Supplementary Information (SI) for Energy Advances.
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Electronic Supplementary Information (ESI)

Ammonium Rich Pillararene Macrocycle as a Heterogeneous Catalyst for Cyclic Carbonates Synthesis

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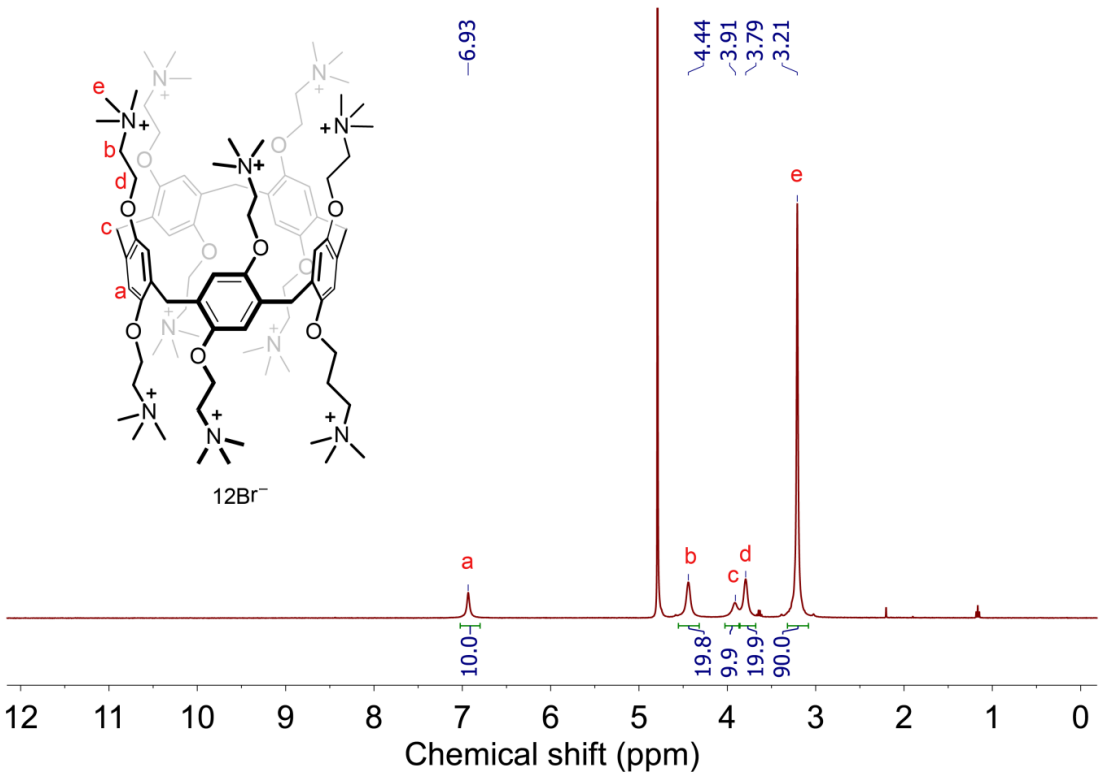

Fig. S1 ^{1}H NMR spectrum of **N(Me)$_3^+$-P5** in D_2O.

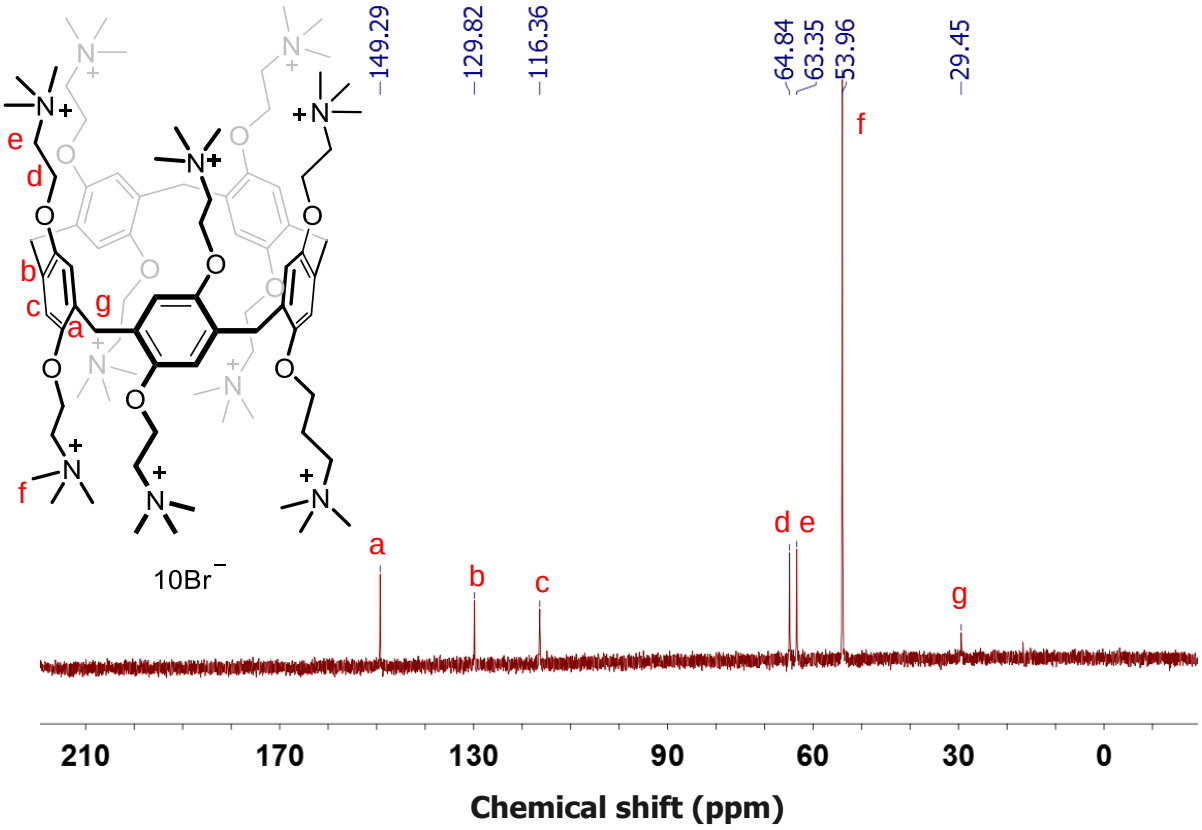

Fig. S2 ^{13}C NMR spectrum of **N(Me)$_3^+$-P5** in D_2O.

