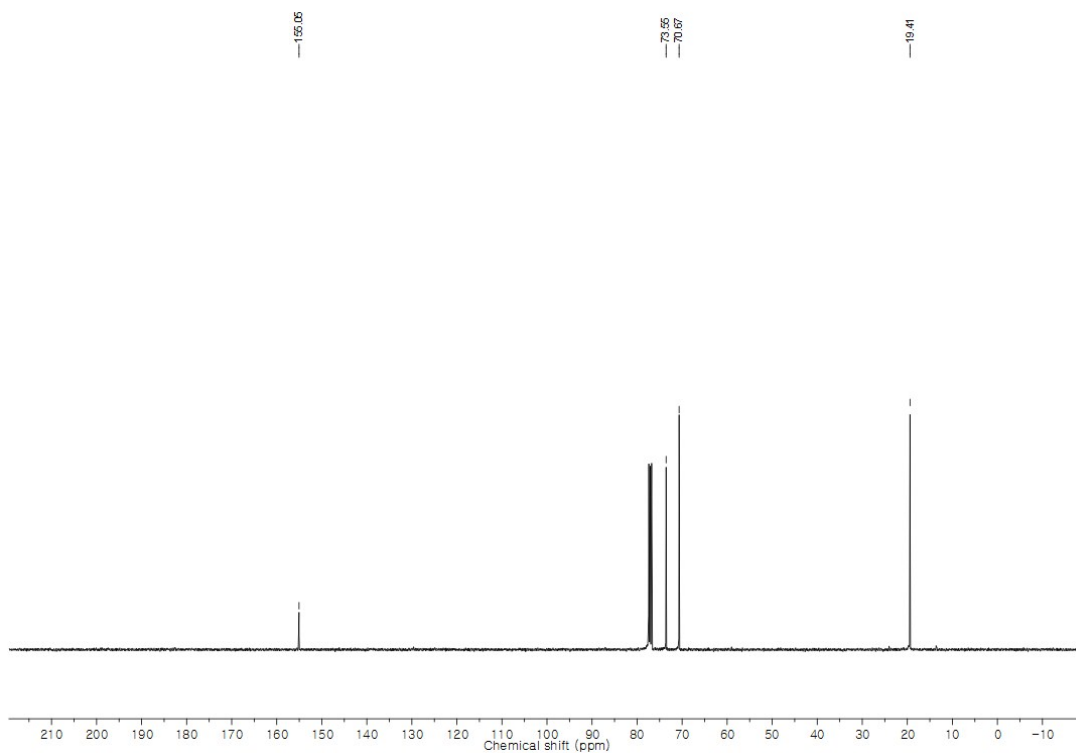
**Fig. S6.**  $^1\text{H}$  NMR spectrum of epichlorohydrin carbonate.



