Electronic Supplementary Information

Selective transesterification mediated by lanthanum complexes in the copolymerisation of lactide and δ-valerolactone

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1. NMR Spectra of Copolymers

Figure S1: ^{1}H NMR Spectrum of polymer from Table 2, entry 1

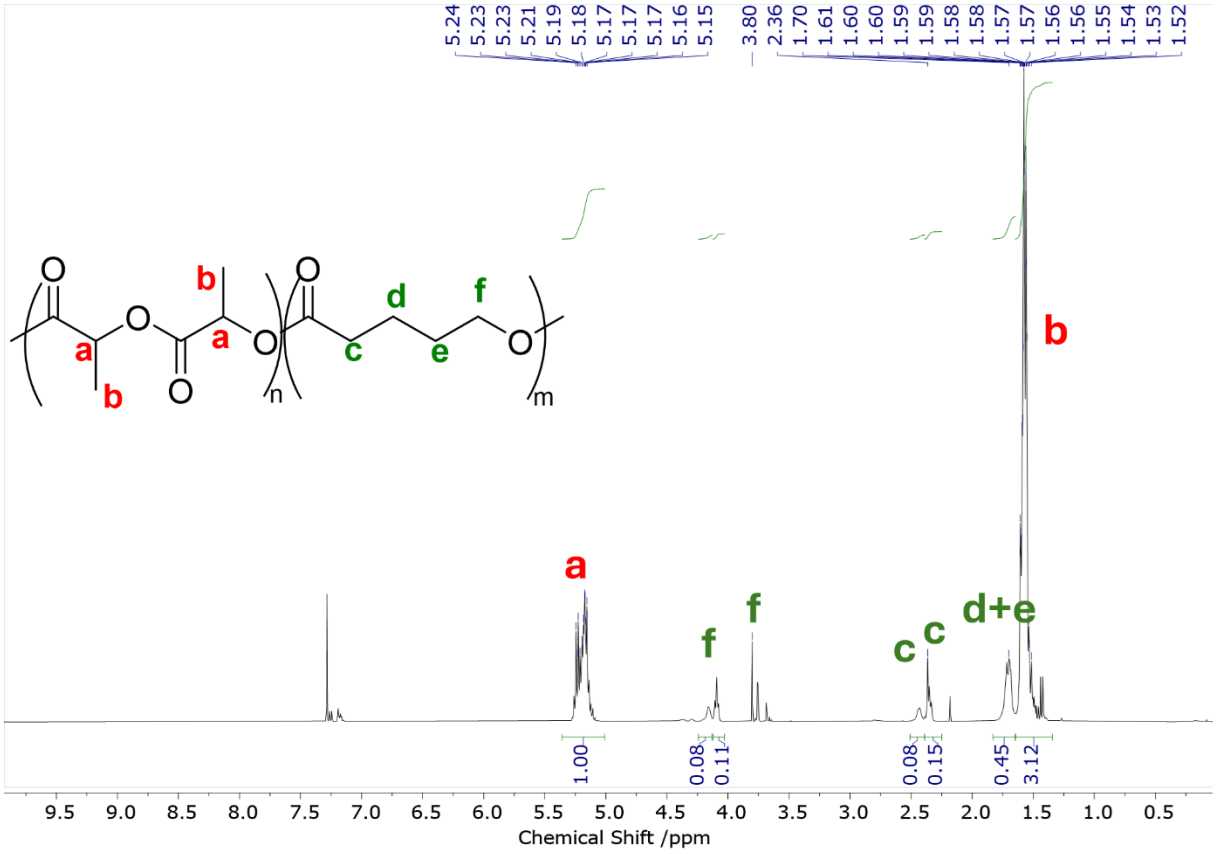


Figure S2: ^{1}H NMR Spectrum of polymer from Table 2, entry 2