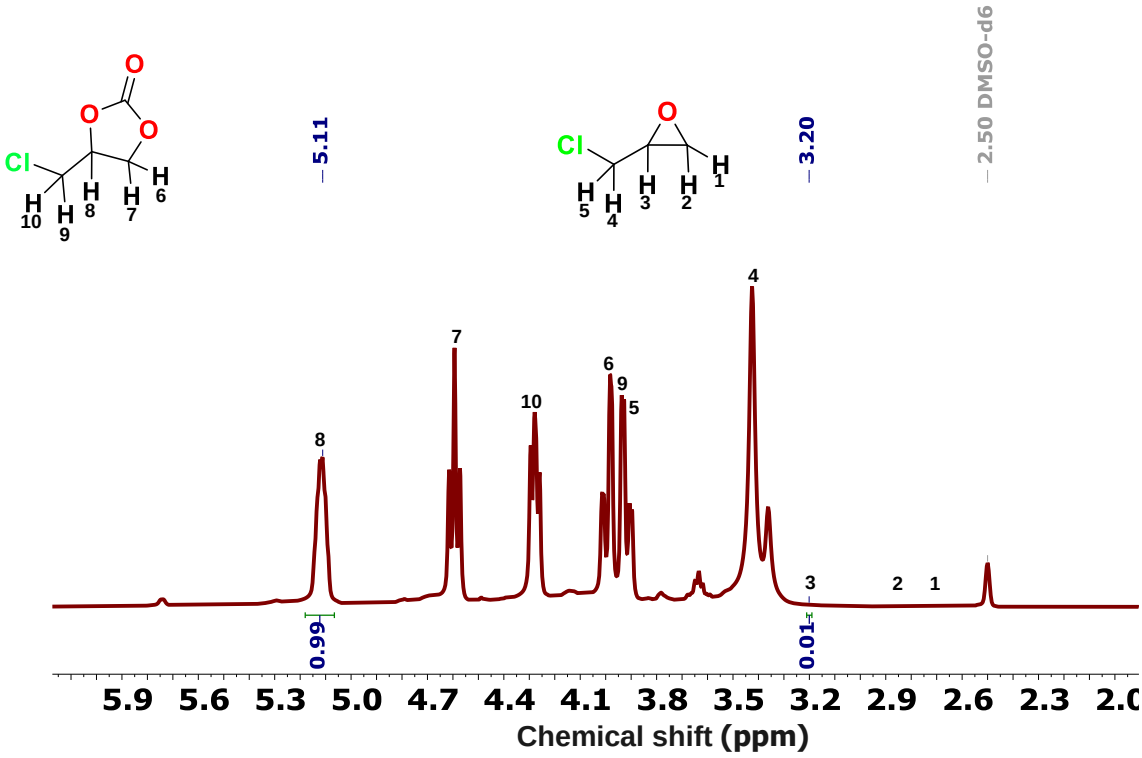

Fig. S3 ^{1}H NMR spectrum of ECH conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.7 mol%) at 80 °C and after 16 hours.

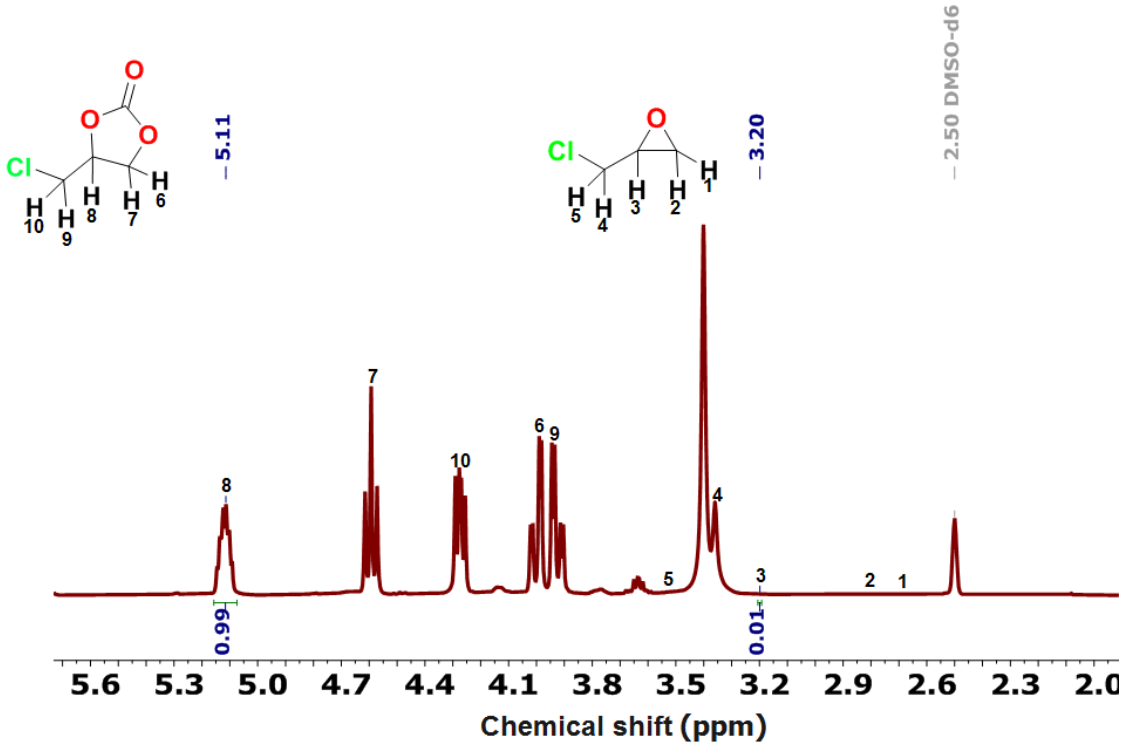

Fig. S4 ^{1}H NMR spectrum of ECH conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.7 mol%) at 80 °C and after 12 hours (Table 2, entry 1).

