

Supporting information

Branched phosphazene salts as effective, versatile cocatalysts for epoxide/ CO_2 coupling

Massimiliano Brivio^a, Lorenzo Veronese^a, Incoronata Tritto^a, Paolo Biagini^b, Riccardo Po^b, Laura Boggioni^{a*}, Simona Losio^{a*}

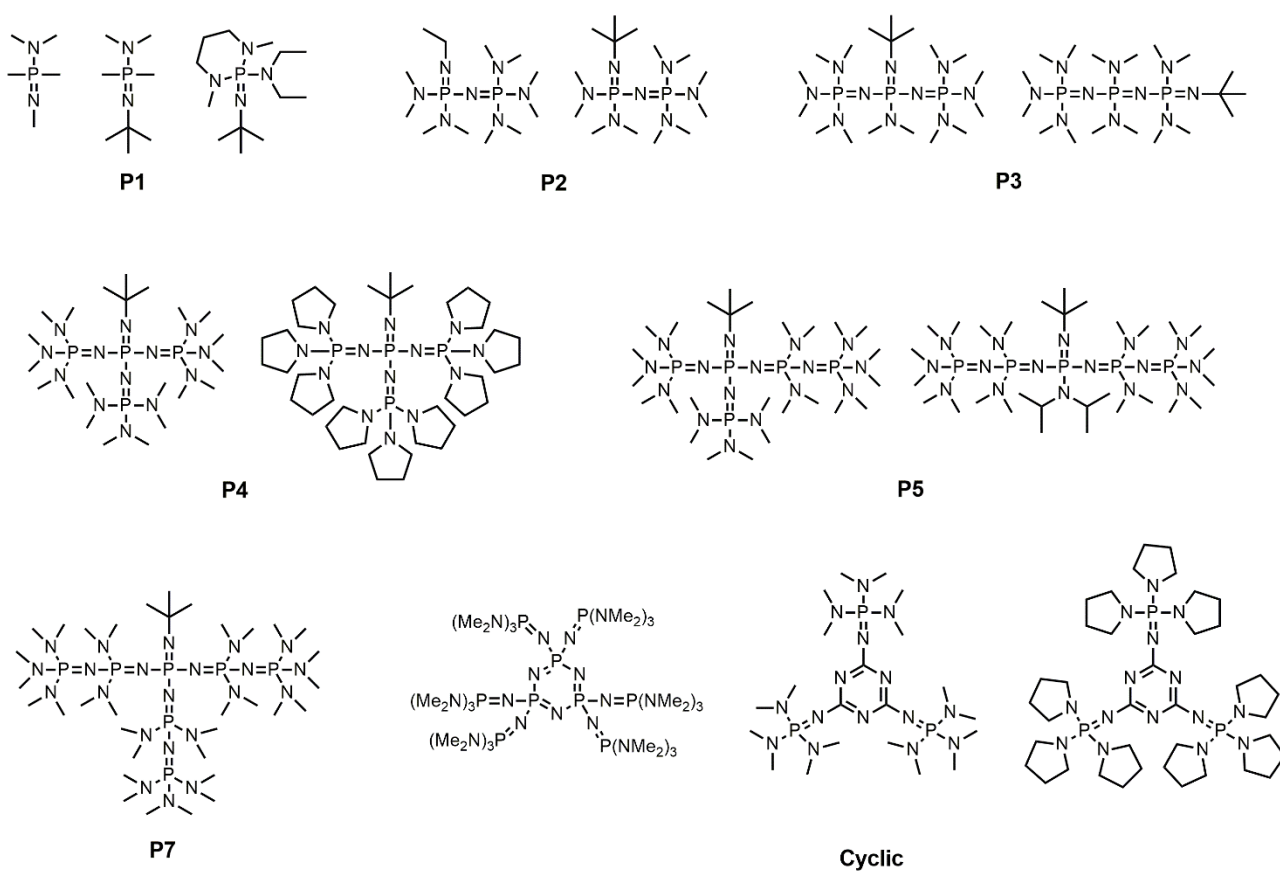


Figure S1. Examples of phosphazene bases with different P number and topologies (linear, branched and cyclic)

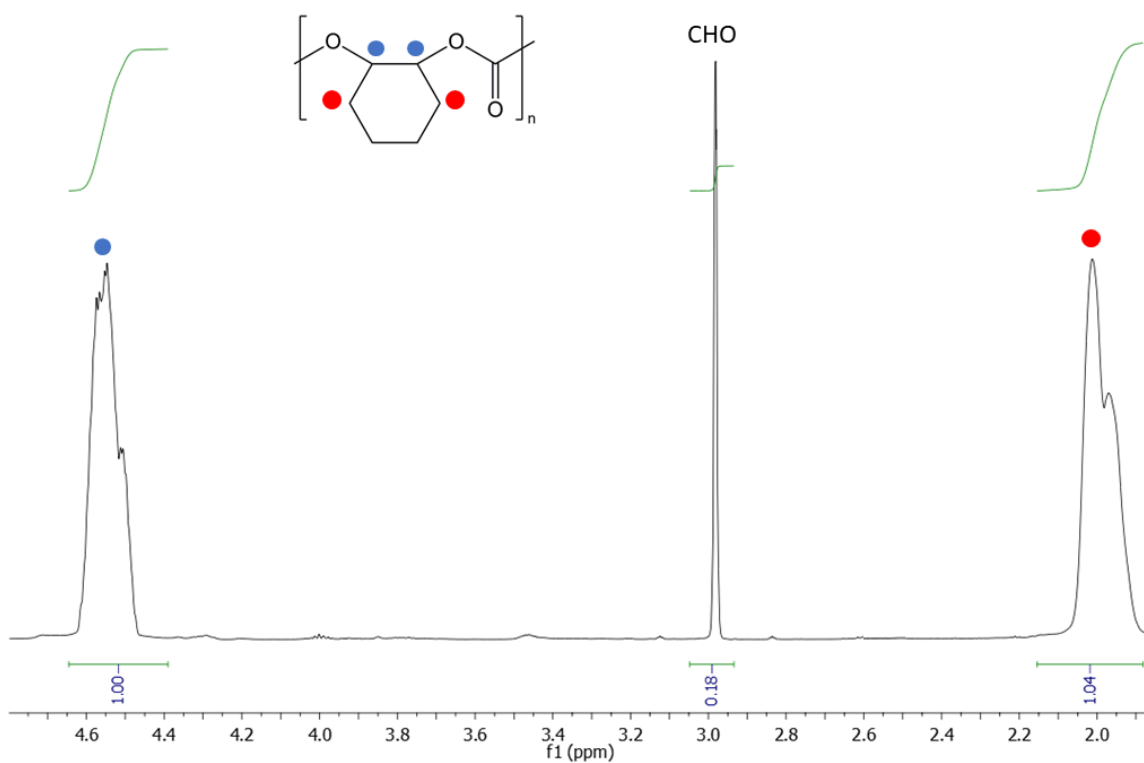


Figure S2. ¹H NMR spectrum of the crude PCHC obtained (Table 1, entry 2).