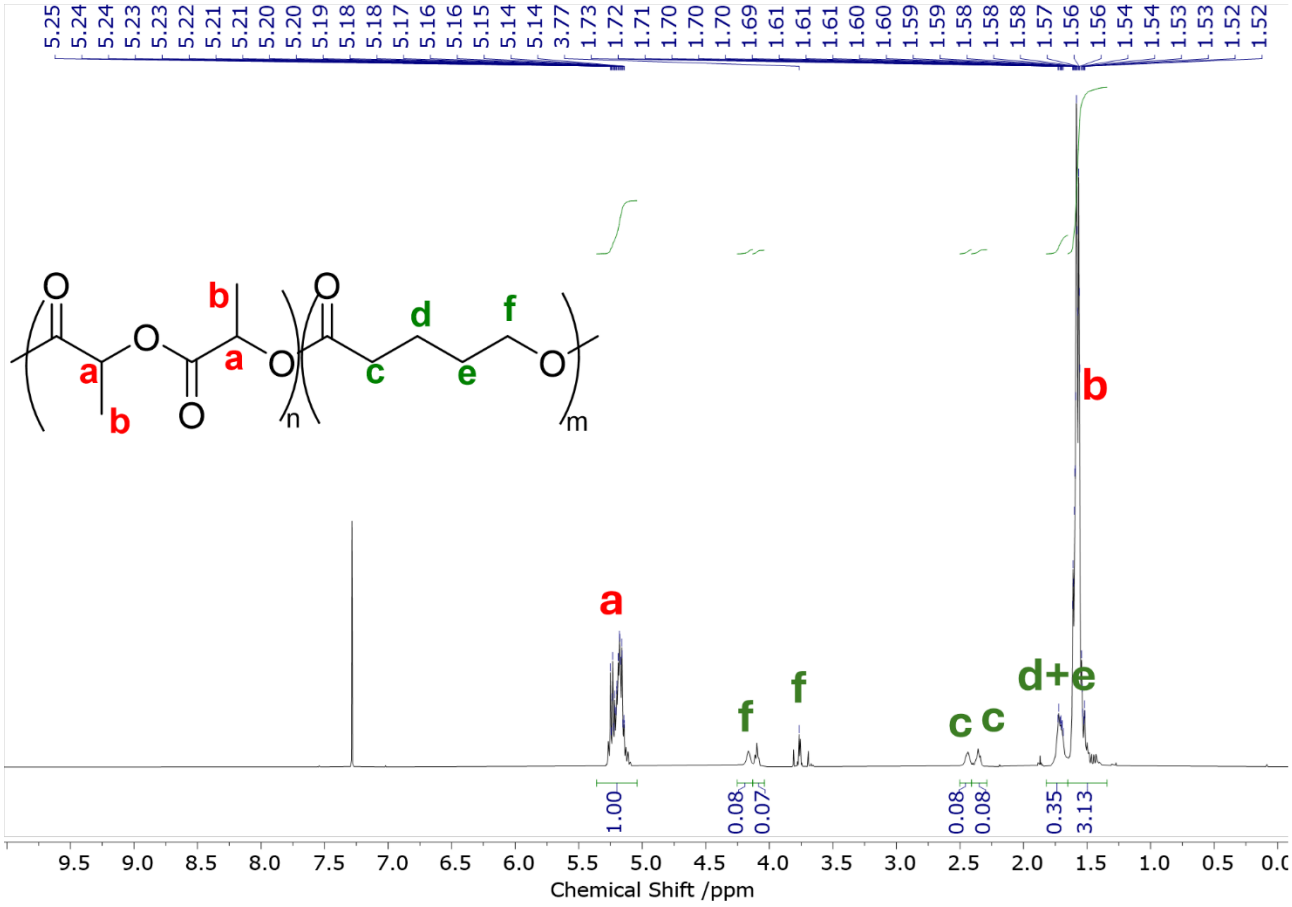


Figure S3: ^{1}H NMR Spectrum of polymer from Table 2, entry 3

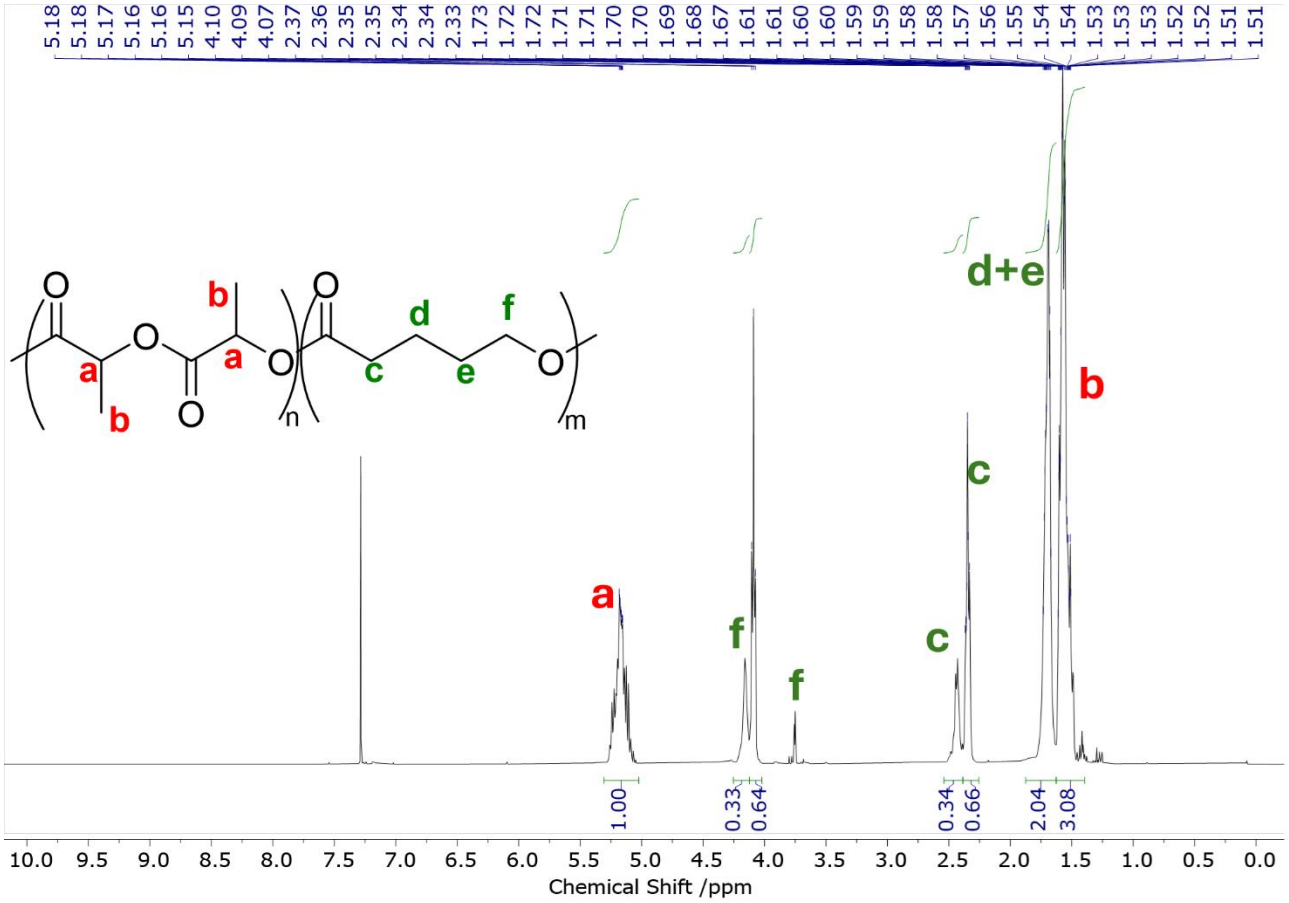


Figure S4: ^{1}H NMR Spectrum of polymer from Table 2, entry 4

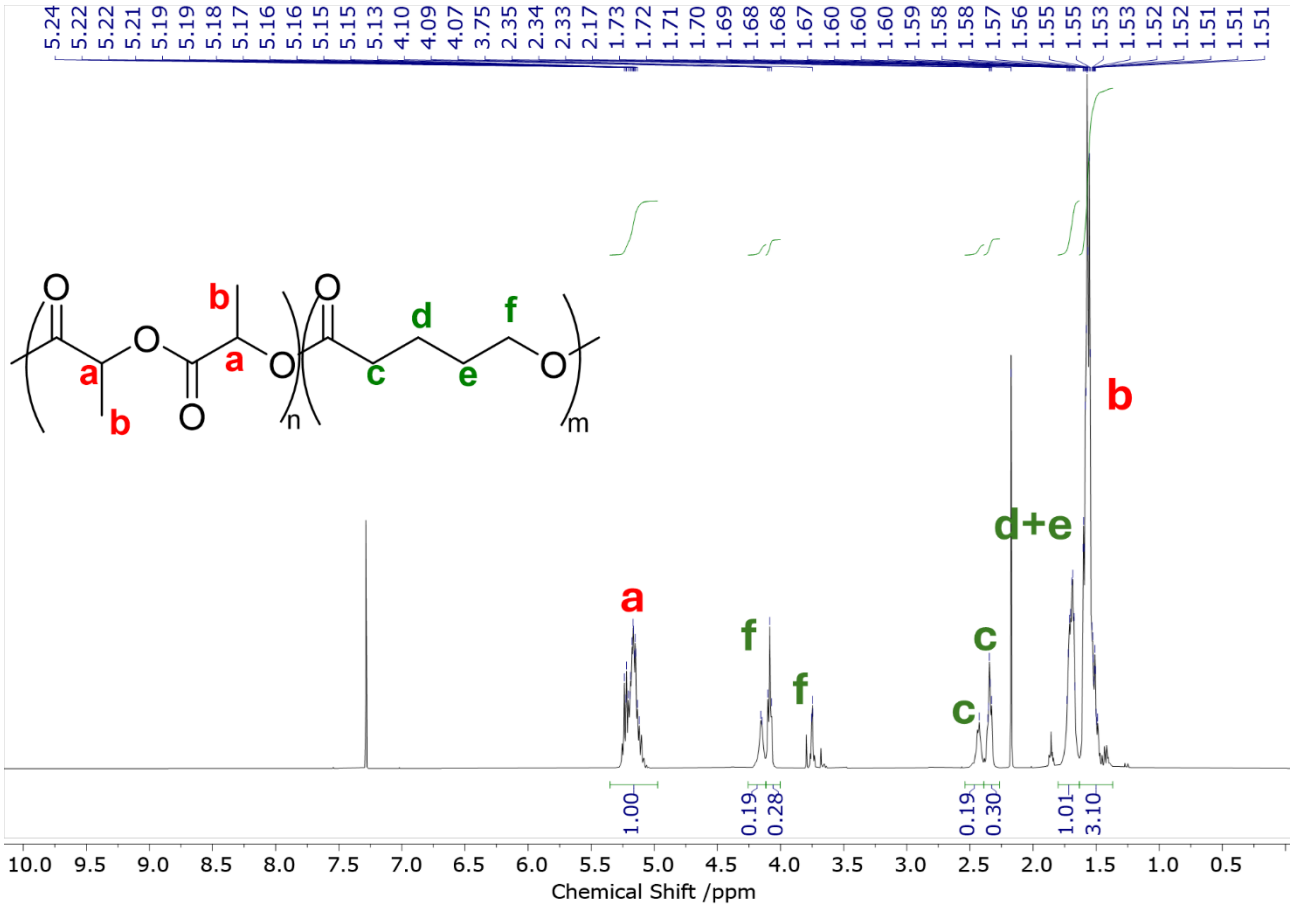


Figure S5: ^{1}H NMR Spectrum of polymer from Table 2, entry 5

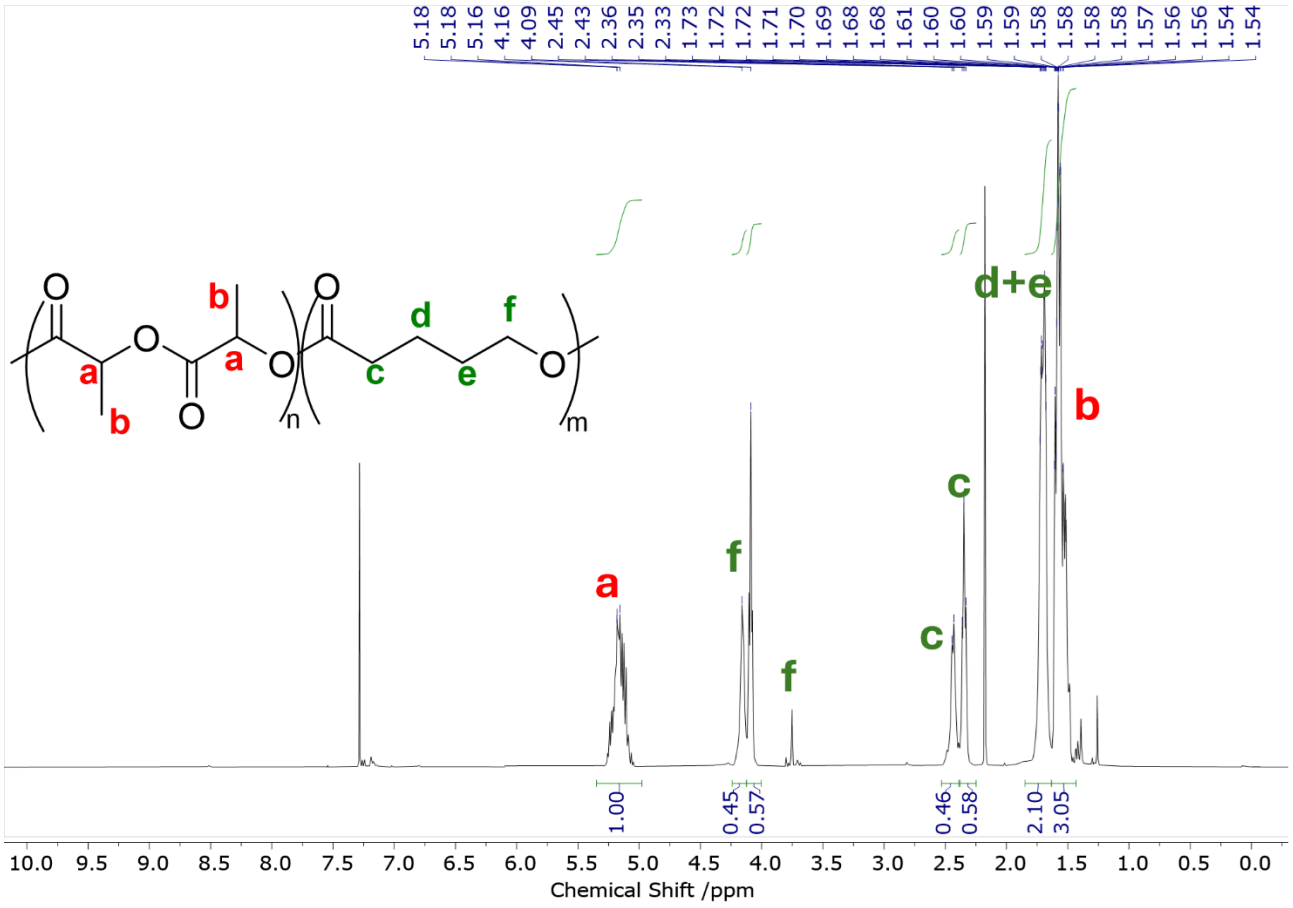