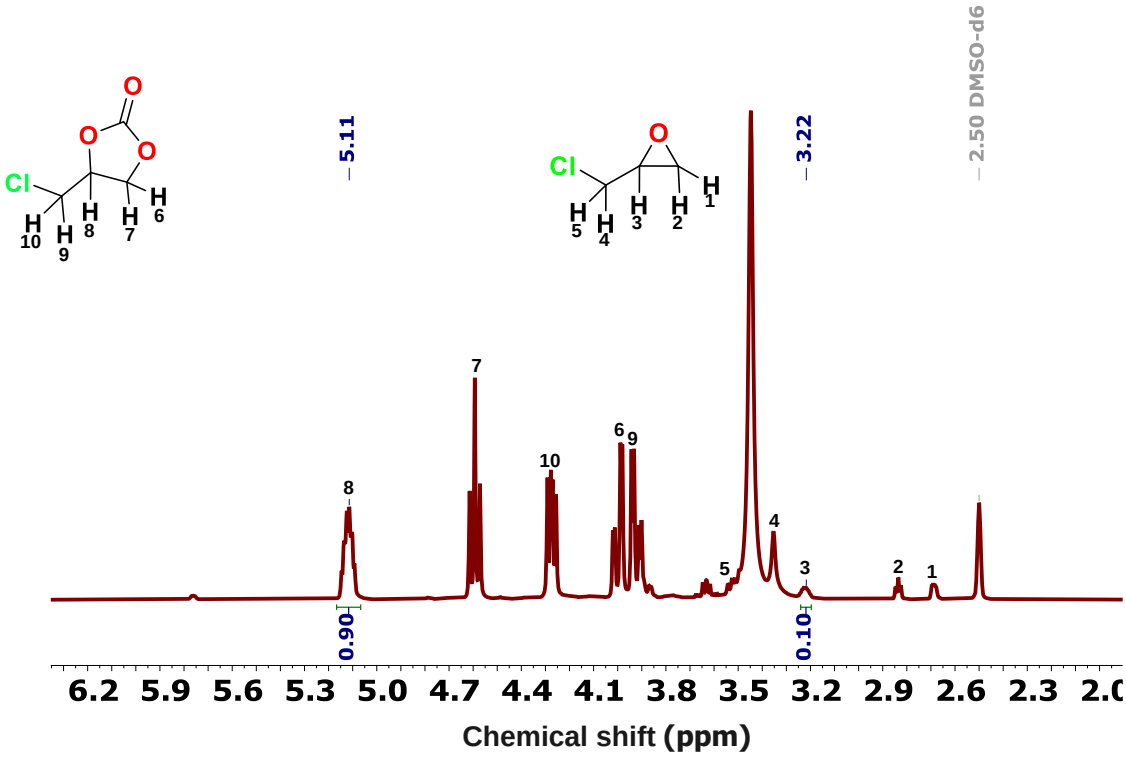

Fig. S5 ^{1}H NMR spectrum of ECH conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.7 mol%) at 80 °C and after 8 hours (Table 1, entry 2).

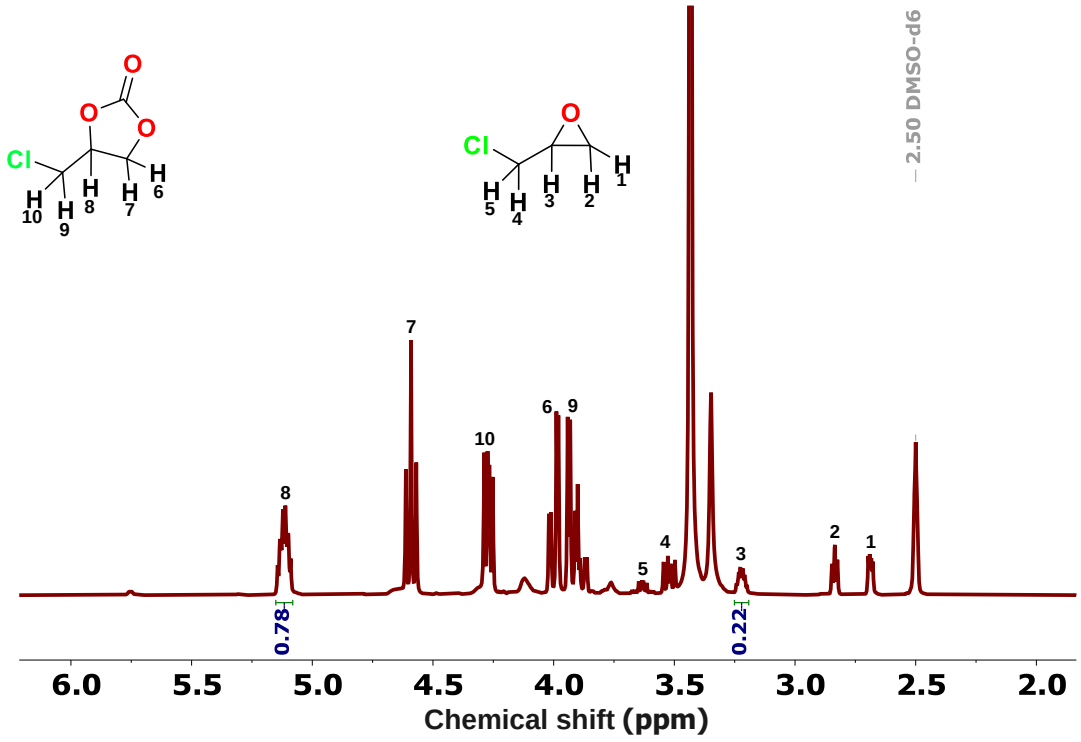

Fig. S6 ^{1}H NMR spectrum of ECH conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.7 mol%) at 80 °C and after 4 hours (Table 1, entry 3).

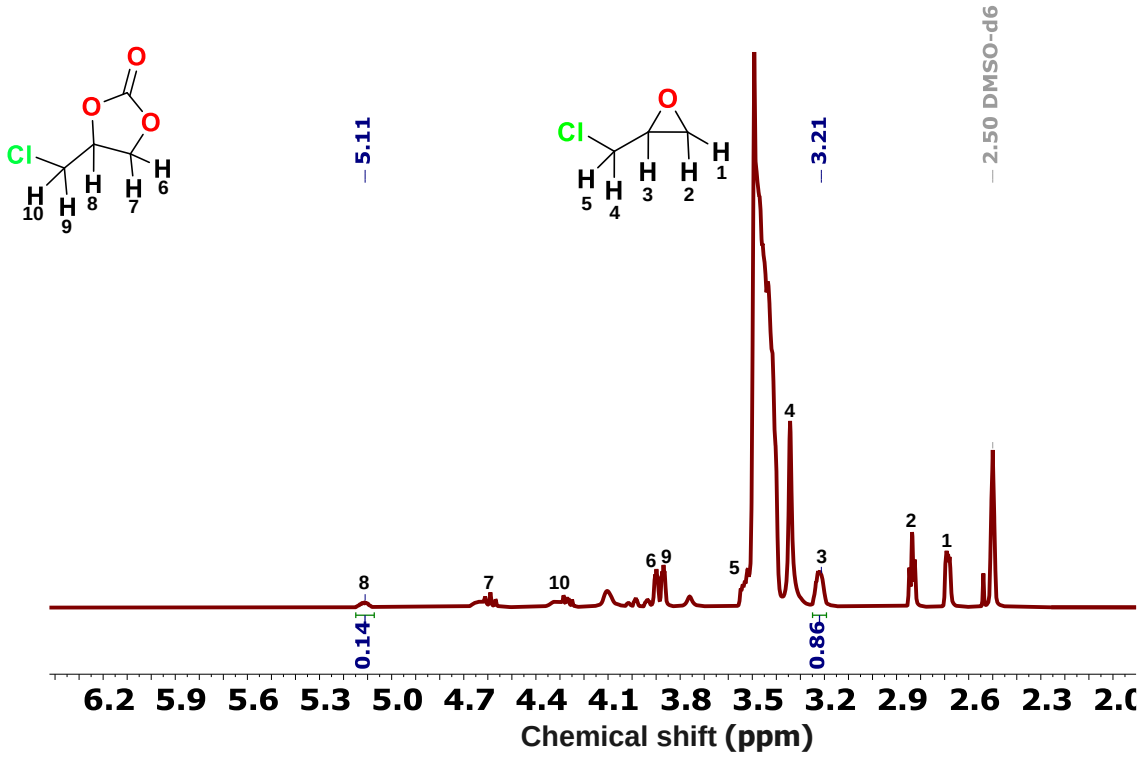

Fig. S7 ^{1}H NMR spectrum of ECH conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.7 mol%) at 40 °C and after 8 hours (Table 1, entry 4).