Entry 6 Table 1

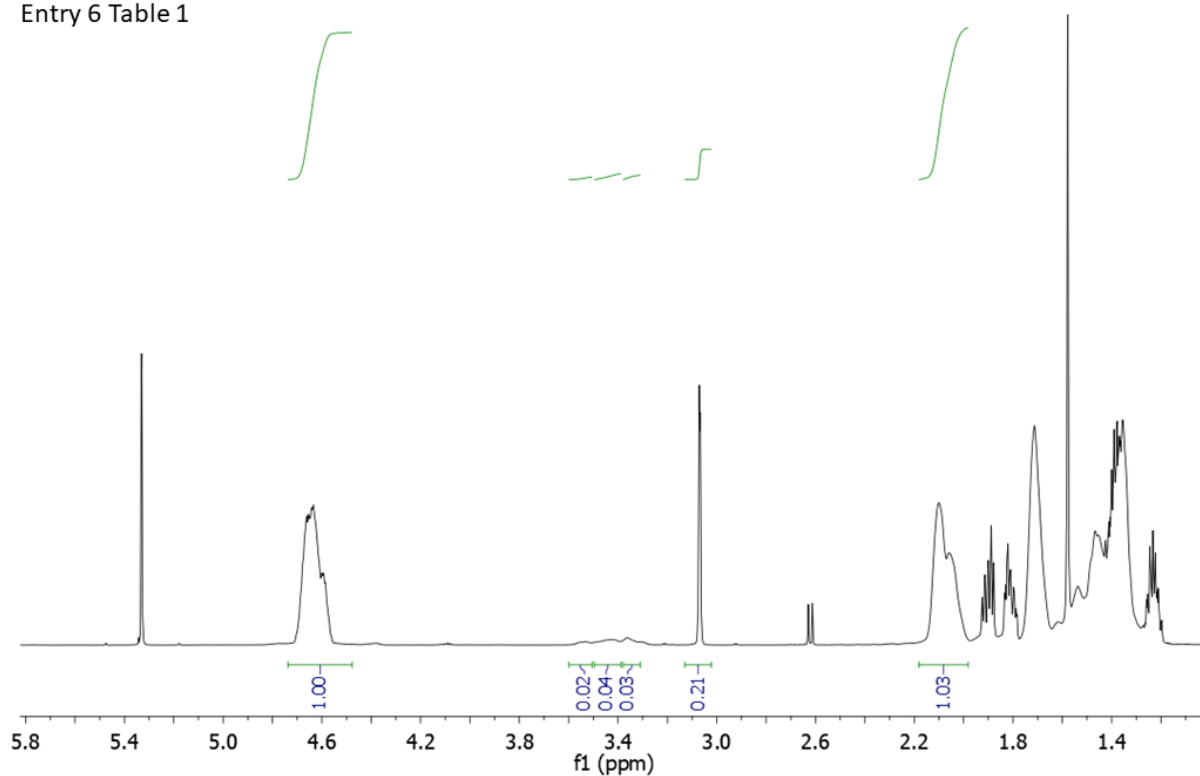


Figure S3. ¹H NMR spectrum of the crude PCHC obtained (Table 1, entry 6).

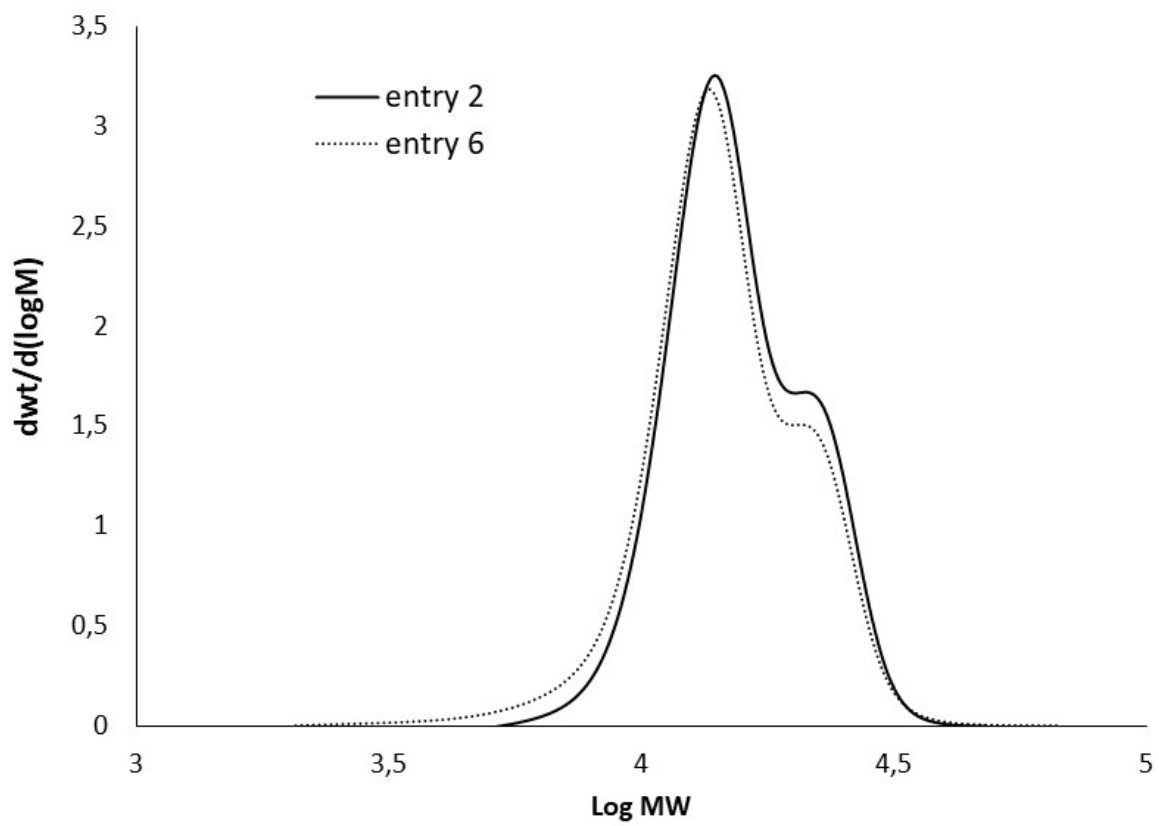


Figure S4. SEC chromatograms of selected samples from Table 1.