**Fig. S7.**  $^{13}\text{C}$  NMR spectrum of epichlorohydrin carbonate.

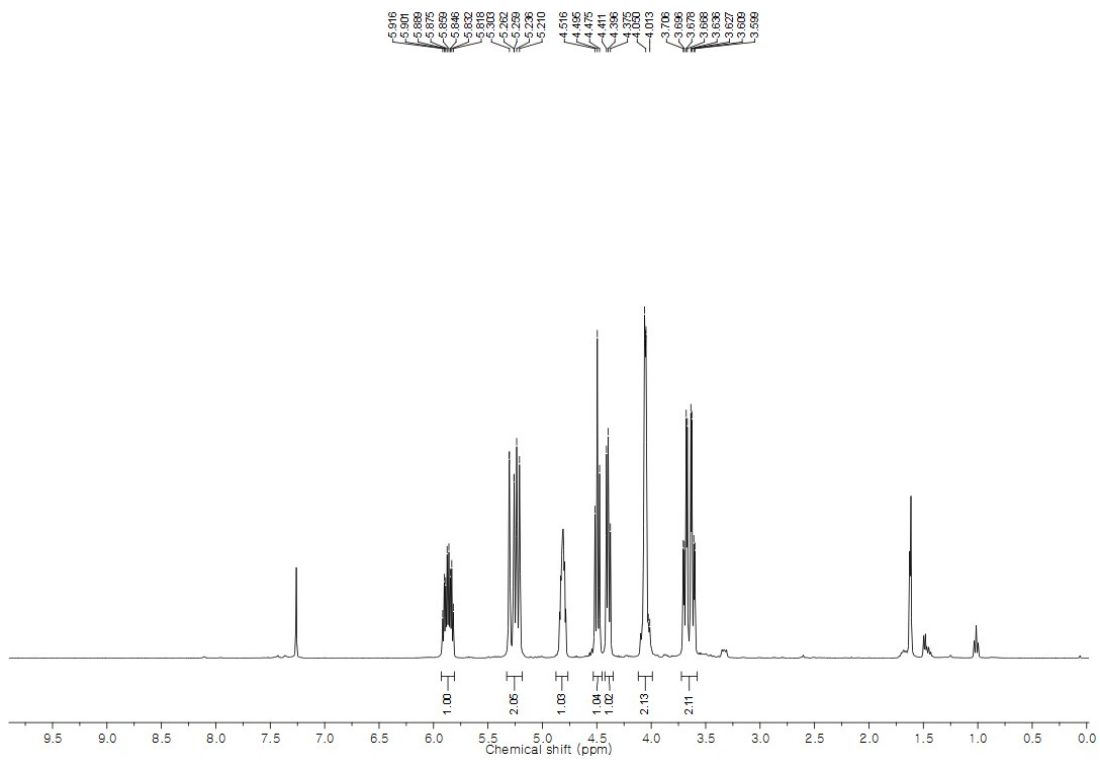


**Fig. S8.**  $^1\text{H}$  NMR spectrum of propylene carbonate.

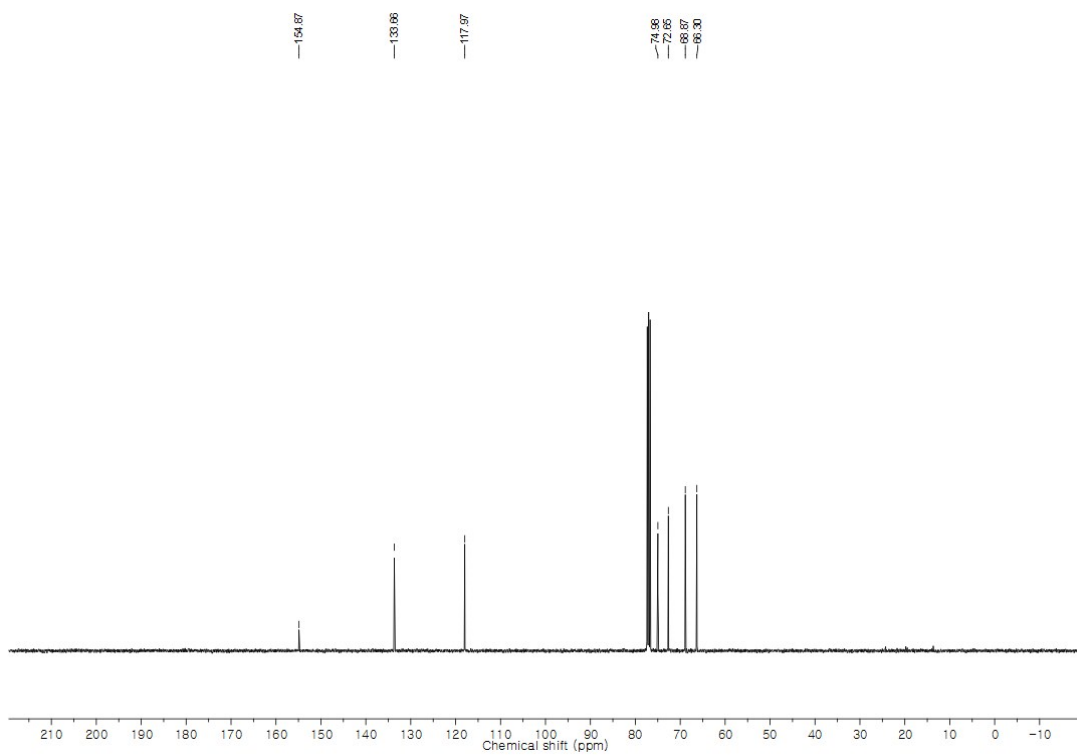