Figure S6: ^{1}H NMR Spectrum of polymer from Table 2, entry 6

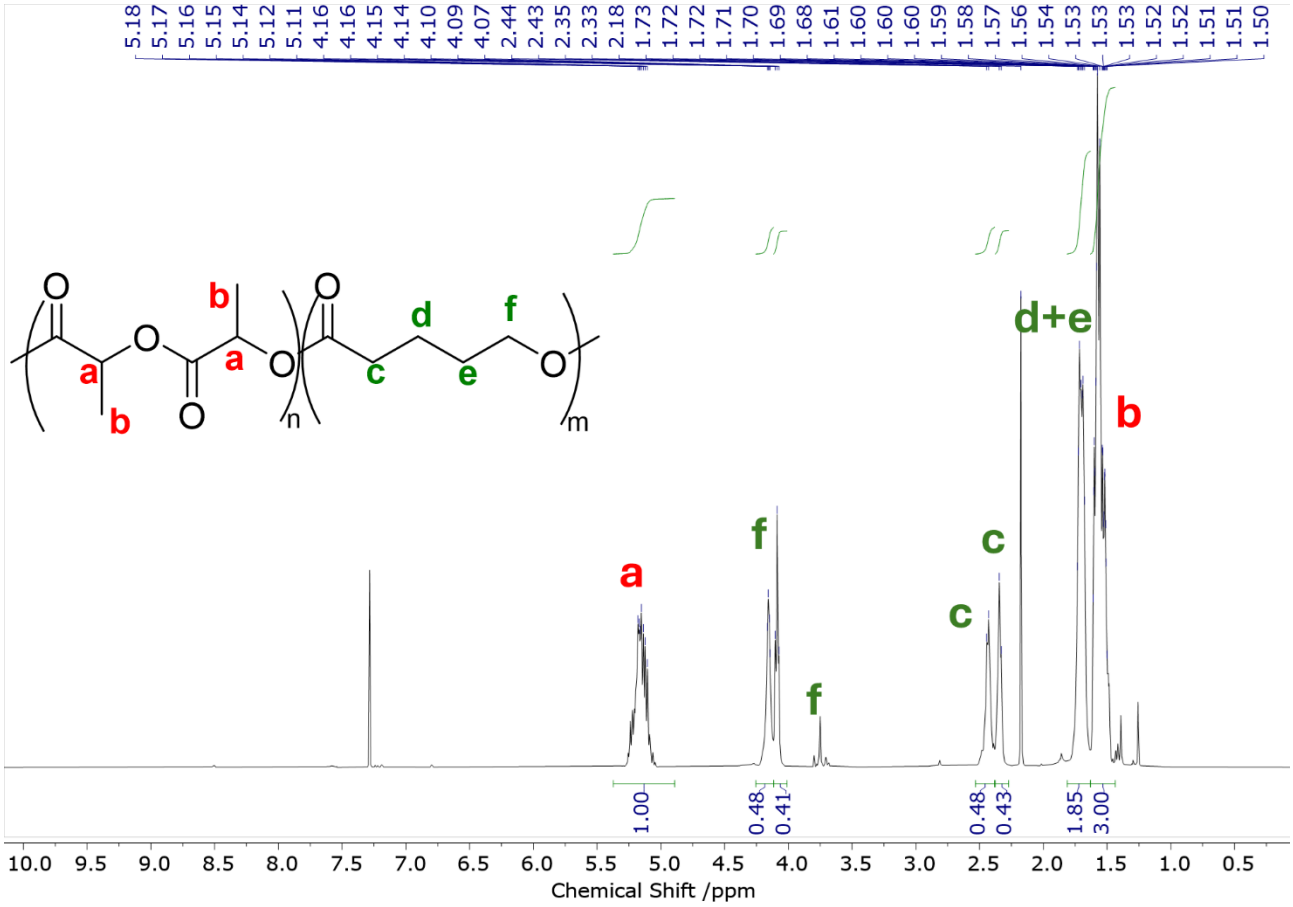


Figure S7: 1H NMR Spectrum of polymer from Table 2, entry 7

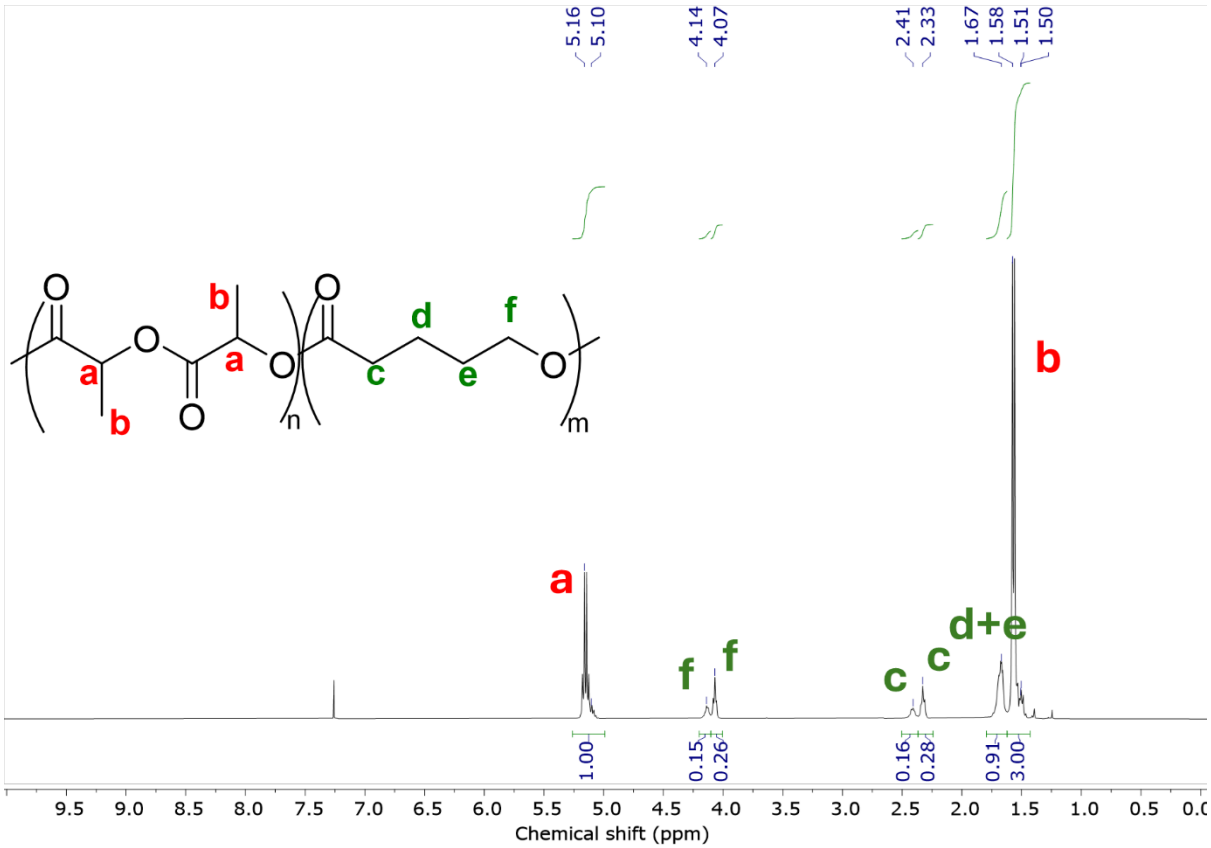


Figure S8: ^{1}H NMR Spectrum of polymer from Table 2, entry 8

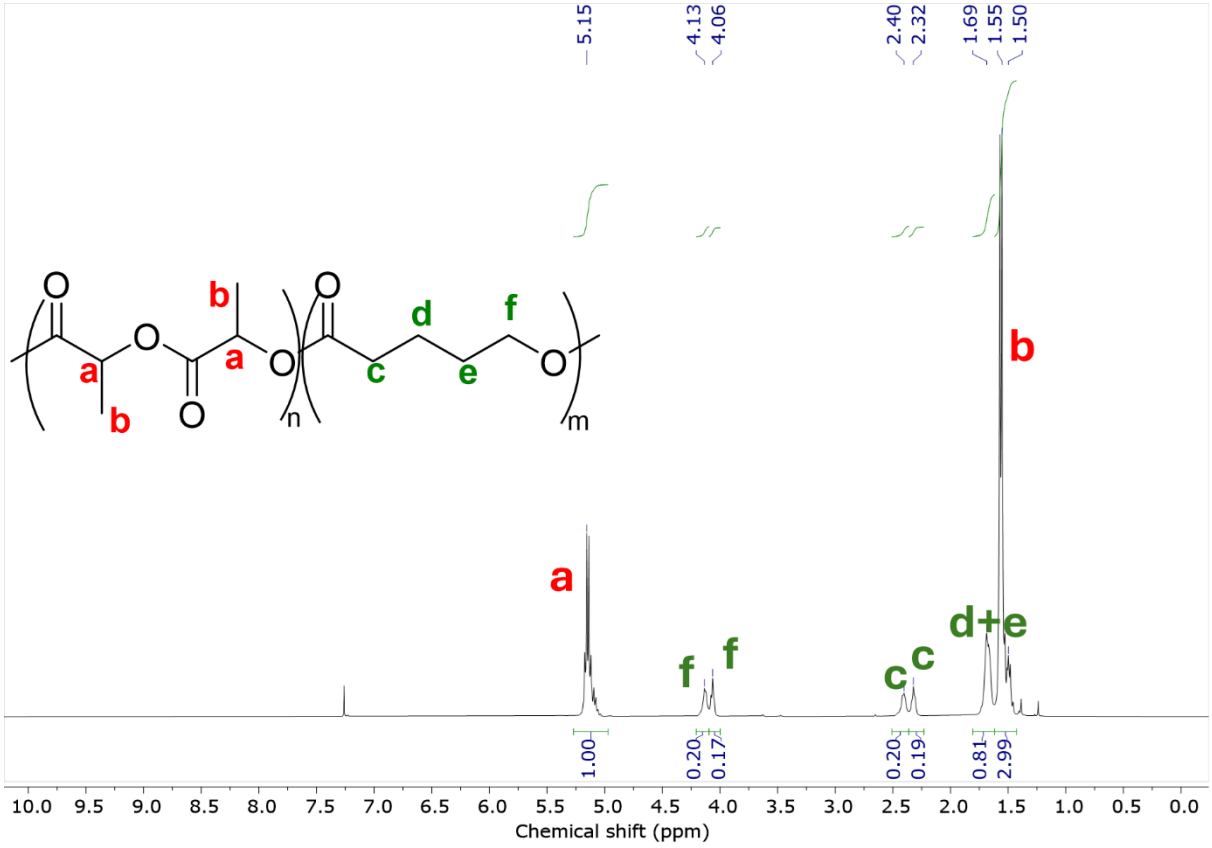


Figure S9: ^{1}H NMR Spectrum of polymer from Table 2, entry 9