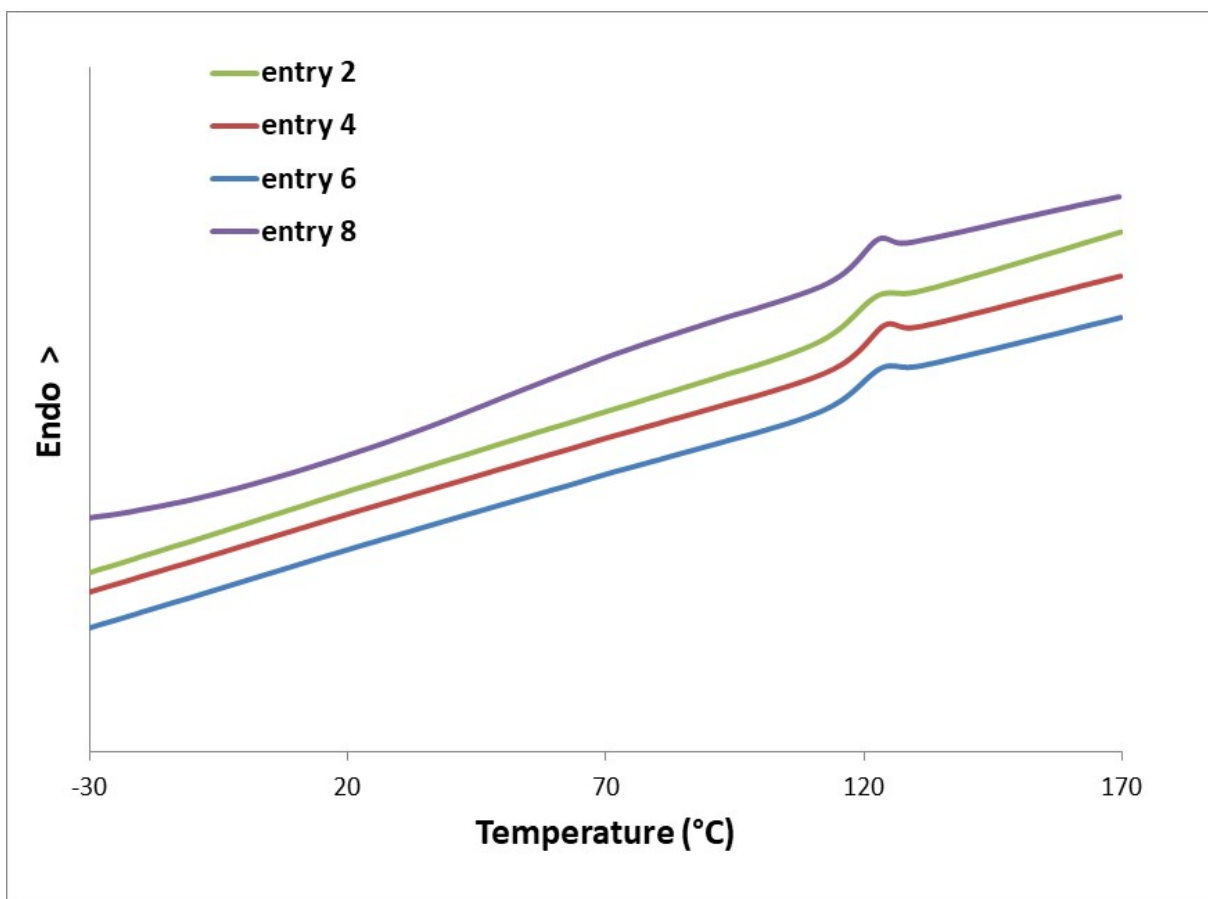


Figure S5. DSC thermograms of selected sample from Table 1

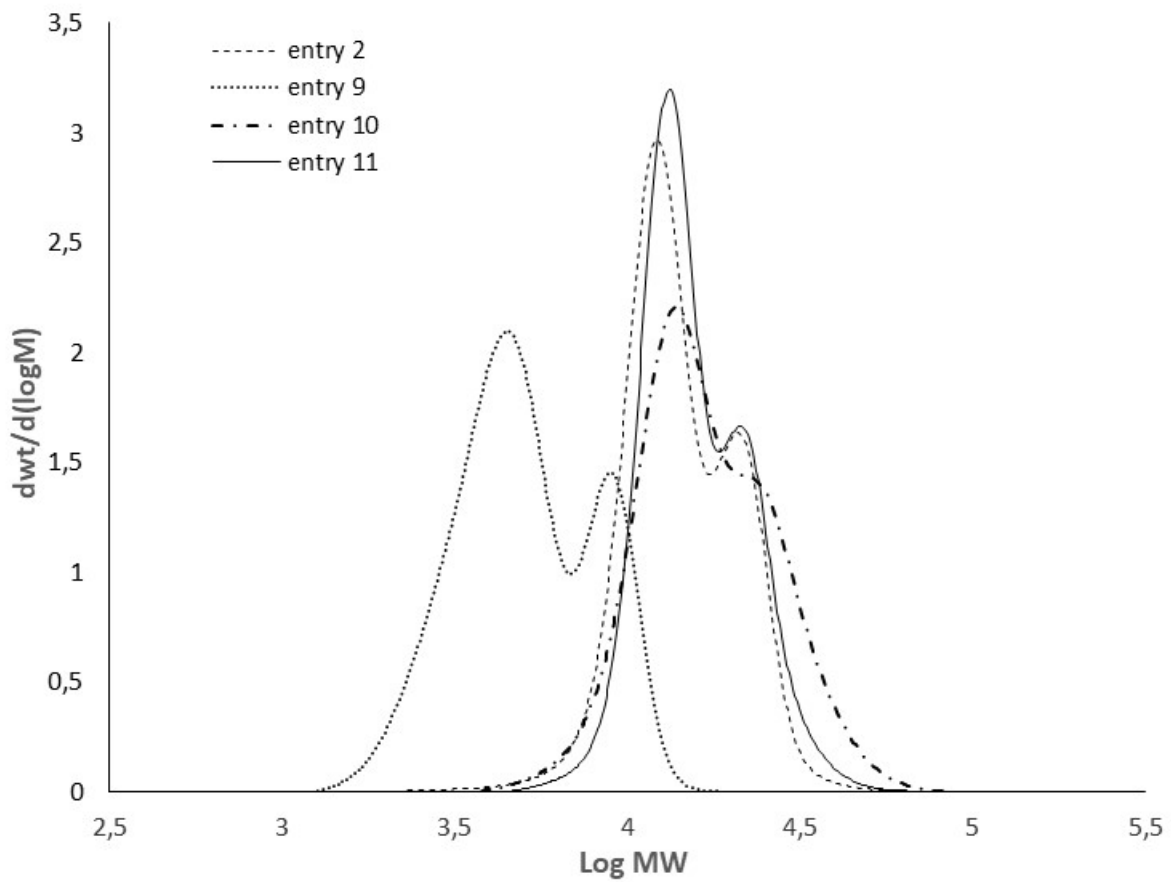


Figure S6. SEC chromatograms of selected samples from Table 2

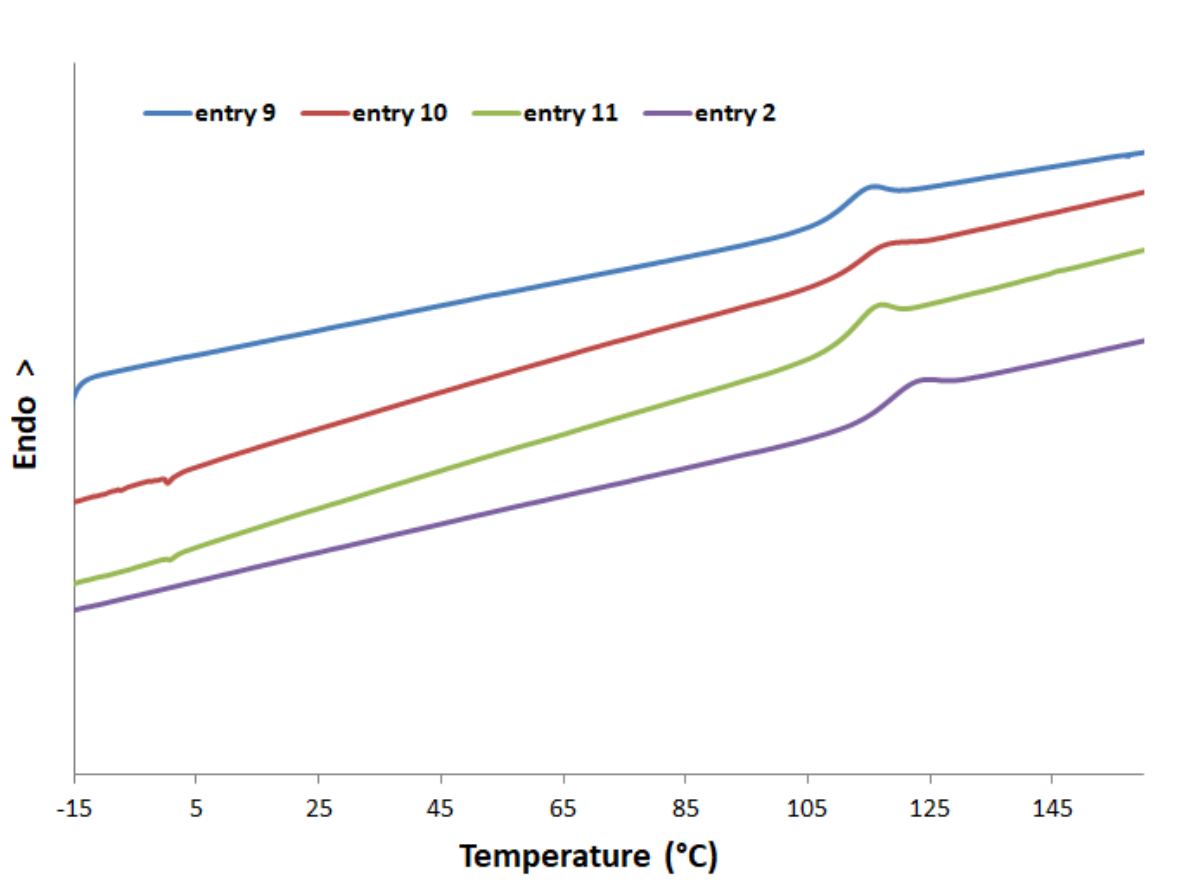


Figure S7. DSC thermograms of selected sample from Table 2