**Fig. S9.**  $^{13}\text{C}$  NMR spectrum of propylene carbonate.

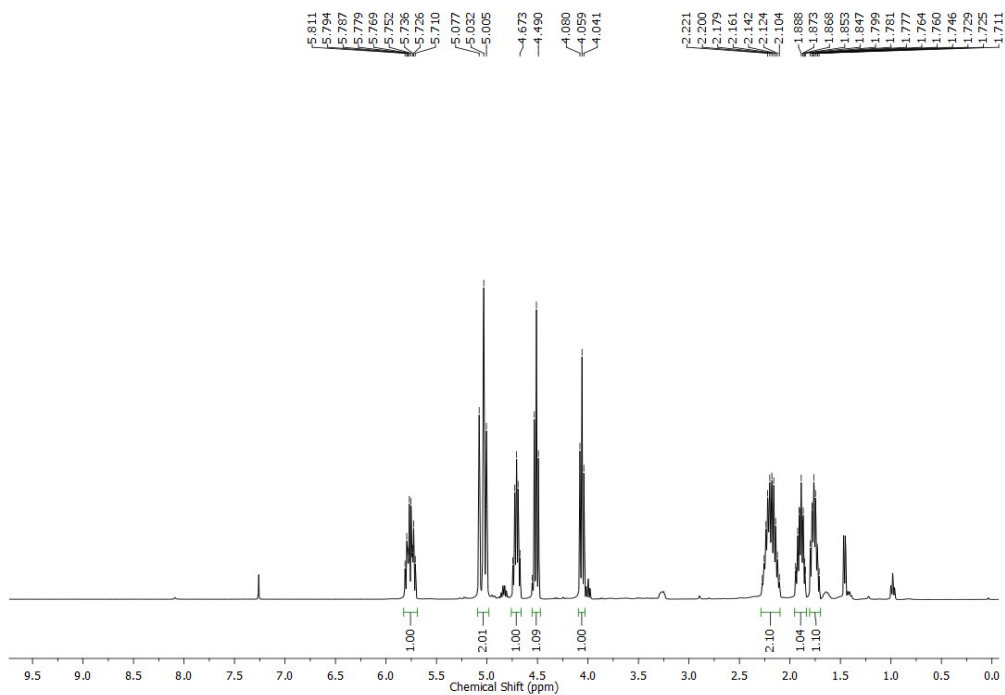




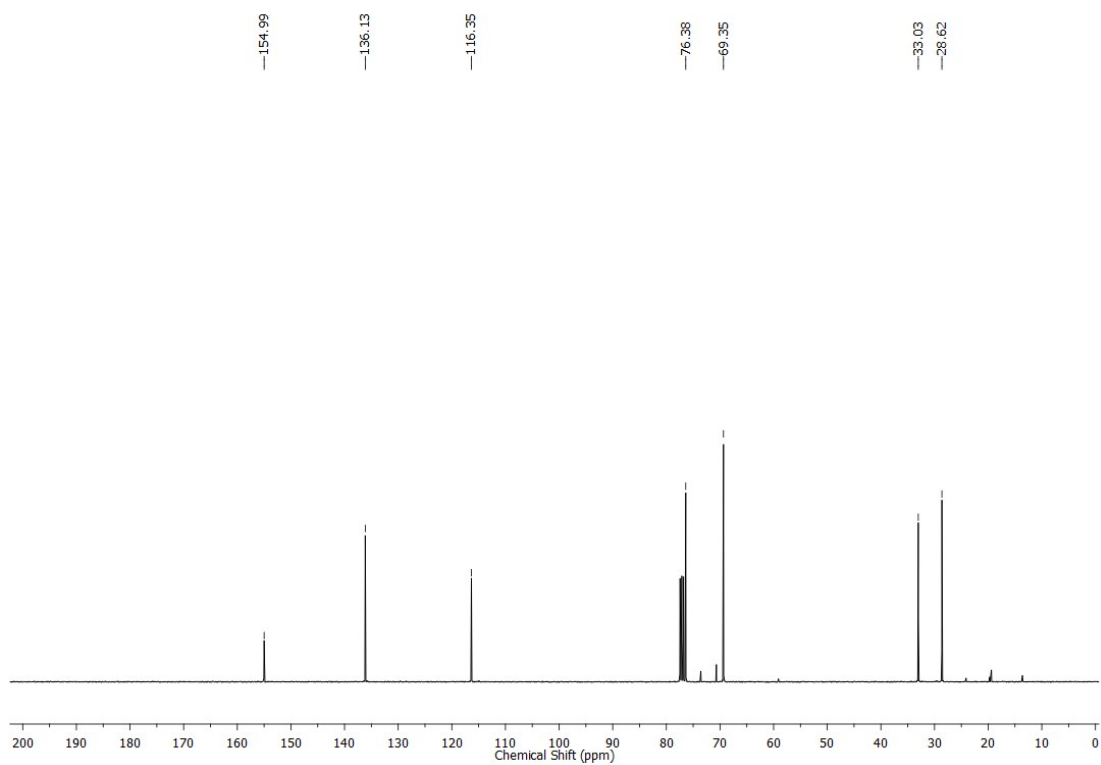
**Fig. S10.**  $^1\text{H}$  NMR spectrum of allyl glycidyl carbonate.