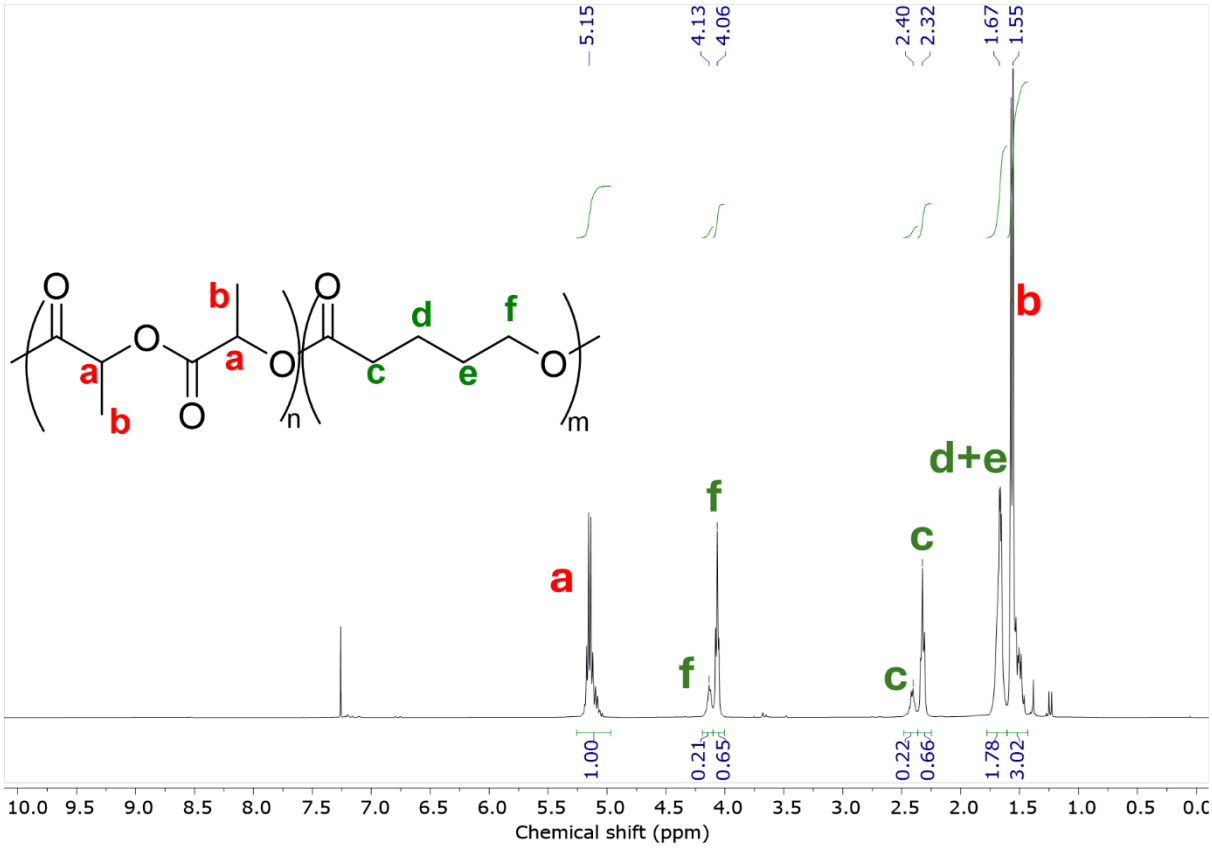


Figure S10: ^{1}H NMR Spectrum of polymer from Table 2, entry 10

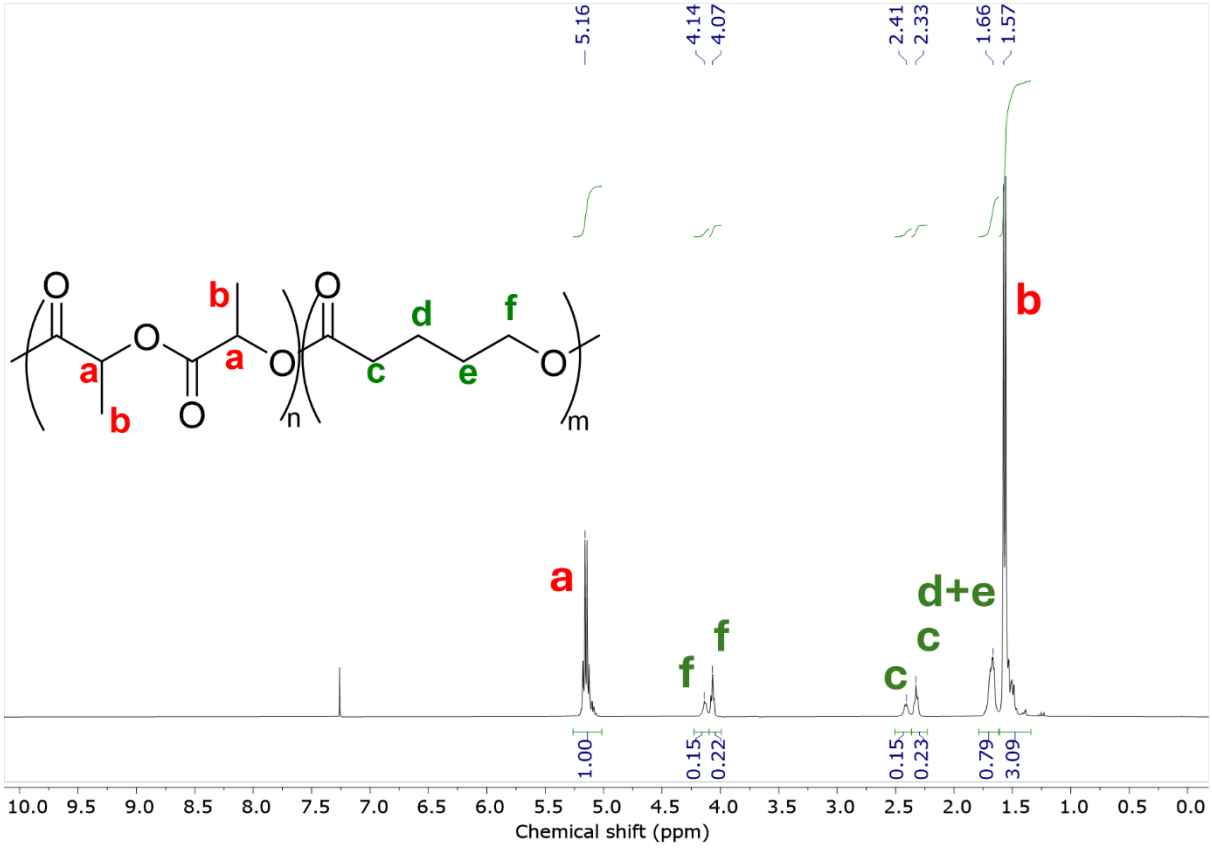


Figure S12: ^{1}H NMR Spectrum of polymer from Table 2, entry 11

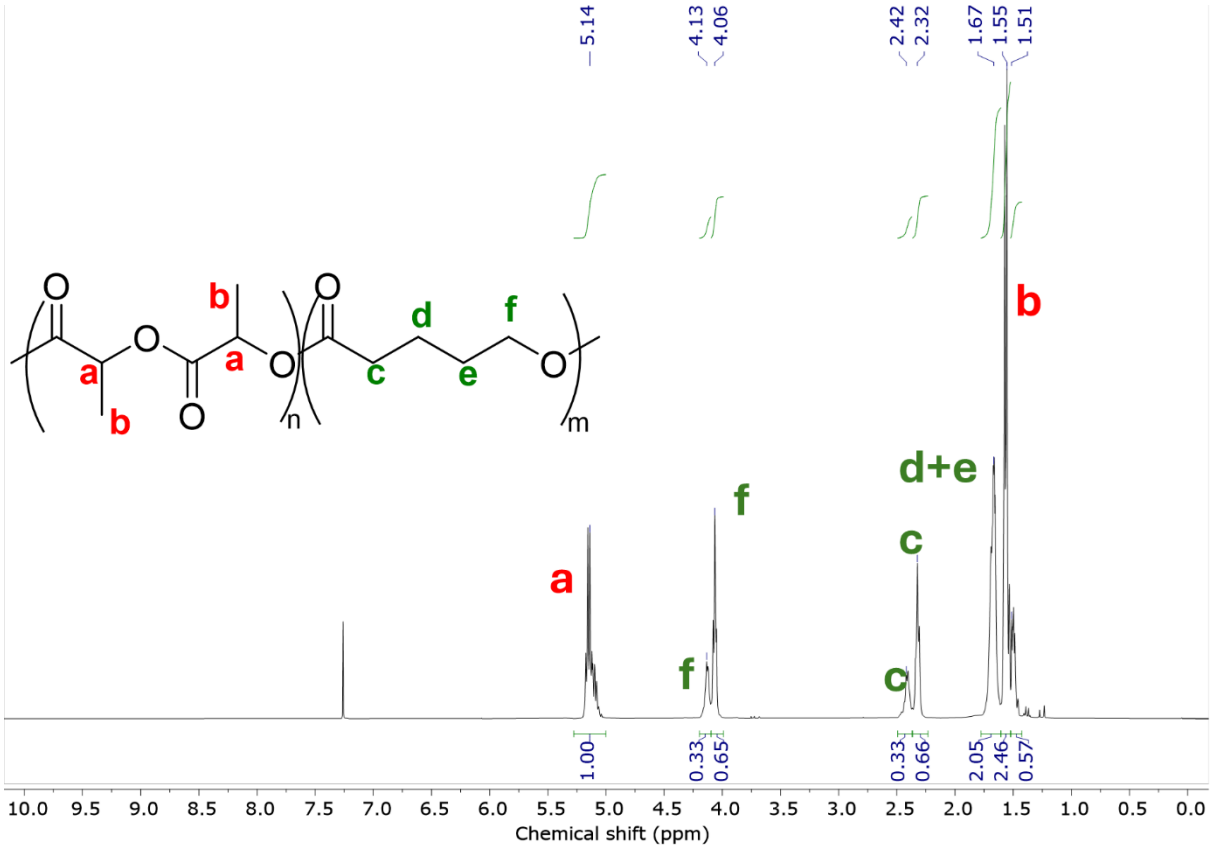


Figure S12: ^{1}H NMR Spectrum of polymer from Table 2, entry 12

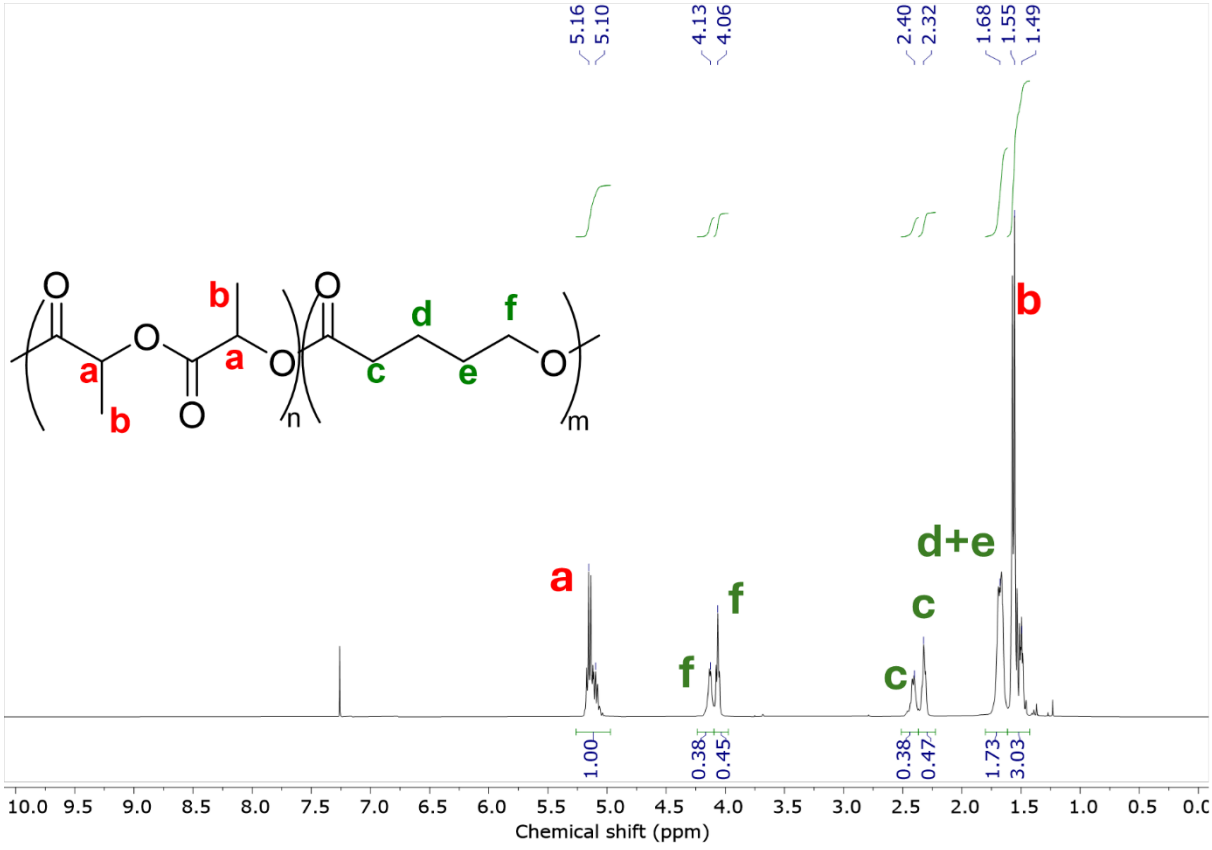