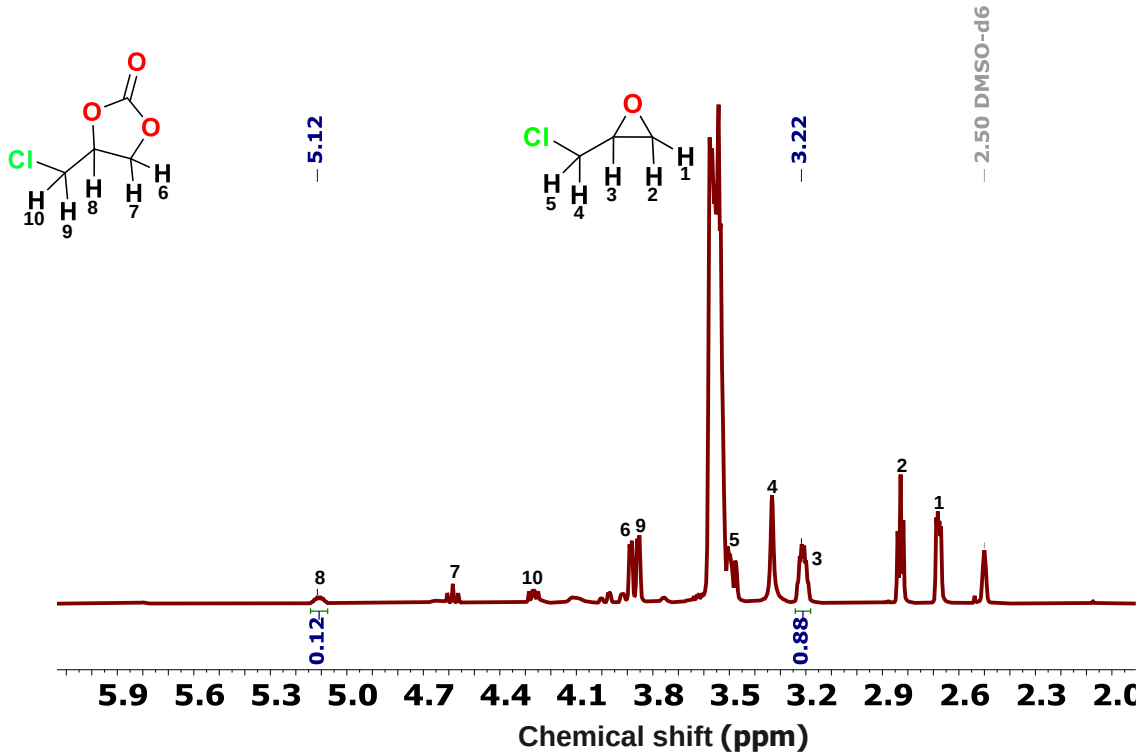

Fig. S8 ^{1}H NMR spectrum of ECH conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.7 mol%) at RT and after 8 hours (Table 1, entry 5).

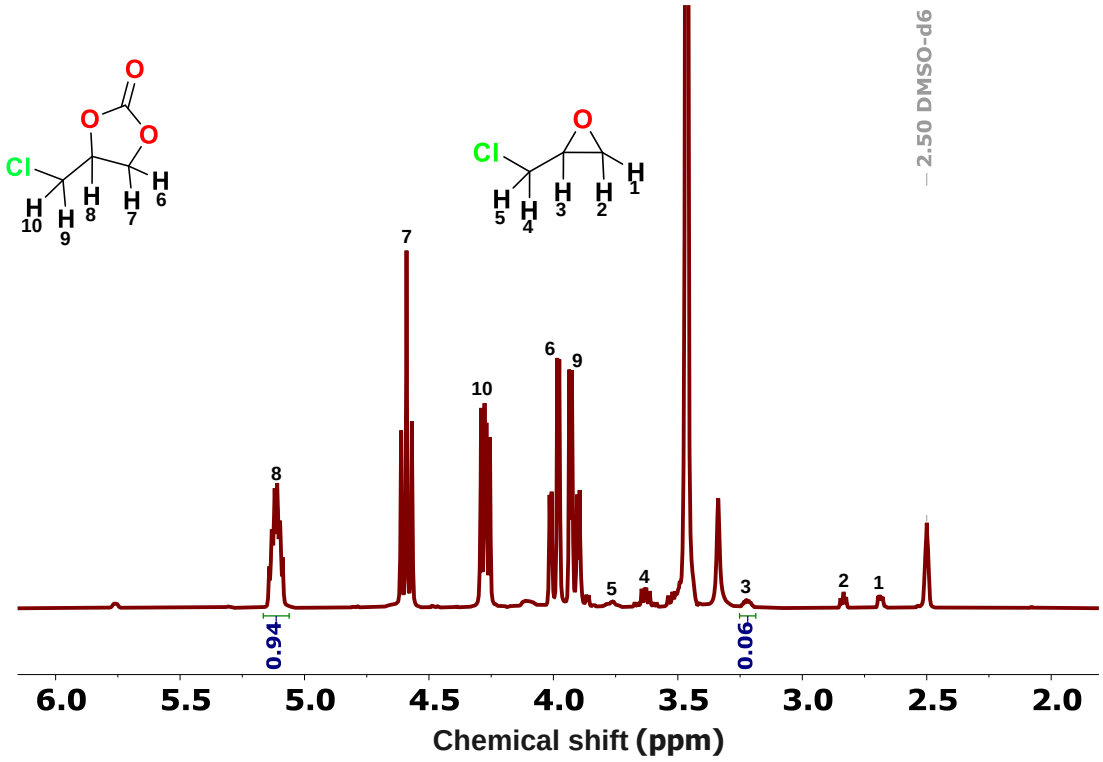

Fig. S9. ^{1}H NMR spectrum of ECH conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.35 mol%) at 80 °C and after 8 hours.