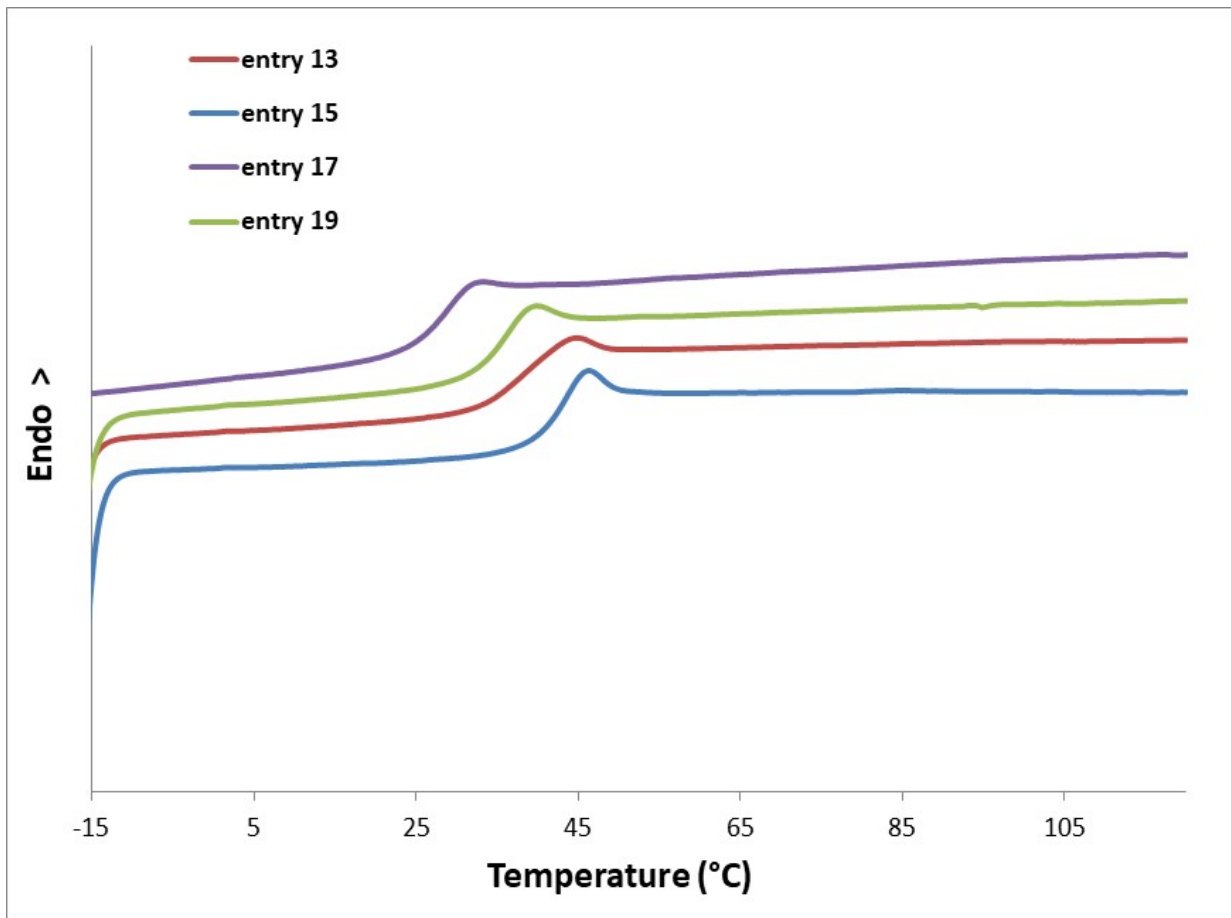


Figure S8. DSC curves of selected samples from Table 3

Entry 17 Table 3

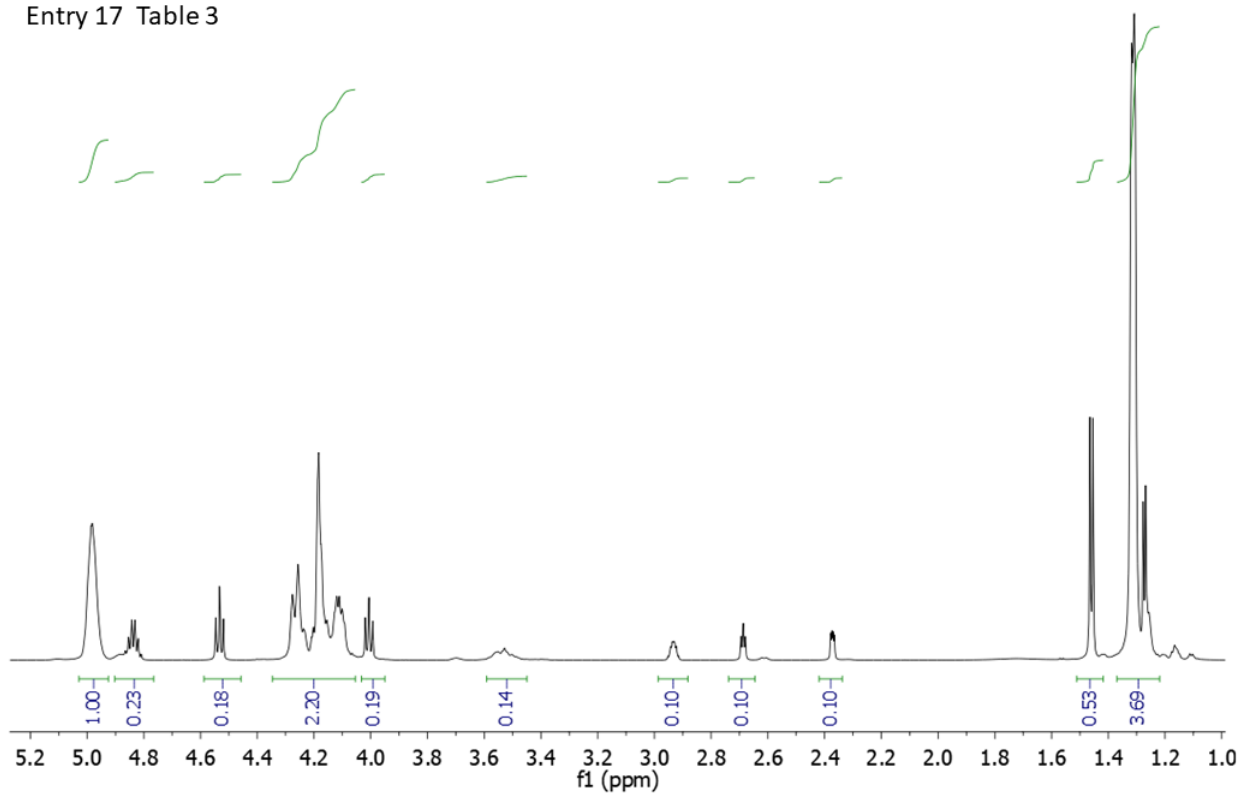


Figure S9. ^1H NMR spectrum of crude polypropylene carbonate from PPZCl/**1d** (entry 17 in Table 3)