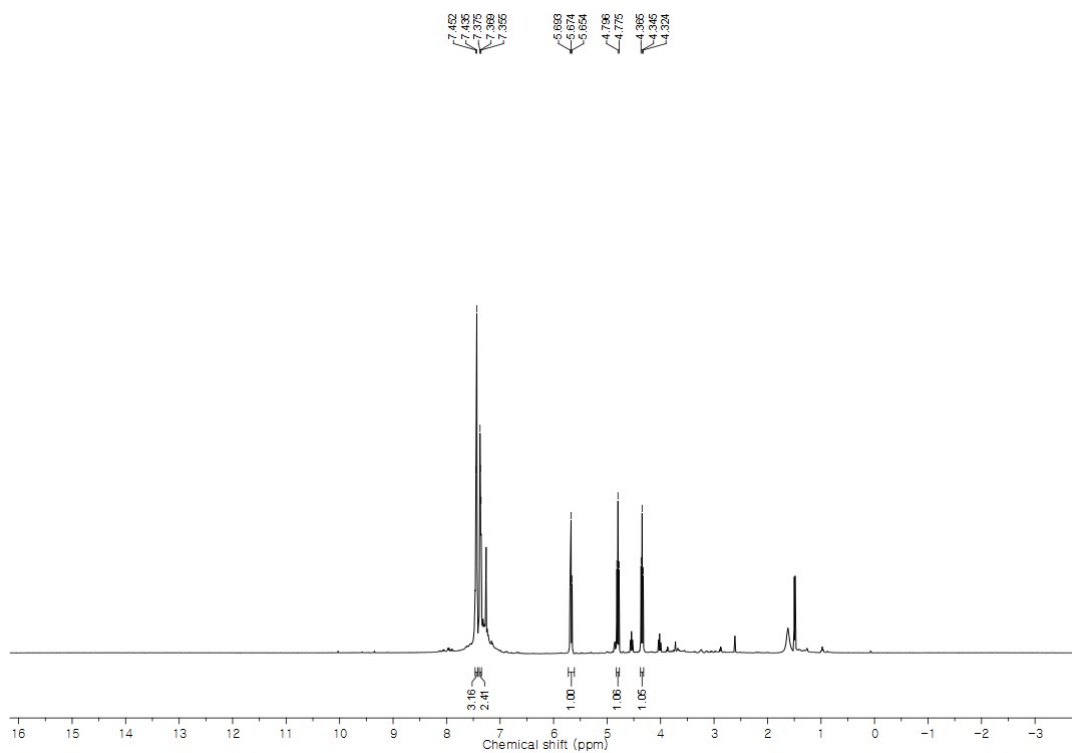
**Fig. S11.**  $^{13}\text{C}$  NMR spectrum of allyl glycidyl carbonate.