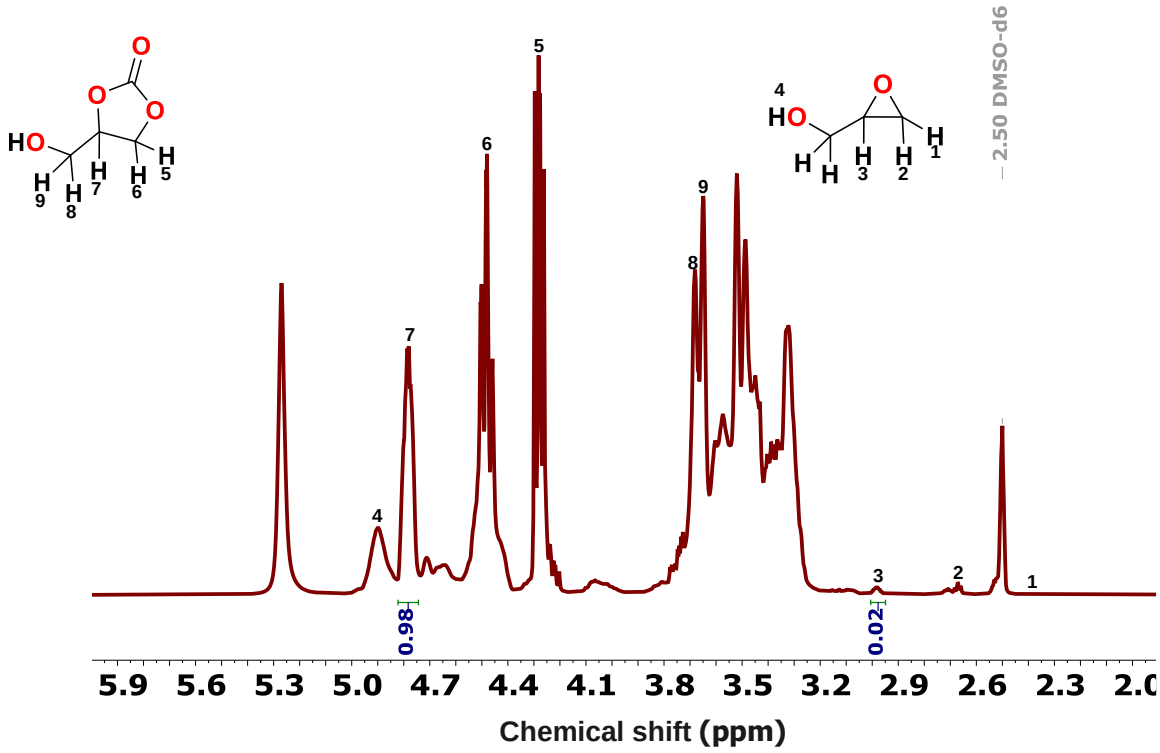

Fig. S10 ^{1}H NMR spectrum of GO conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.7 mol%) at 80 °C and after 8 hours.

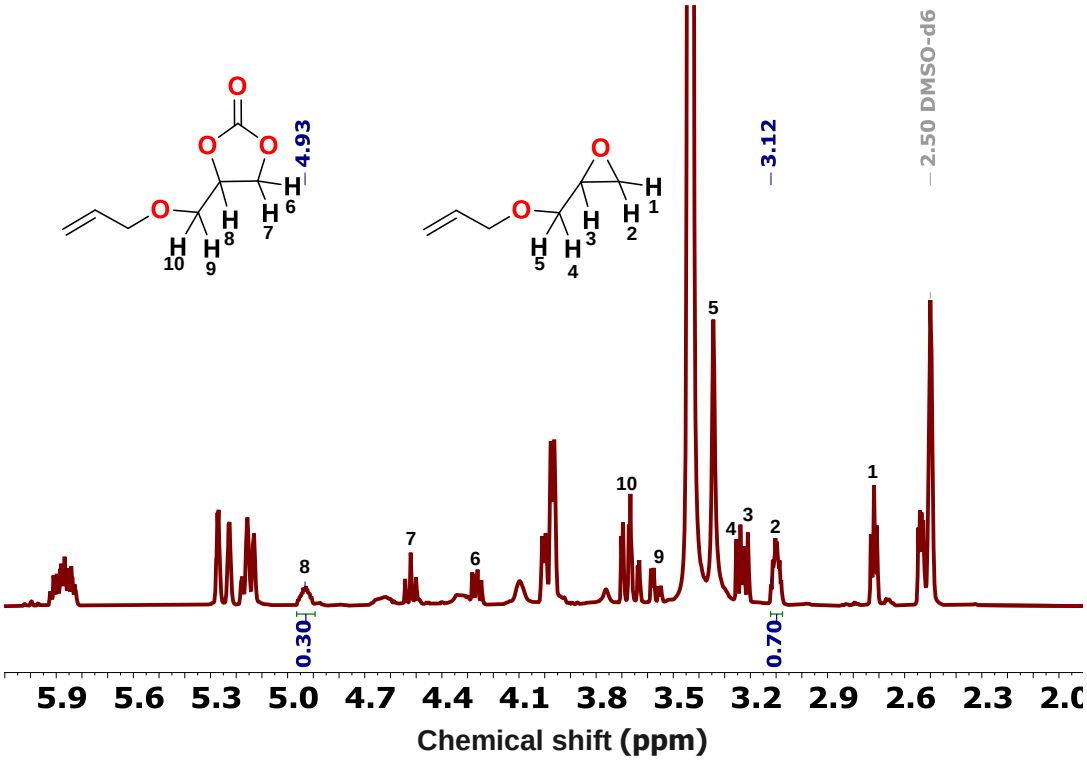

Fig. S11 ^{1}H NMR spectrum of AGE conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.7 mol%) at 80 °C and after 8 hours.

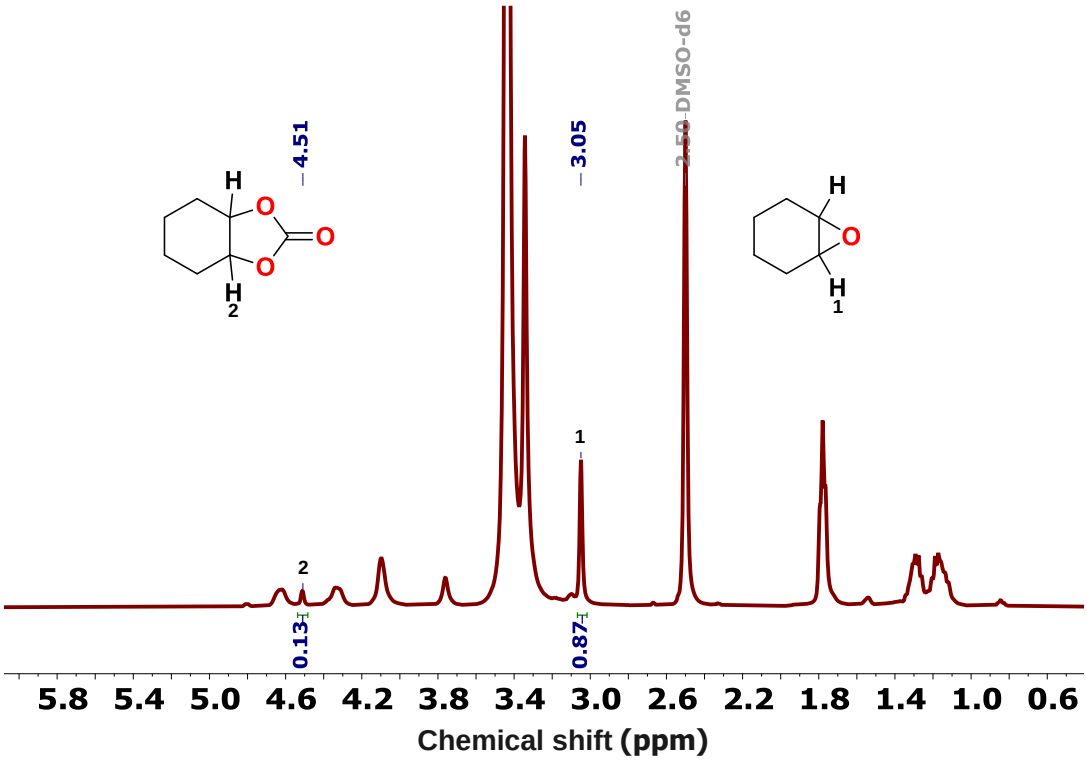

Fig. S12 ^{1}H NMR spectrum of CHO conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.7 mol%) at 80 °C and after 8 hours.