Figure S13: ^{13}C NMR Spectrum of polymer from Table 1, entry 1

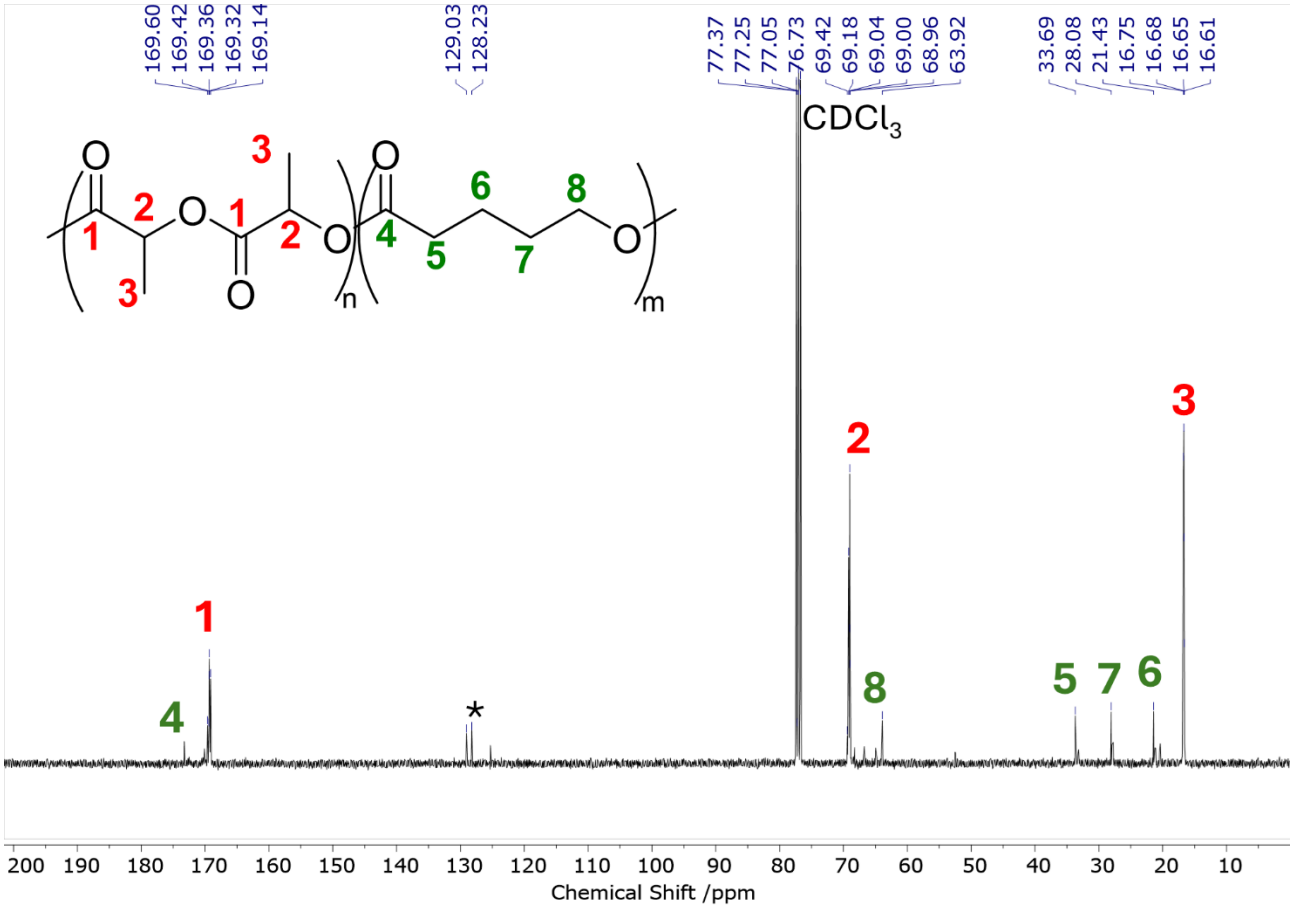


Figure S14: ^{13}C NMR Spectrum of polymer from Table 1, entry 2

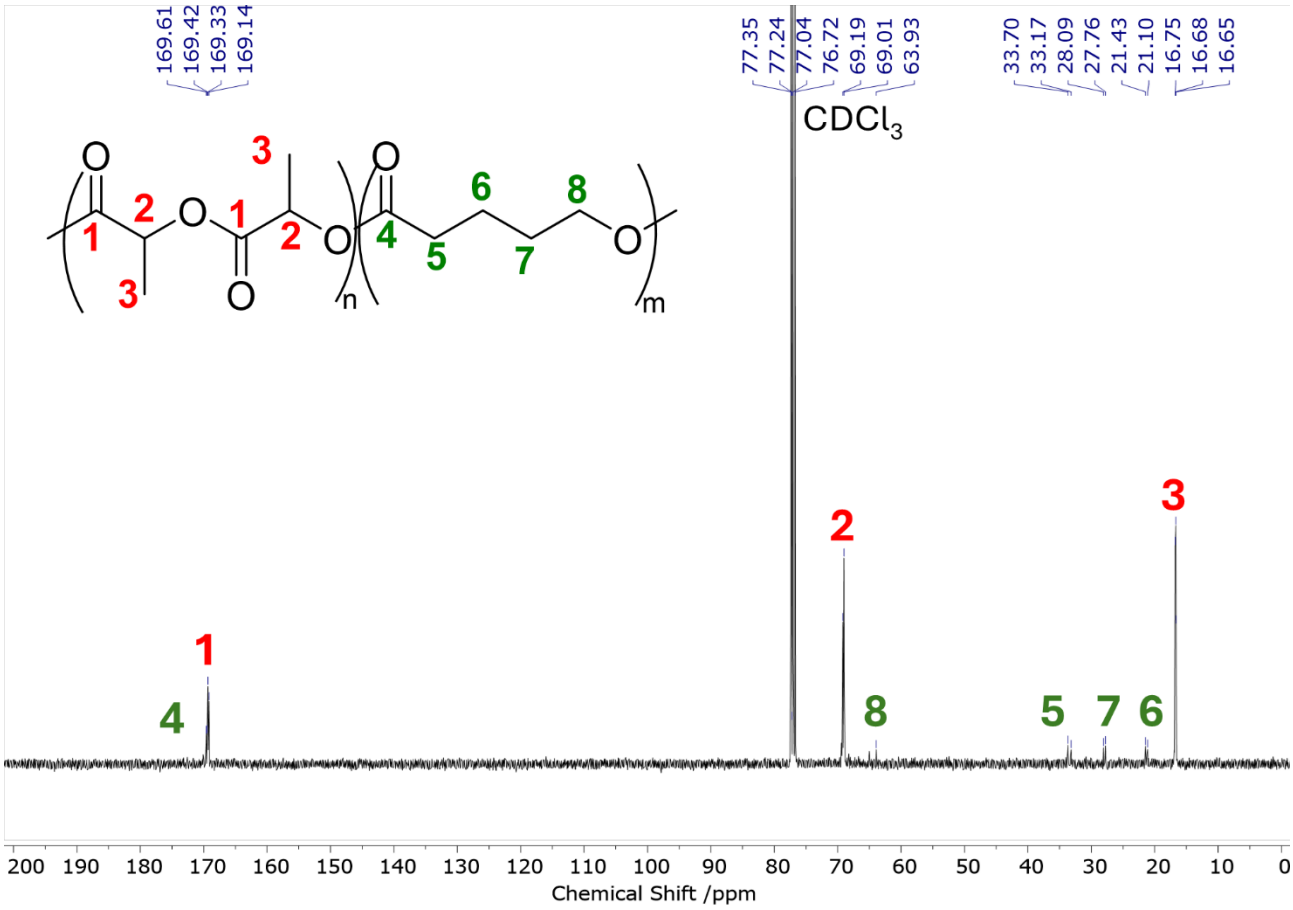


Figure S15: ^{13}C NMR Spectrum of polymer from Table 1, entry 3

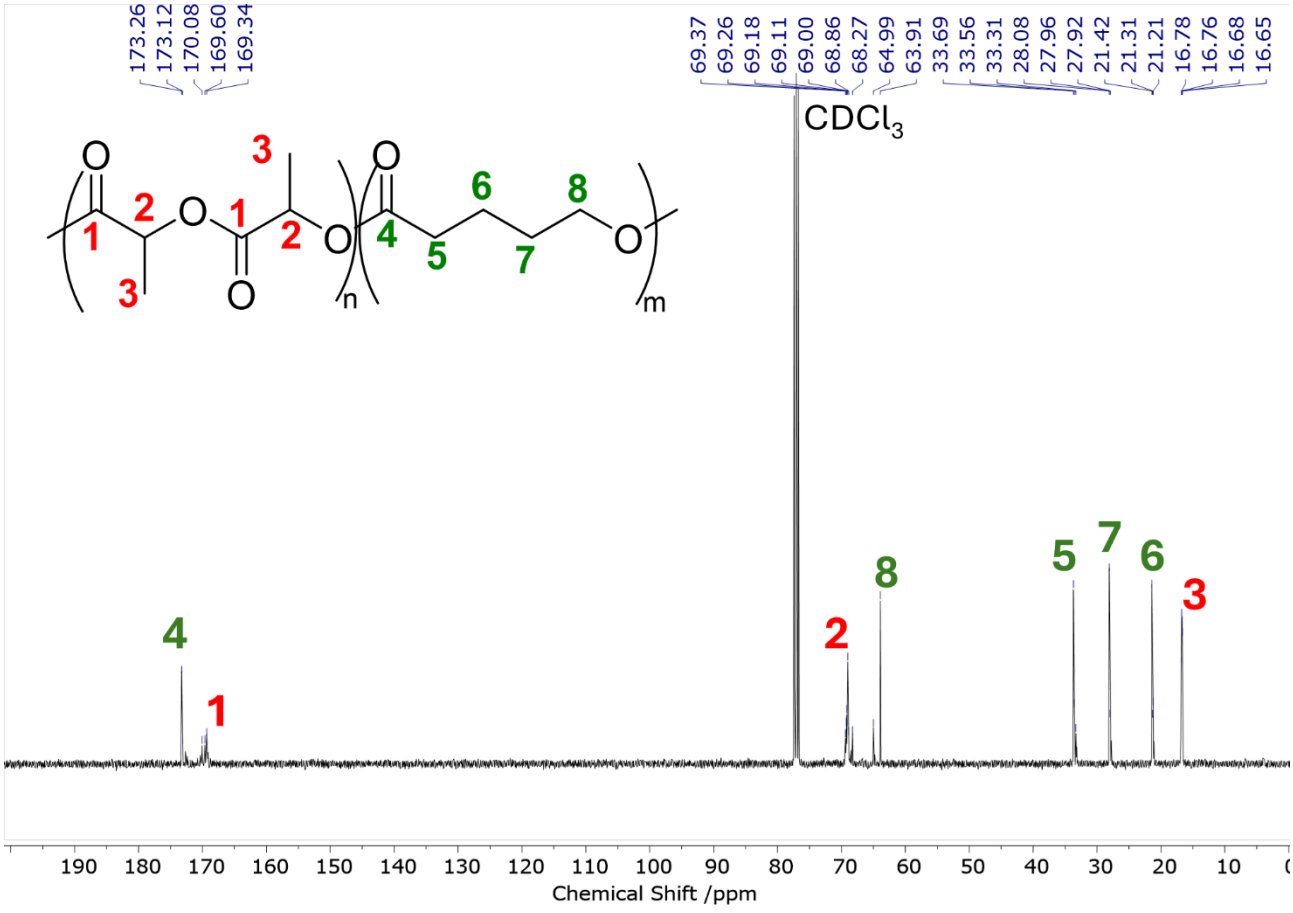


Figure S16: ^{13}C NMR Spectrum of polymer from Table 1, entry 4