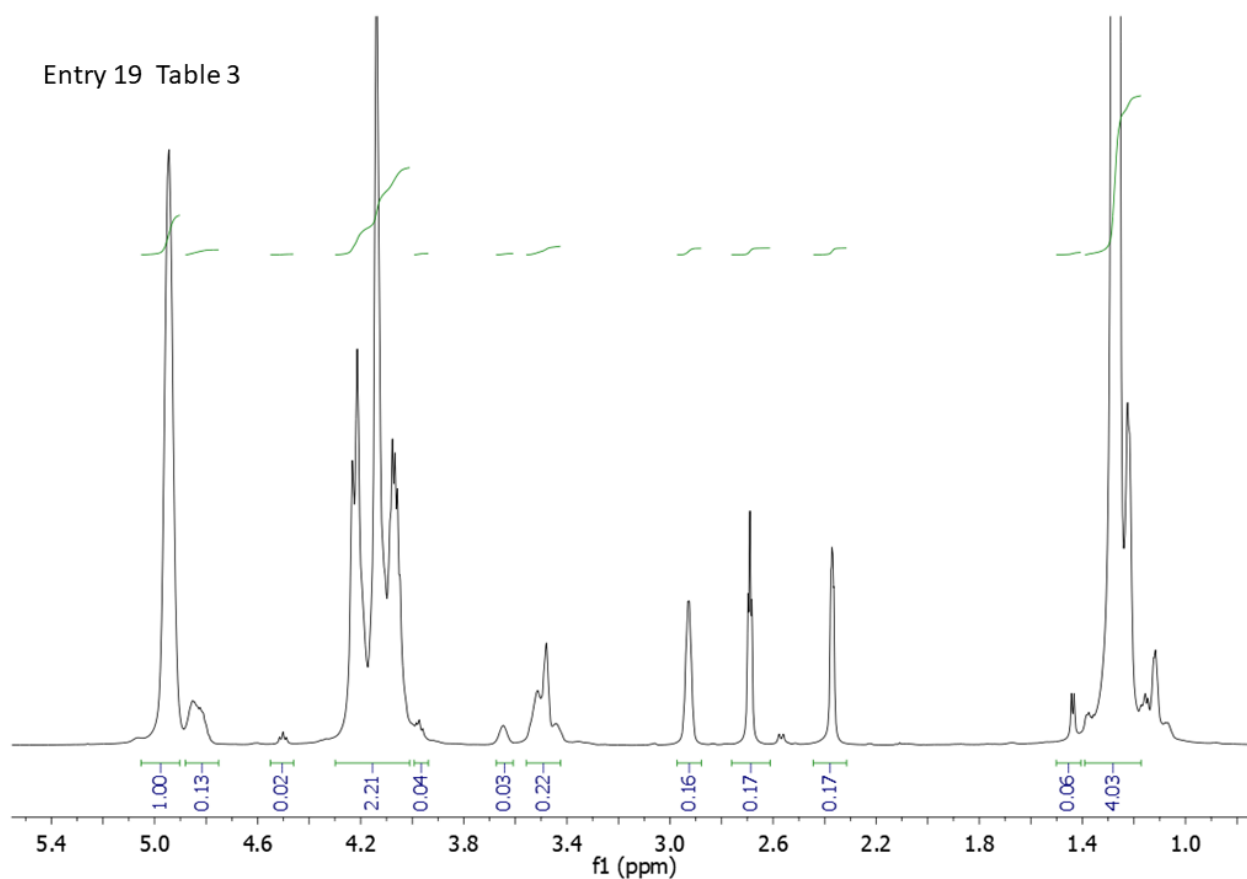


Figure S10. ^1H NMR spectrum of crude polypropylene carbonate from PPZCl/**1d** (entry 17 in Table 3)