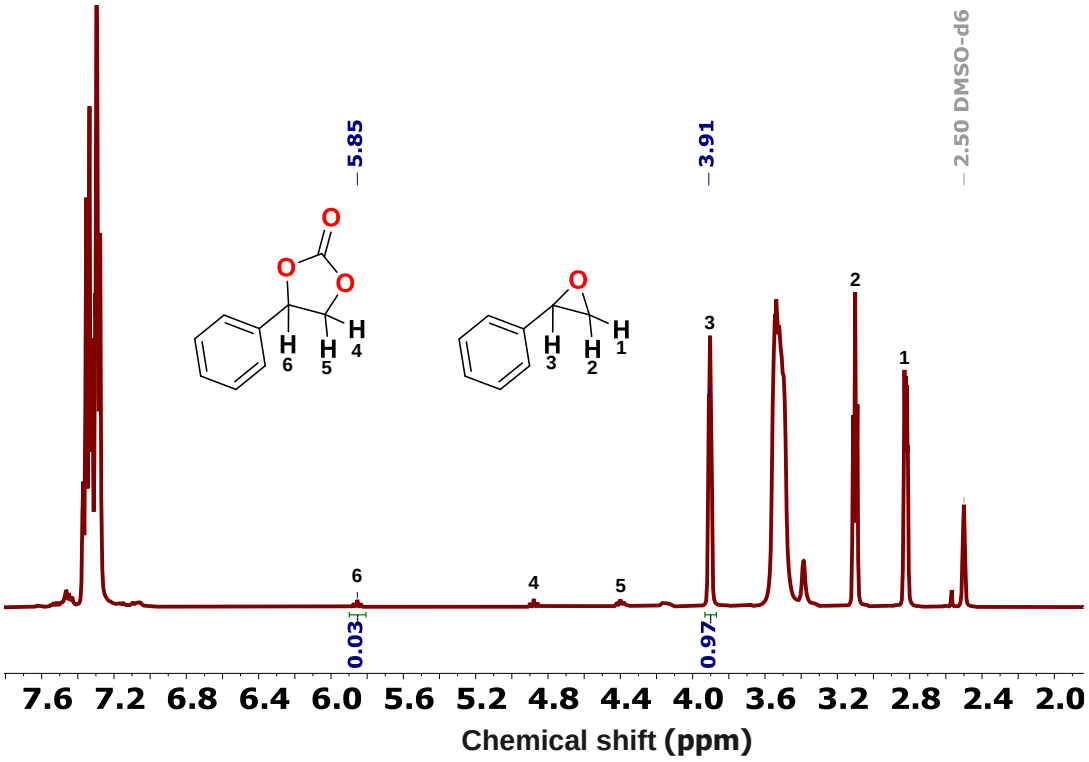

Fig. S13 ^{1}H NMR spectrum of SO conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.7 mol%) at 80 °C and after 8 hours.

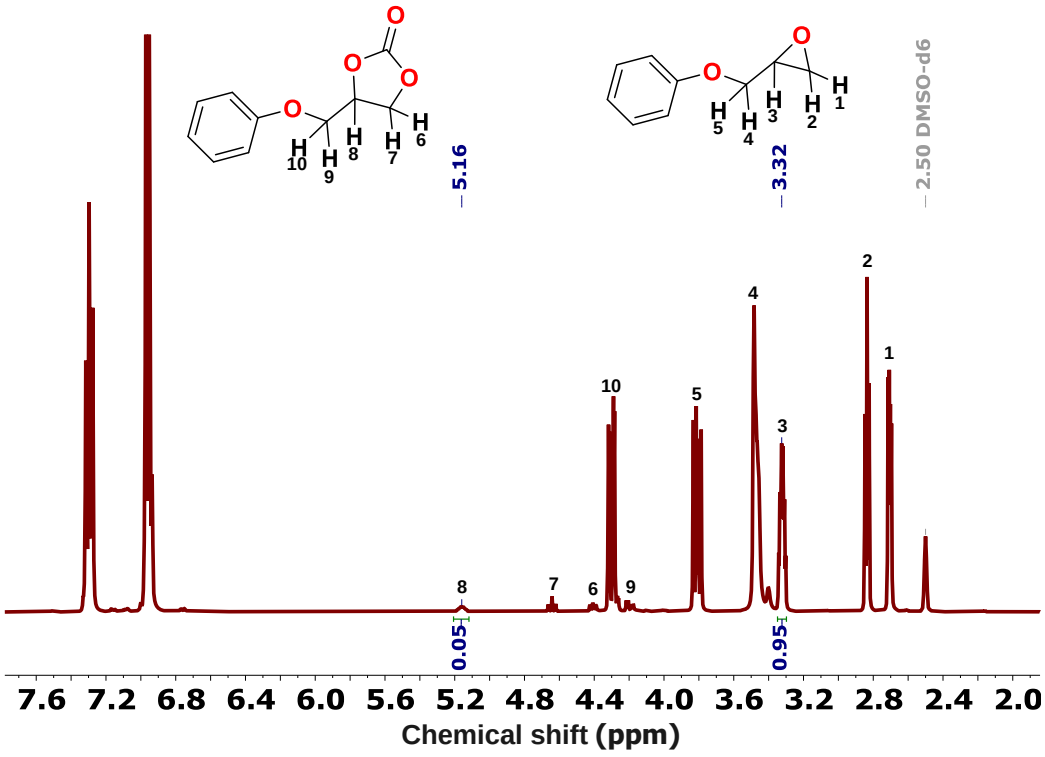

Fig. S14 ^{1}H NMR spectrum of EPOP conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.7 mol%) at 80 °C and after 8 hours.