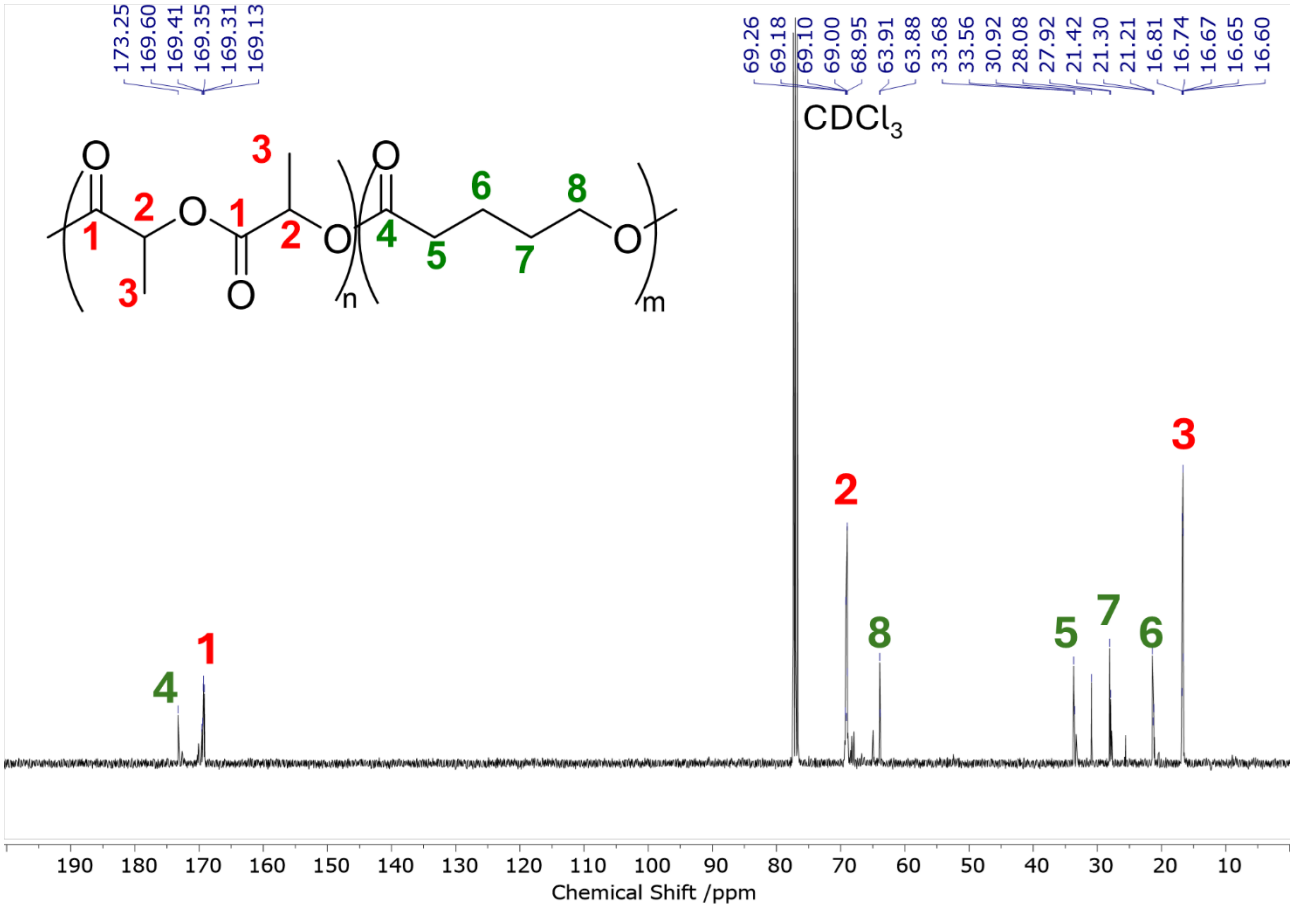


Figure S17: ^{13}C NMR Spectrum of polymer from Table 1, entry 5

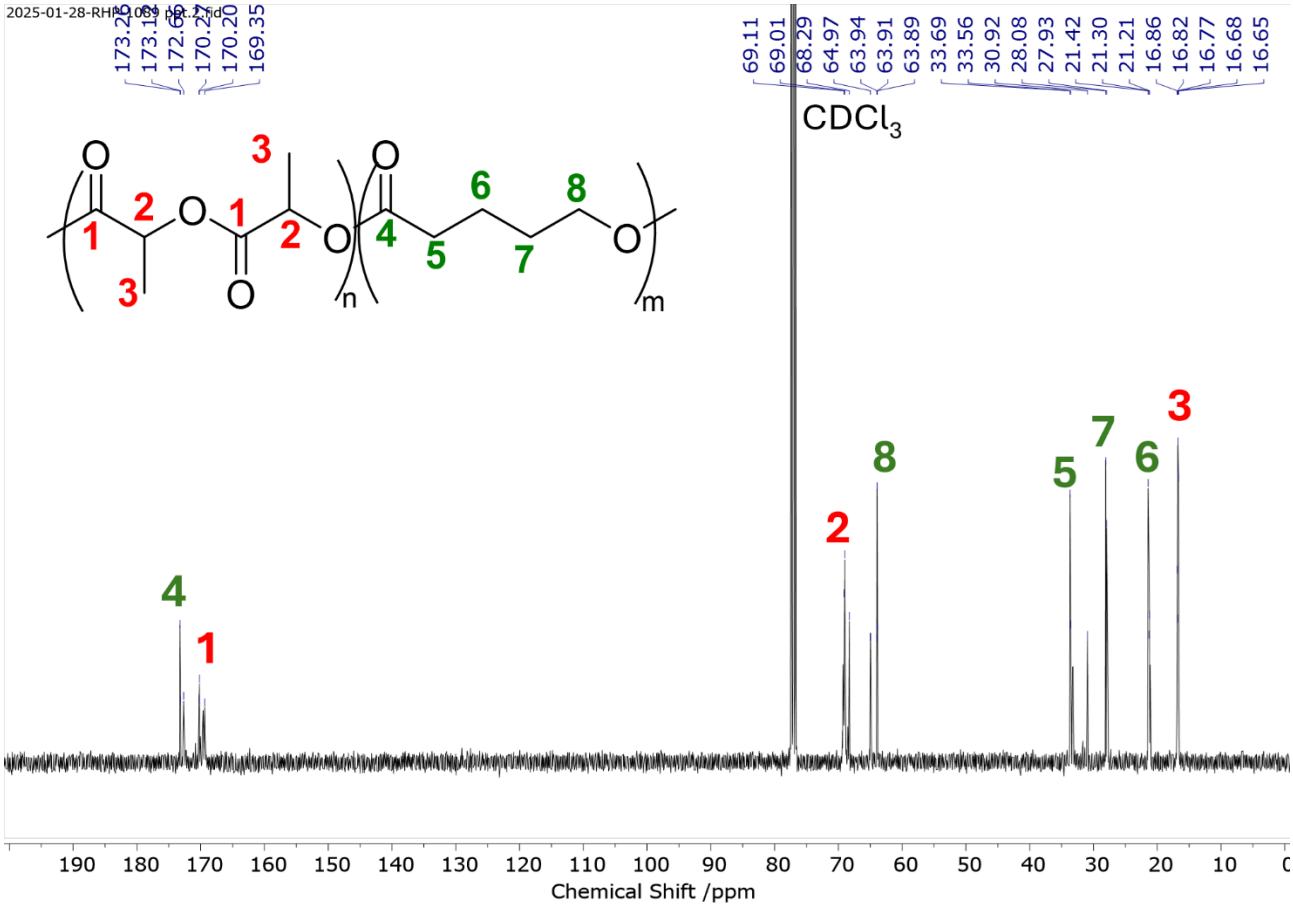


Figure S18: ^{13}C NMR Spectrum of polymer from Table 1, entry 6

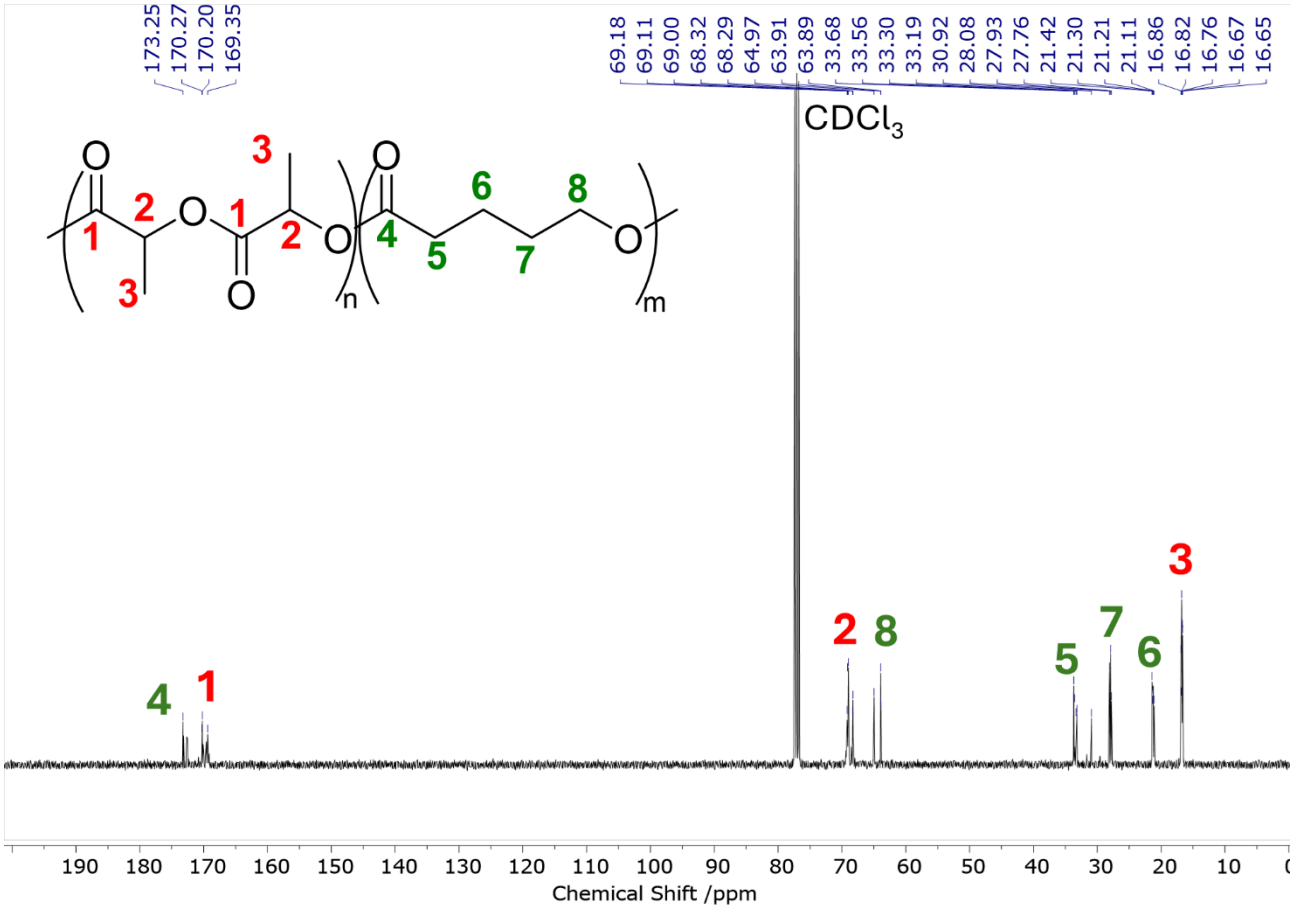


Figure S19: ^{13}C NMR Spectrum of polymer from Table 1, entry 7

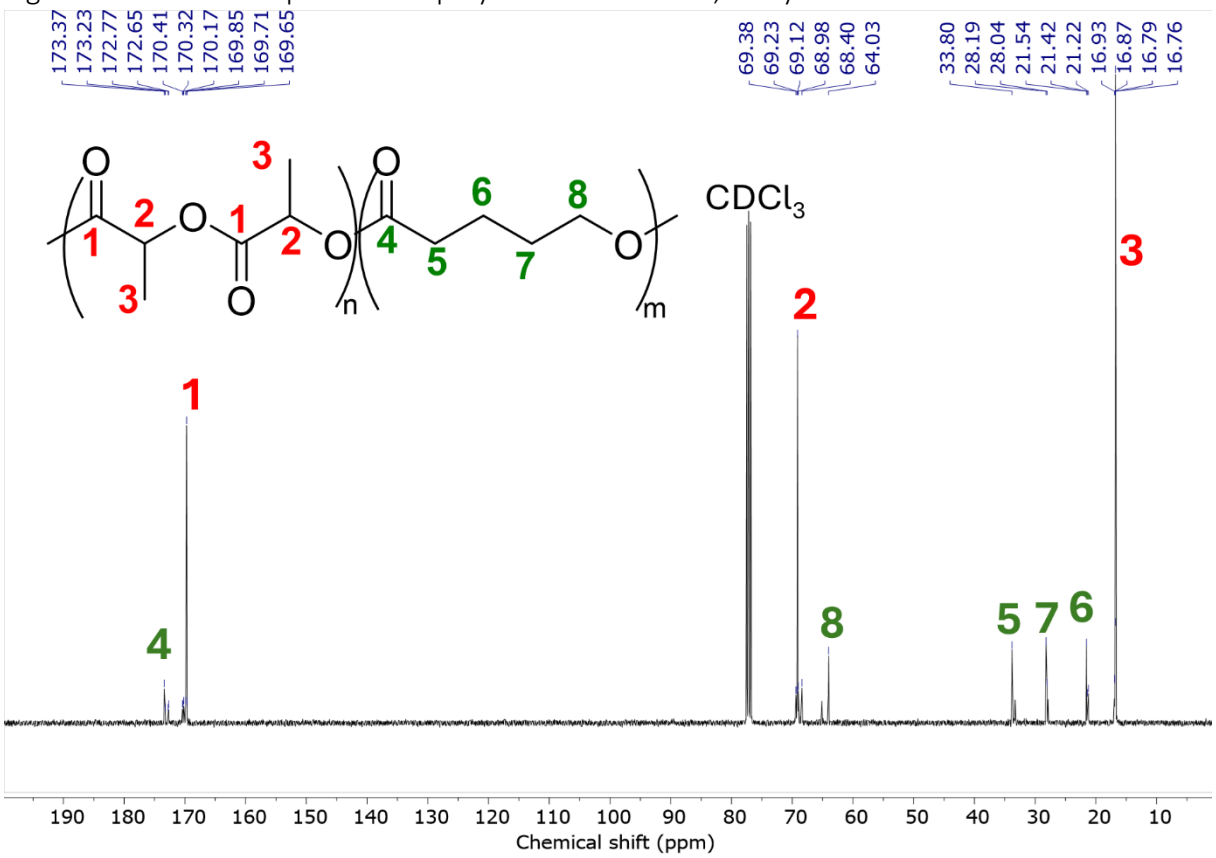