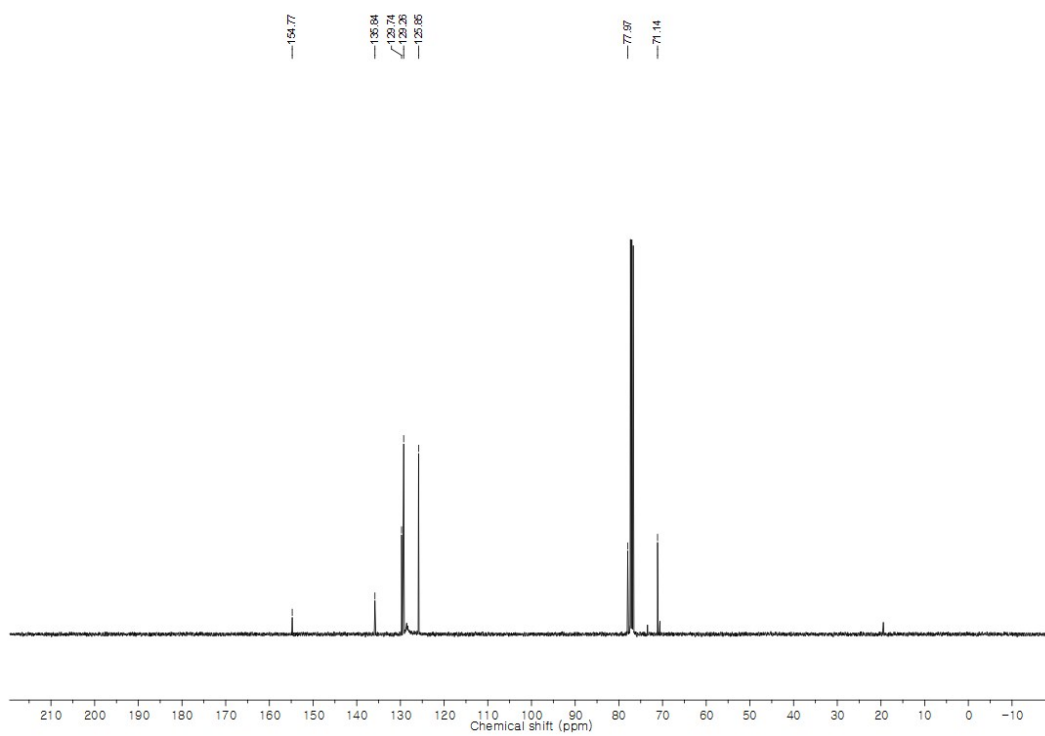
**Fig. S12.**  $^1\text{H}$  NMR spectrum of 4-(but-3-enyl)-1,3-dioxolan-2-one.



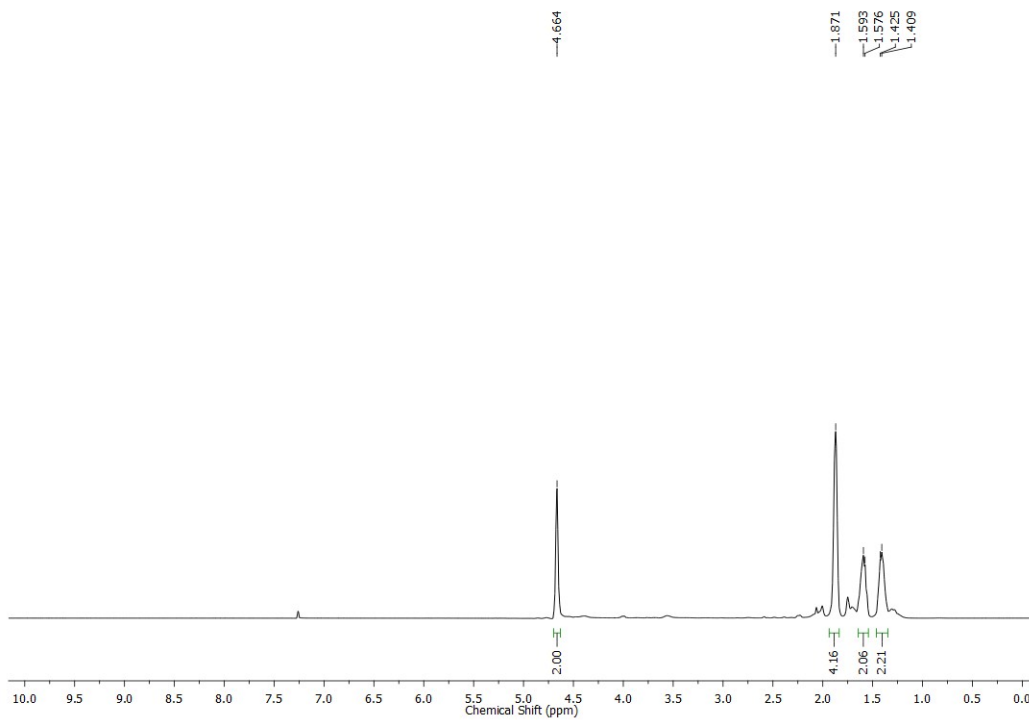
**Fig. S13.**  $^{13}\text{C}$  NMR spectrum of 4-(but-3-enyl)-1,3-dioxolan-2-one.