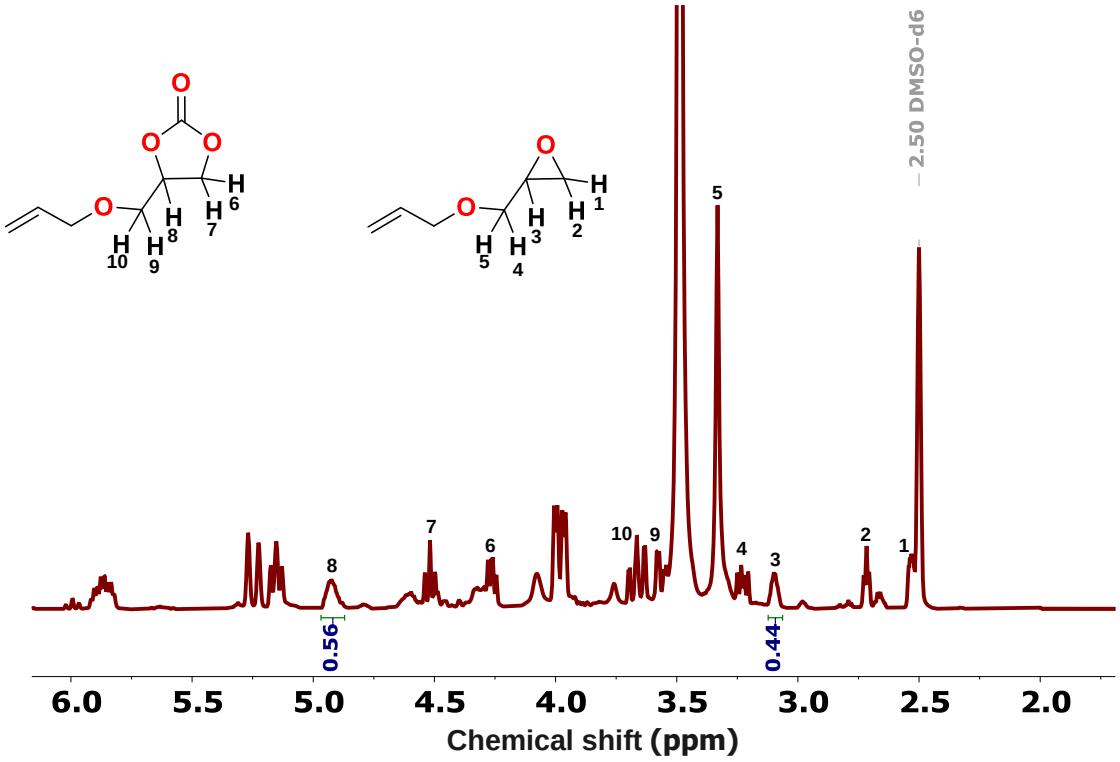

Fig. S15 ^{1}H NMR spectrum of AGE conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.7 mol%) at 80 °C and after 16 hours.

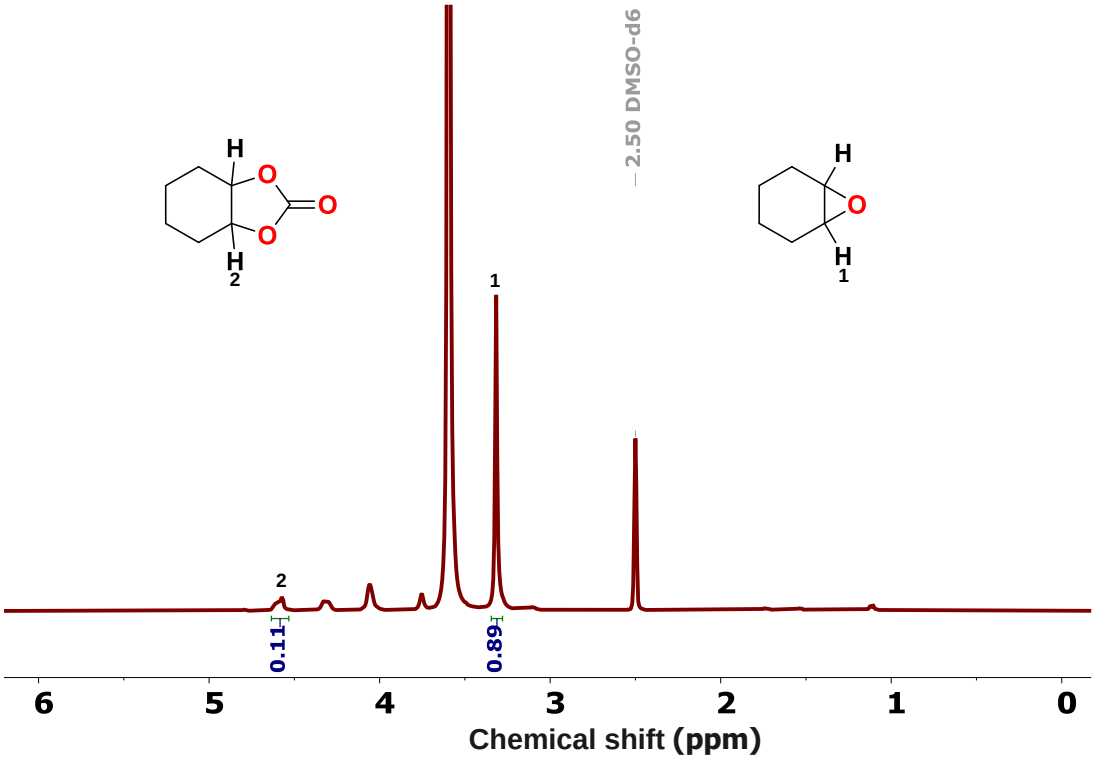

Fig. S16 ^{1}H NMR spectrum of CHO conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.7 mol%) at 80 °C and after 16 hours.

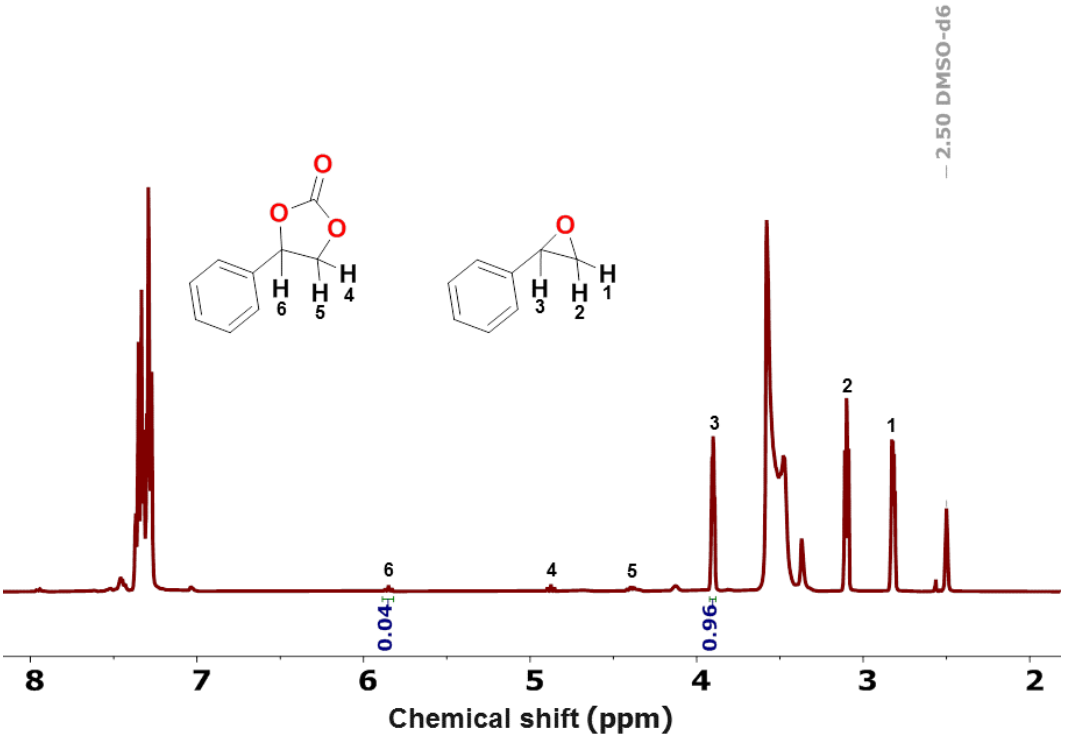

Fig. S17 ^{1}H NMR spectrum of SO conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.7 mol%) at 80 °C and after 16 hours.