Figure S20: ^{13}C NMR Spectrum of polymer from Table 1, entry 8

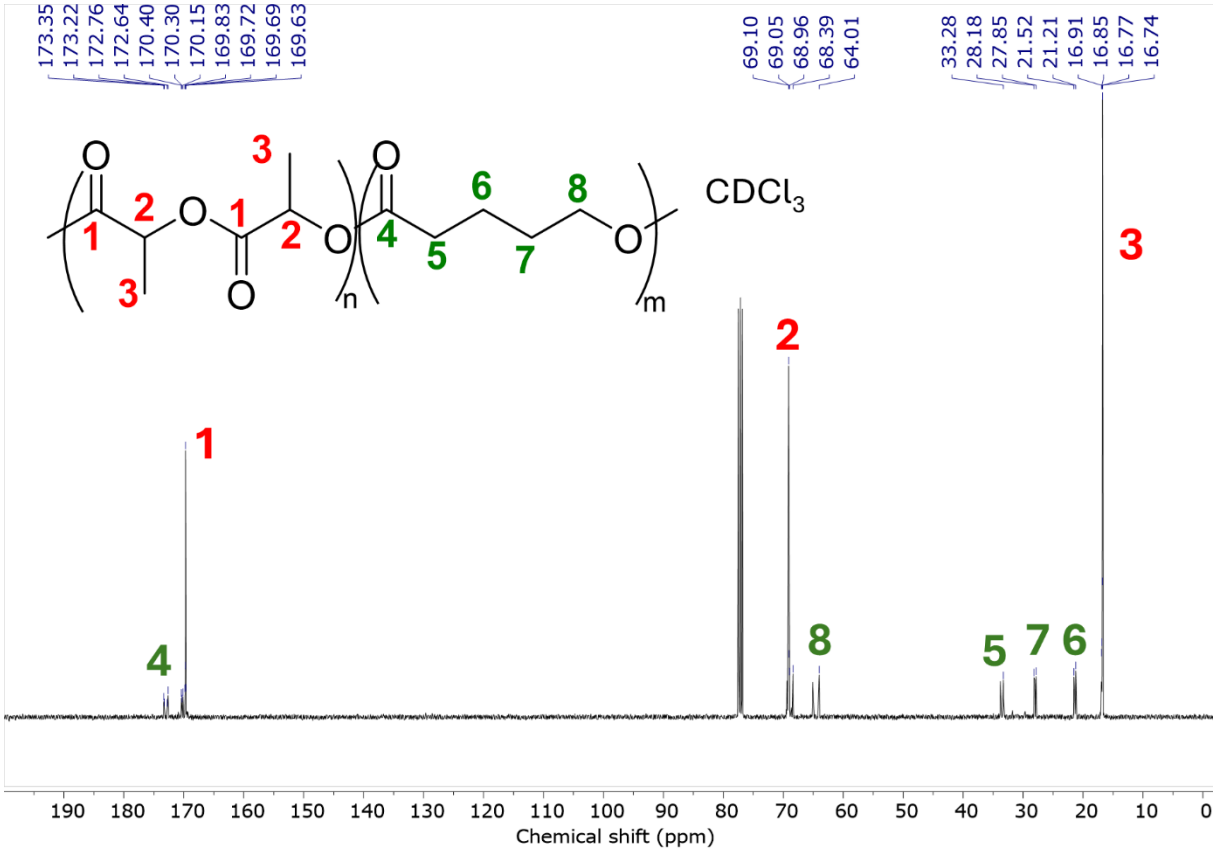


Figure S21: ^{13}C NMR Spectrum of polymer from Table 1, entry 9

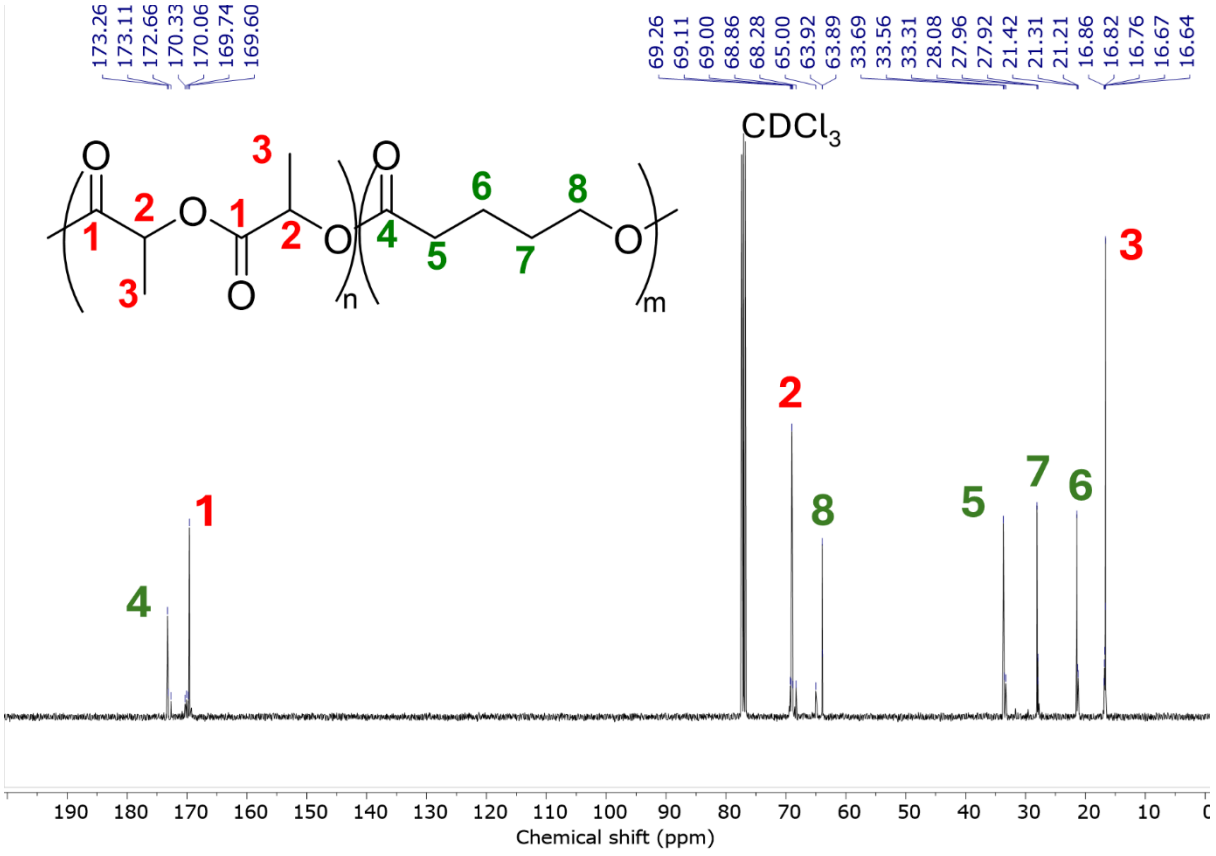


Figure S22: ^{13}C NMR Spectrum of polymer from Table 1, entry 10

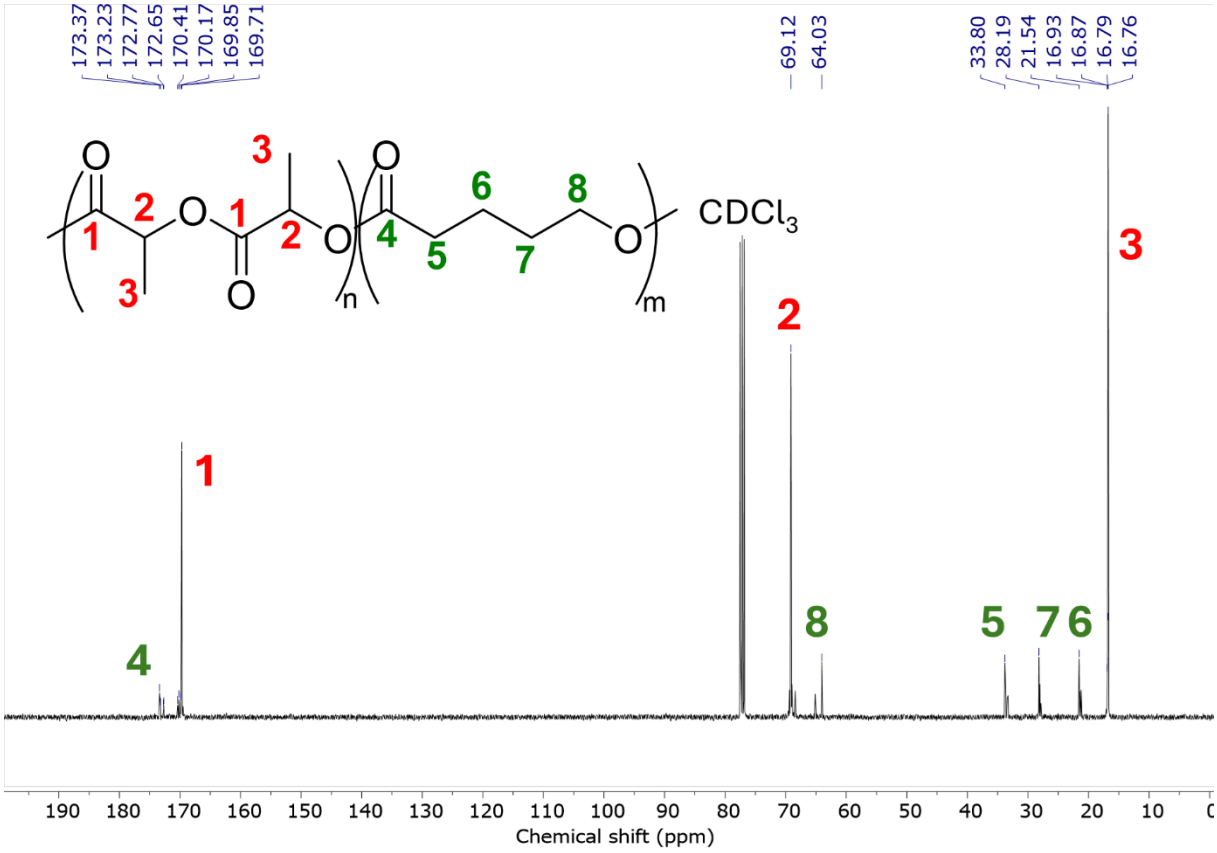


Figure S23: ^{13}C NMR Spectrum of polymer from Table 1, entry 11