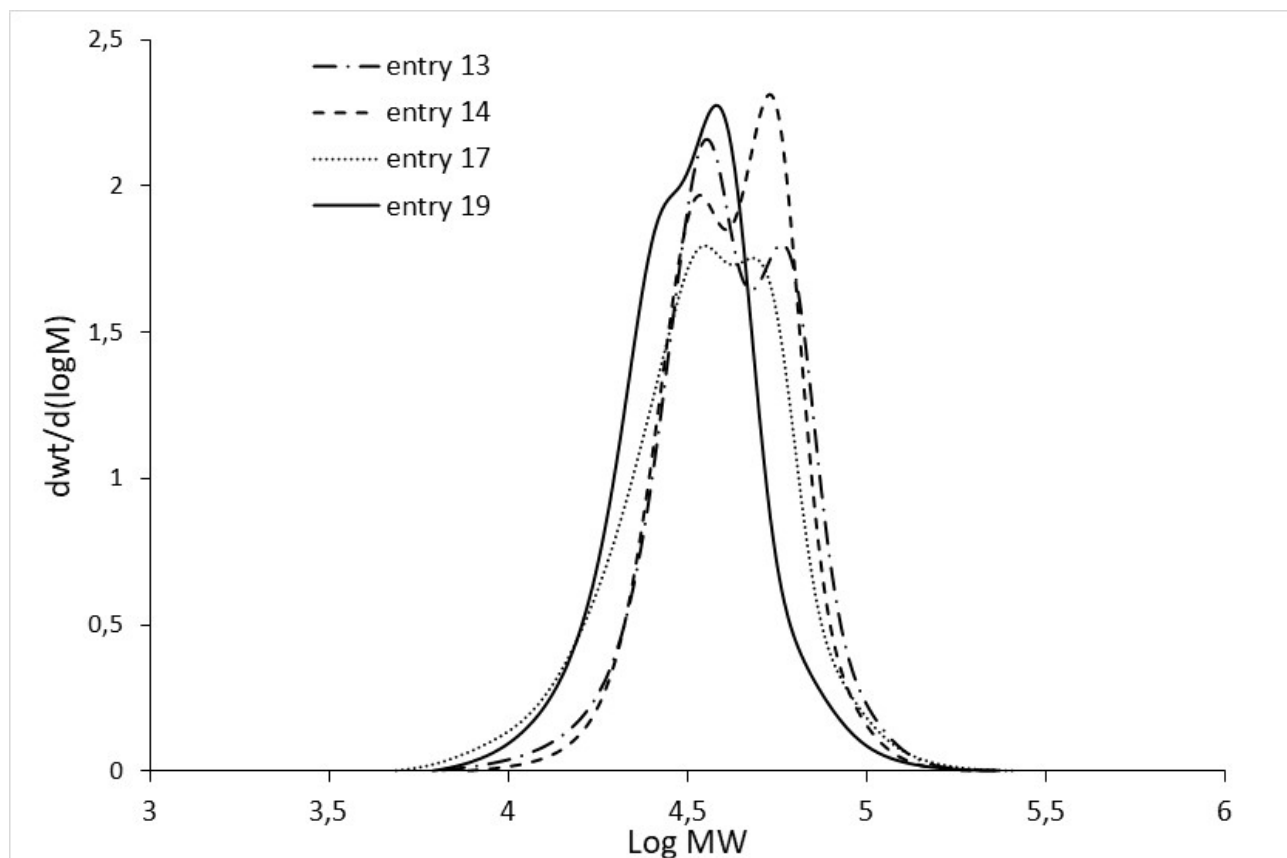


Figure S11. SEC chromatograms of selected samples from Table 3

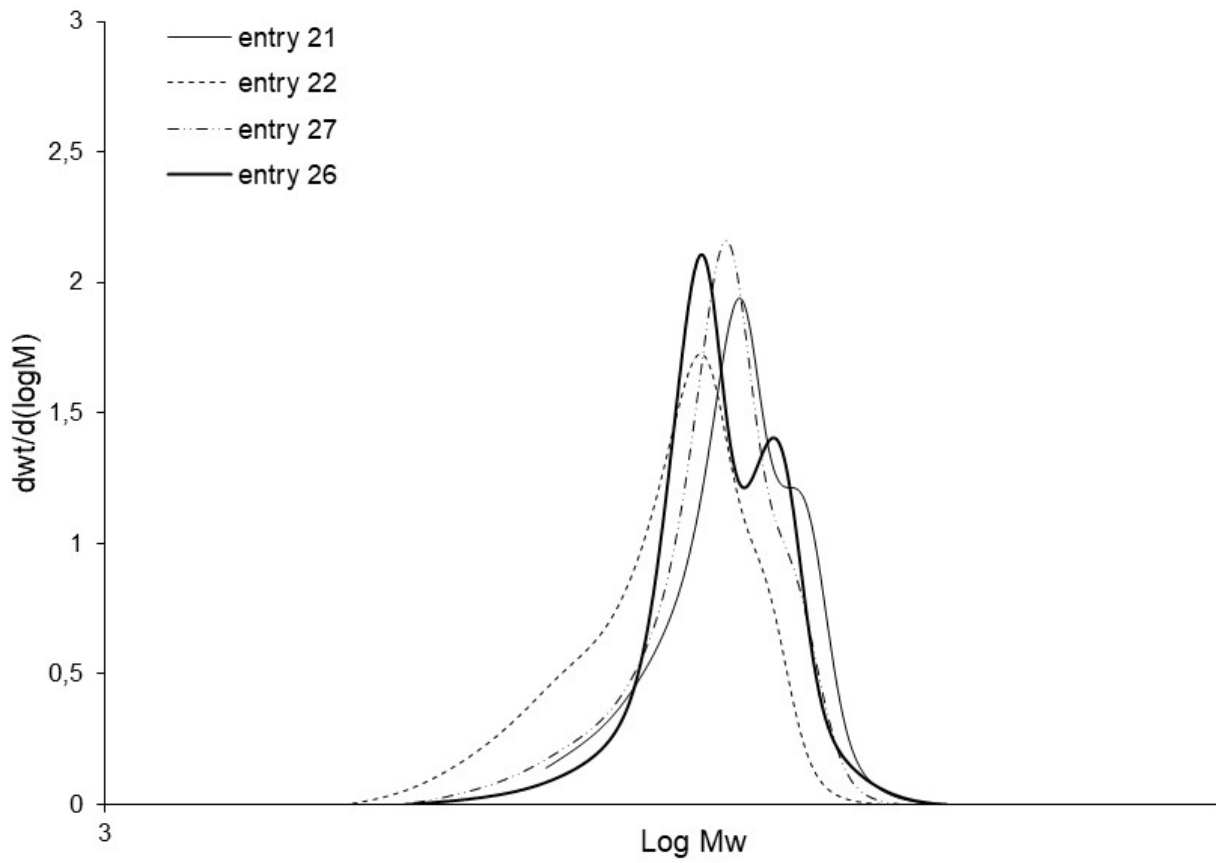


Figure S12. SEC chromatograms of selected entries in Table 4

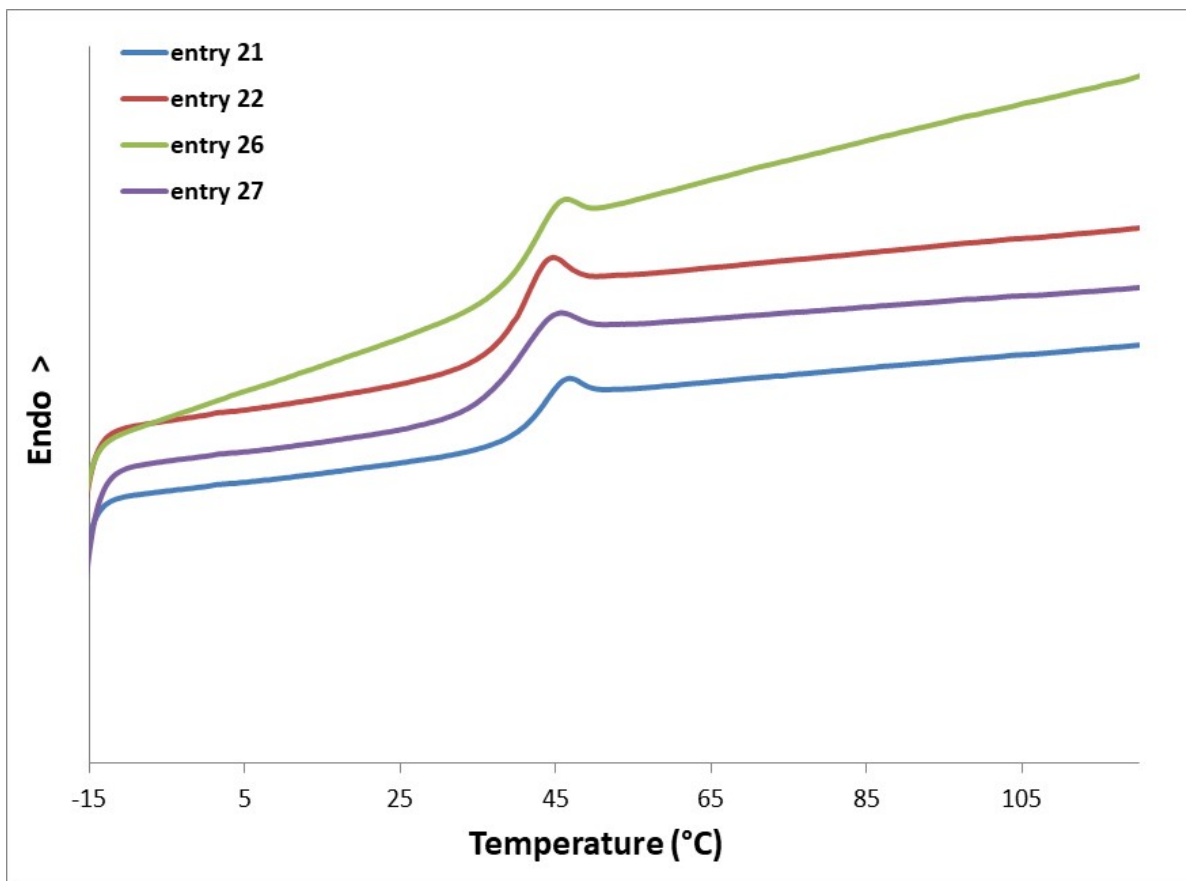


Figure S13. DSC curves of selected entries from Table 4

Entry 21 Table 4

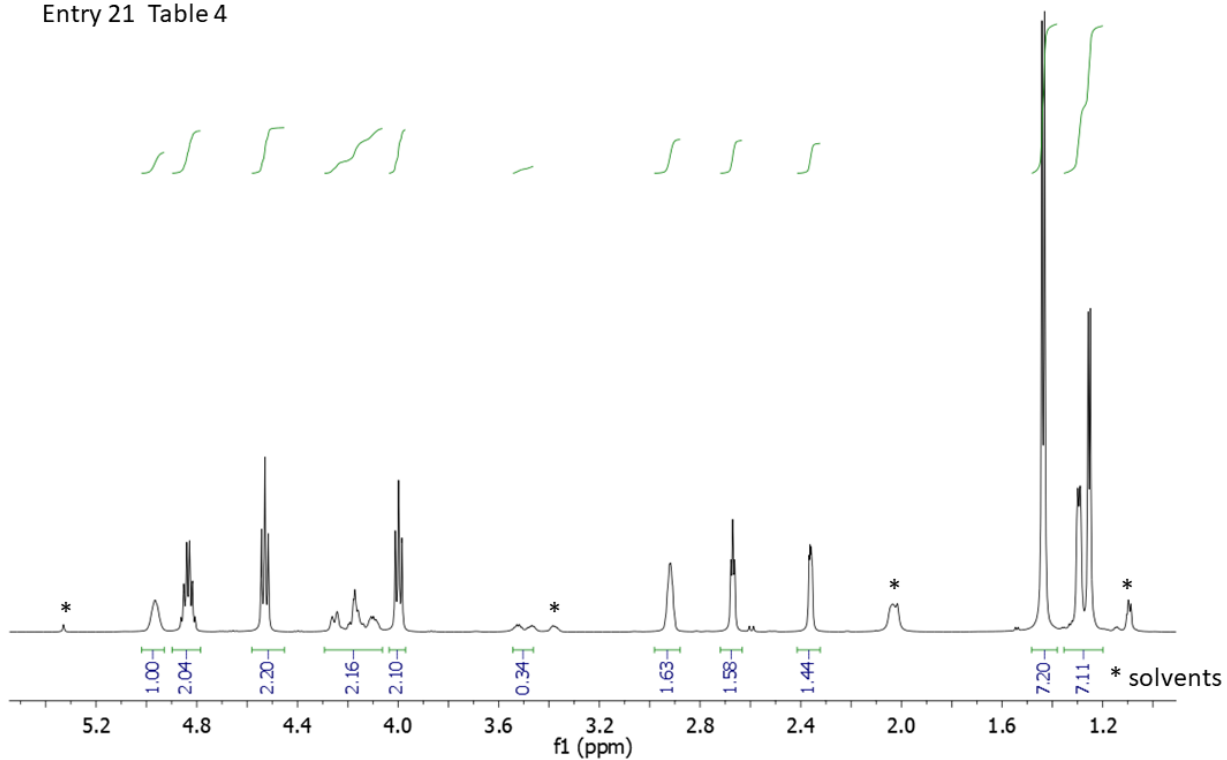