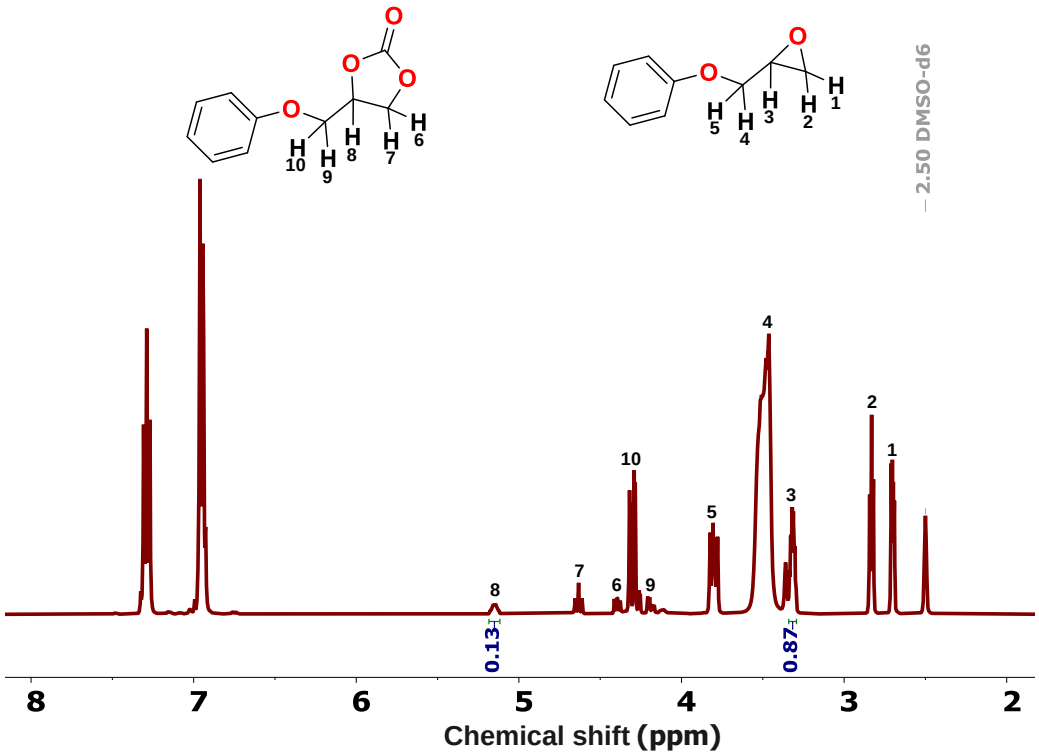

Fig. S18 ^{1}H NMR spectrum of EPOP conversion in DMSO-d_6 using **N(Me)$_3^+$-P5** (0.7 mol%) at 80 °C and after 16 hours.

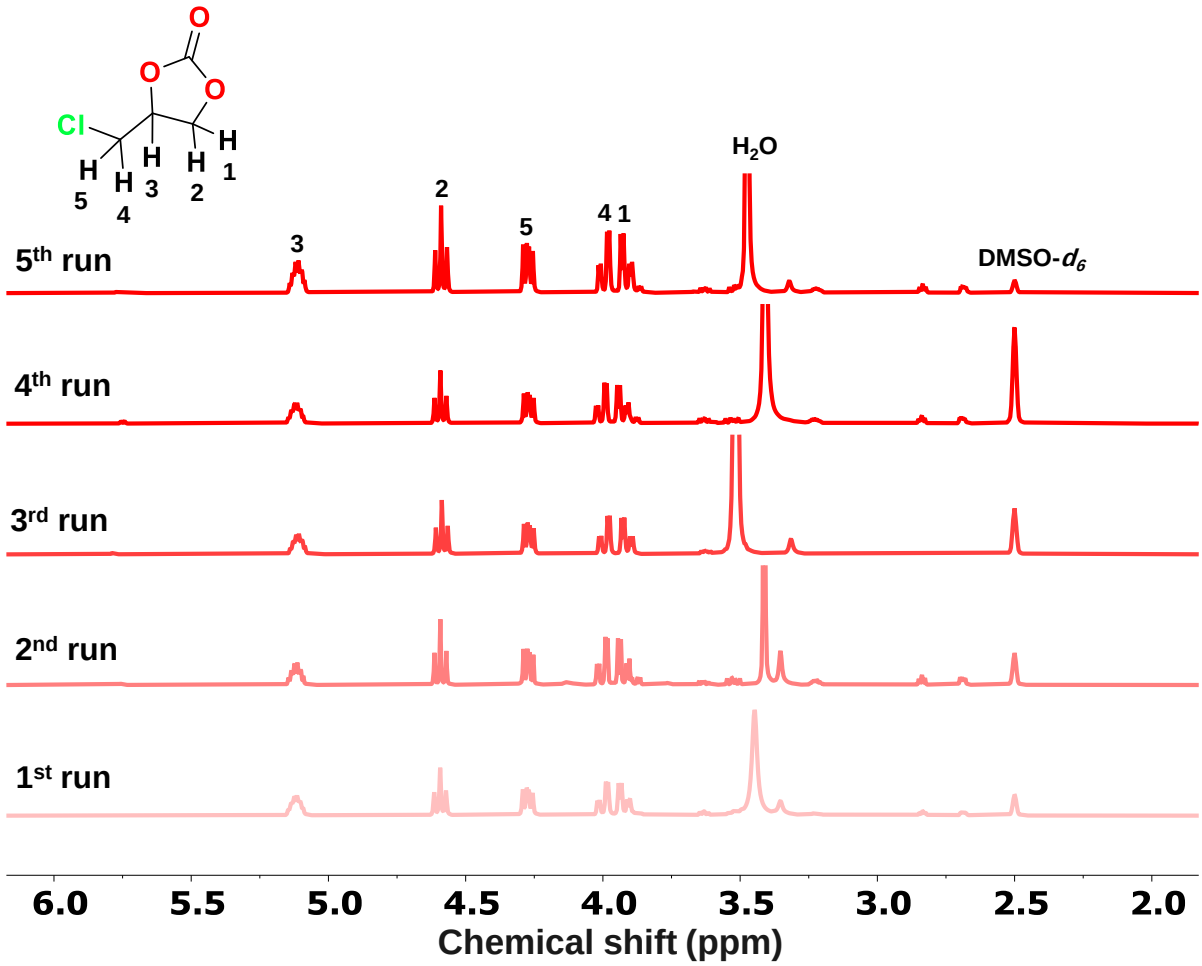

Fig. S19 ^{1}H NMR spectra of the ECH conversion for 5 runs in testing the recyclability using **N(Me)$_3^+$-P5** as a catalyst.