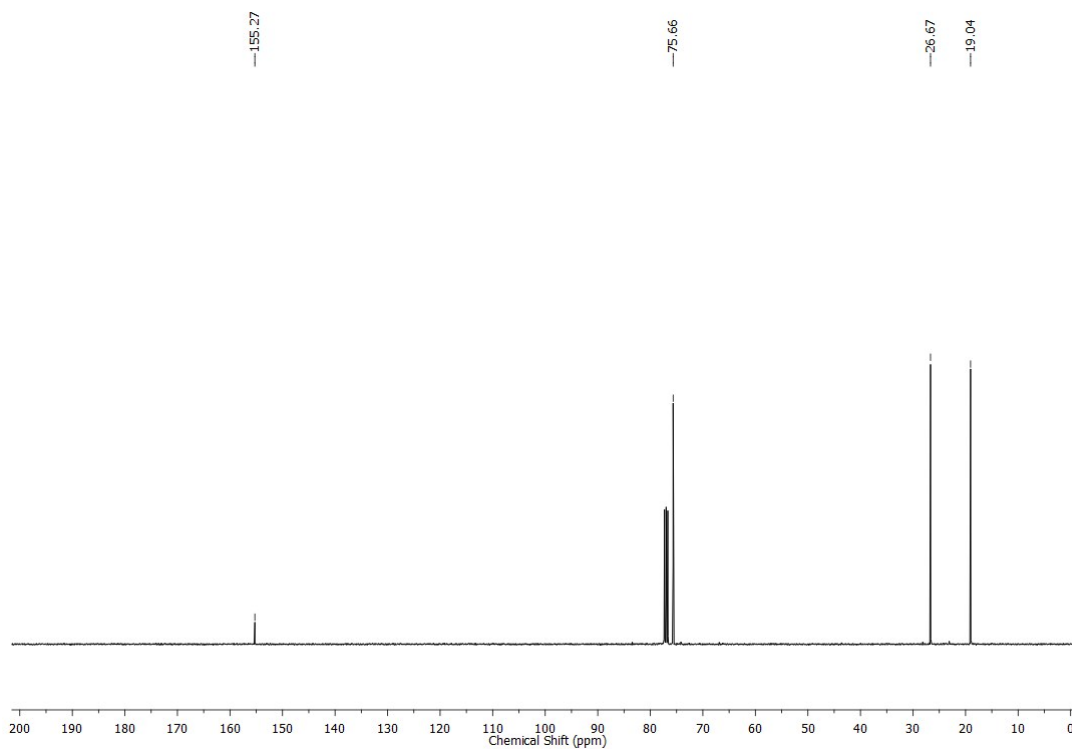
**Fig. S14.**  $^1\text{H}$  NMR spectrum of styrene carbonate.



**Fig. S15.**  $^{13}\text{C}$  NMR spectrum of styrene carbonate.



**Fig. S16.**  $^1\text{H}$  NMR spectrum of cyclohexene carbonate



**Fig. S17.**  $^{13}\text{C}$  NMR spectrum of cyclohexene carbonate