Figure S14. ¹H NMR spectrum of crude polypropylene carbonate from PPZN₃/2a (entry 21 in Table 4)

Entry 22 Table 4

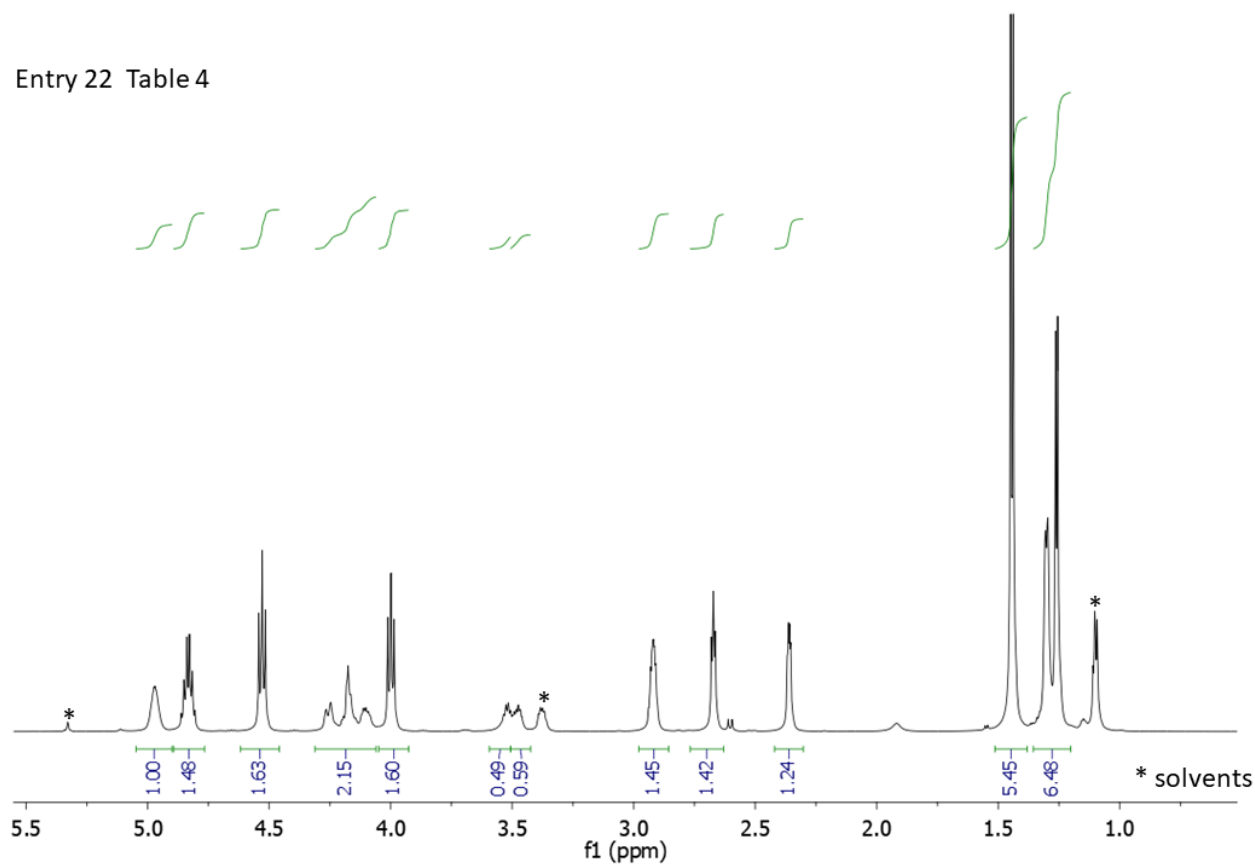


Figure S15. ^1H NMR spectrum of crude polypropylene carbonate from $\text{PPZN}_3/\mathbf{2a}$ (entry 22 in Table 4)

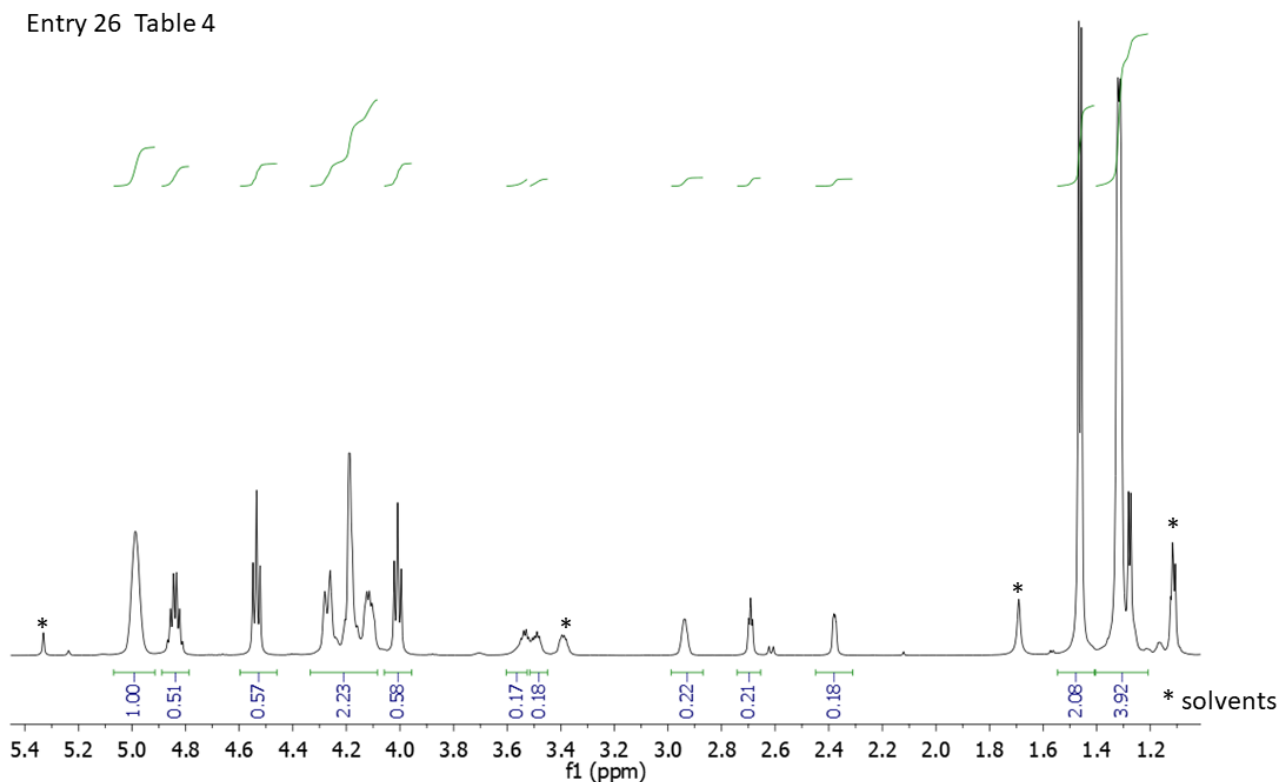


Figure S16. ^1H NMR spectrum of crude polypropylene carbonate from $\text{PPZCl}/\mathbf{2b}$ (entry 26 in Table 4)

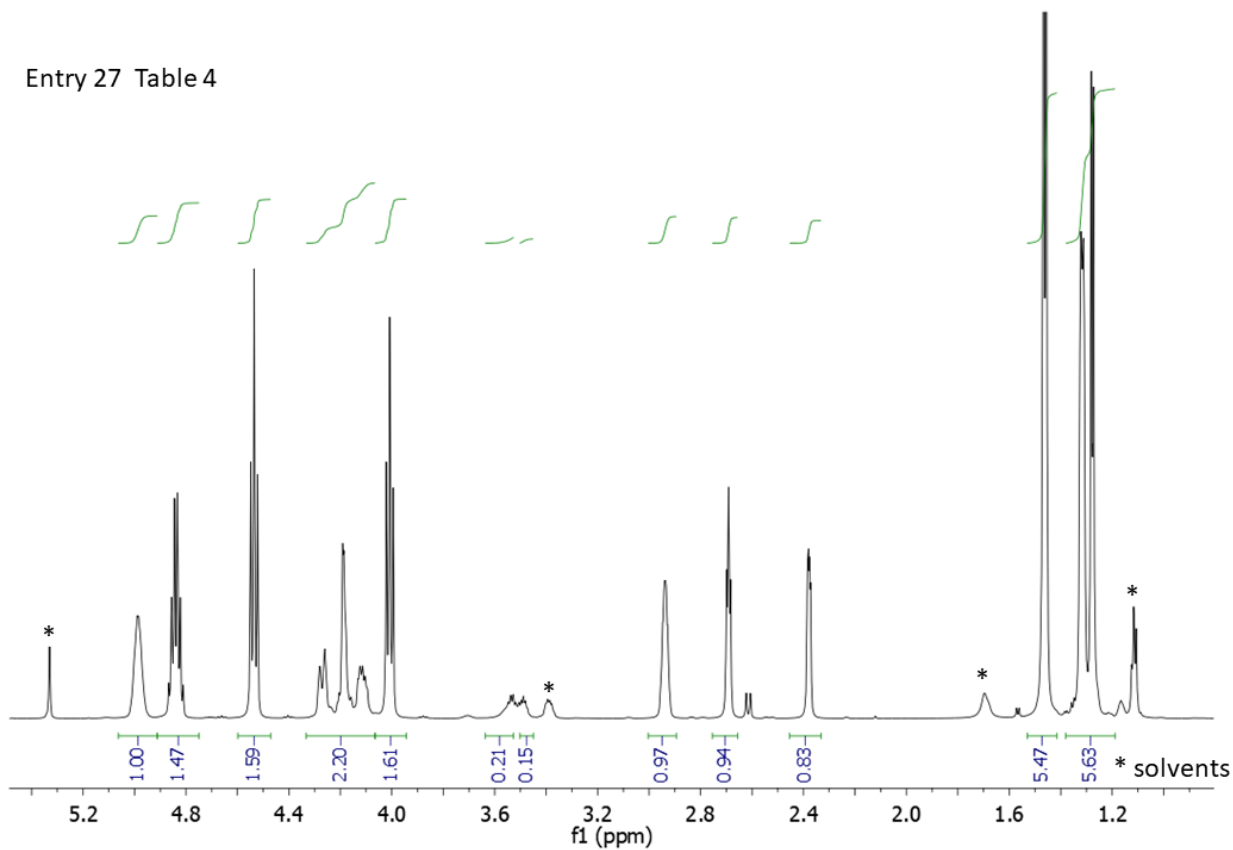
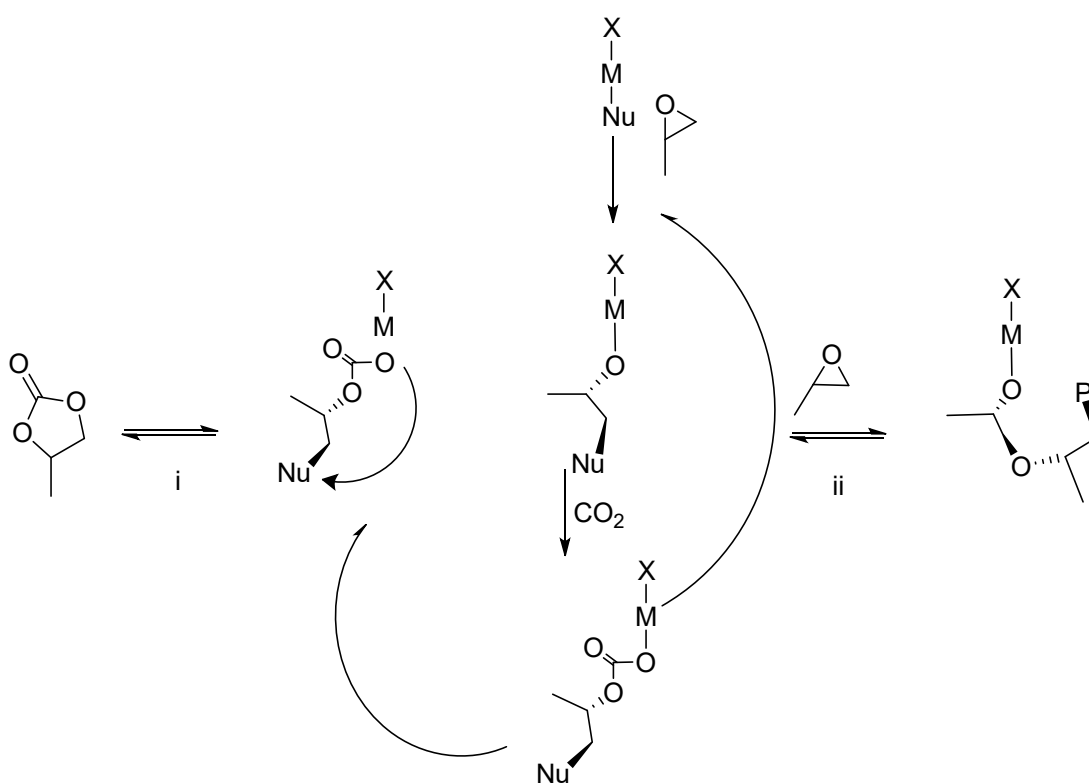


Figure S17. ^1H NMR spectrum of crude polypropylene carbonate from $\text{PPZN}_3/\mathbf{2b}$ (entry 27 in Table 4)



Scheme S1. General reaction mechanism to yield either polycarbonate or cyclic carbonate.

Table S1. Connolly Molecular Surface Area for the cocatalysts used in this work.

Cocatalyst	Molecular Area (\AA^2)
PPNCl	360.0
PPN ₃	370.3
PPZCl	465.3
PPZ ₃	450.5
TPPCI	254.4
UHFFA	268.5

Calculated with ChemDraw 3D by Chemoffice 20.0.