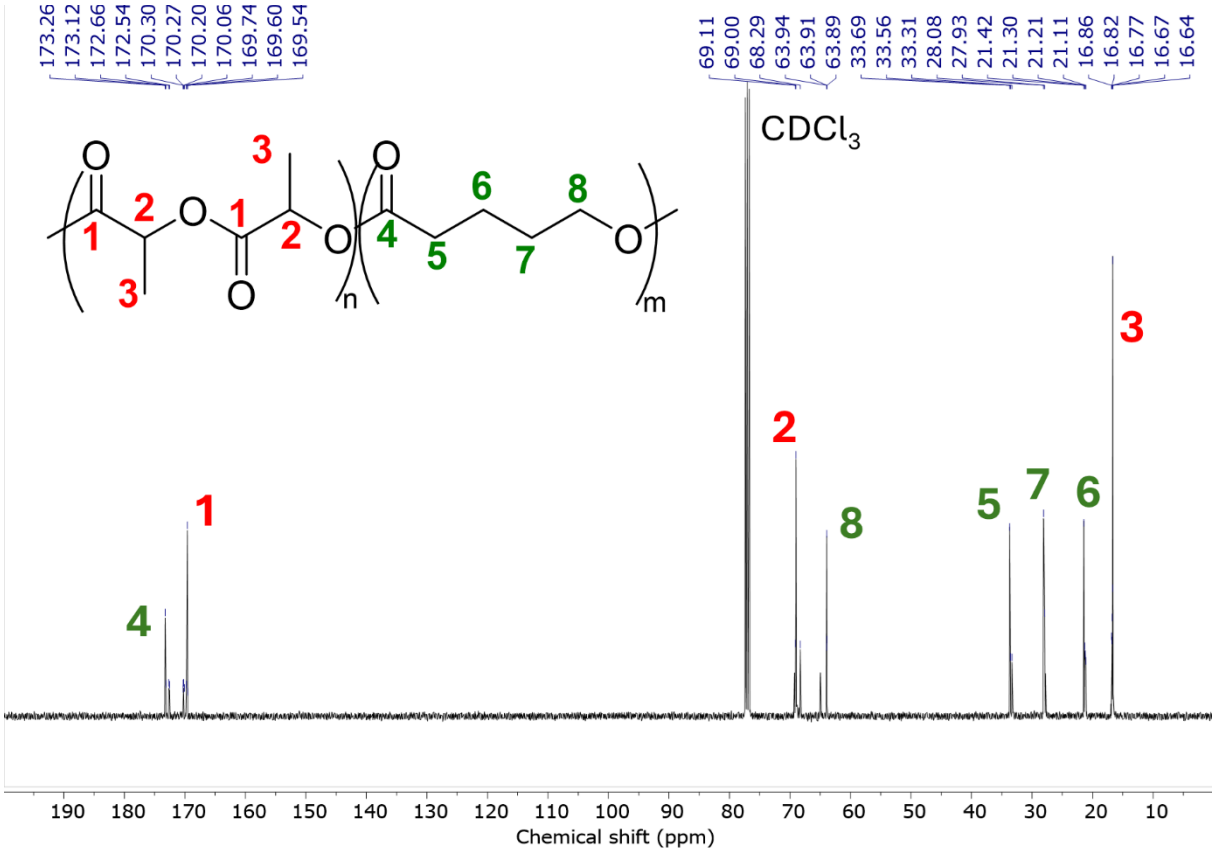


Figure S24: ^{13}C NMR Spectrum of polymer from Table 1, entry 12

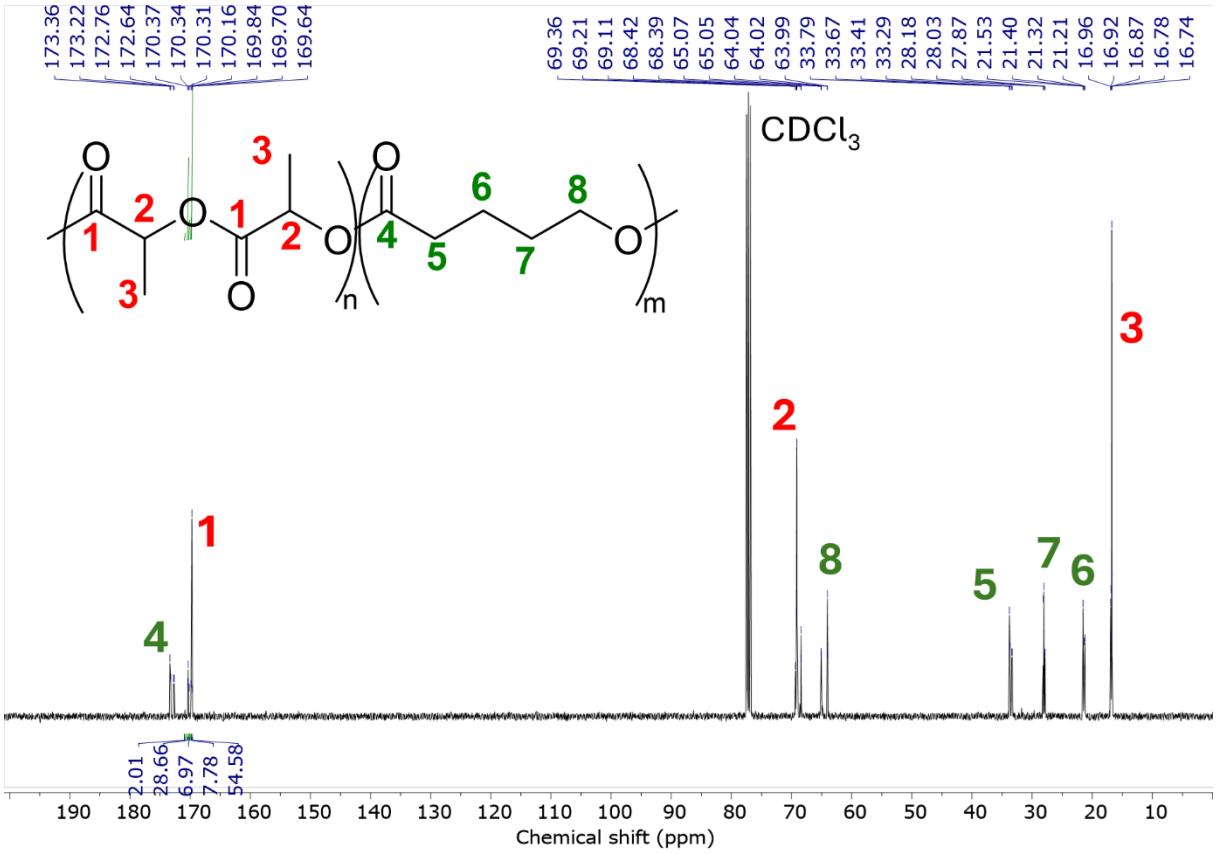


Figure S25: Carbonyl region of the ^{13}C NMR Spectrum of polymer from Table 1, entry 3

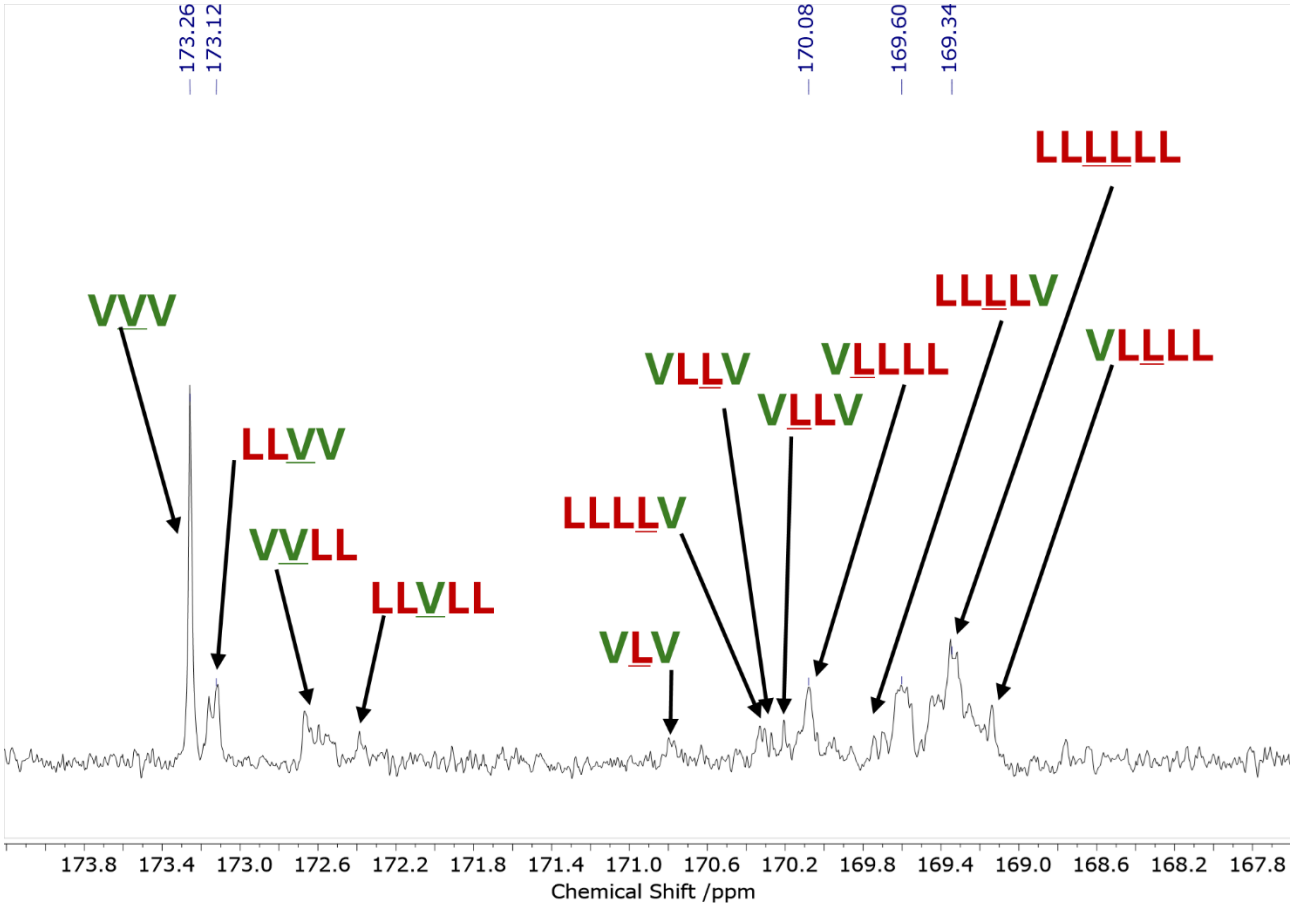


Figure S26: Carbonyl region of the ^{13}C NMR Spectrum of polymer from Table 1, entry 5

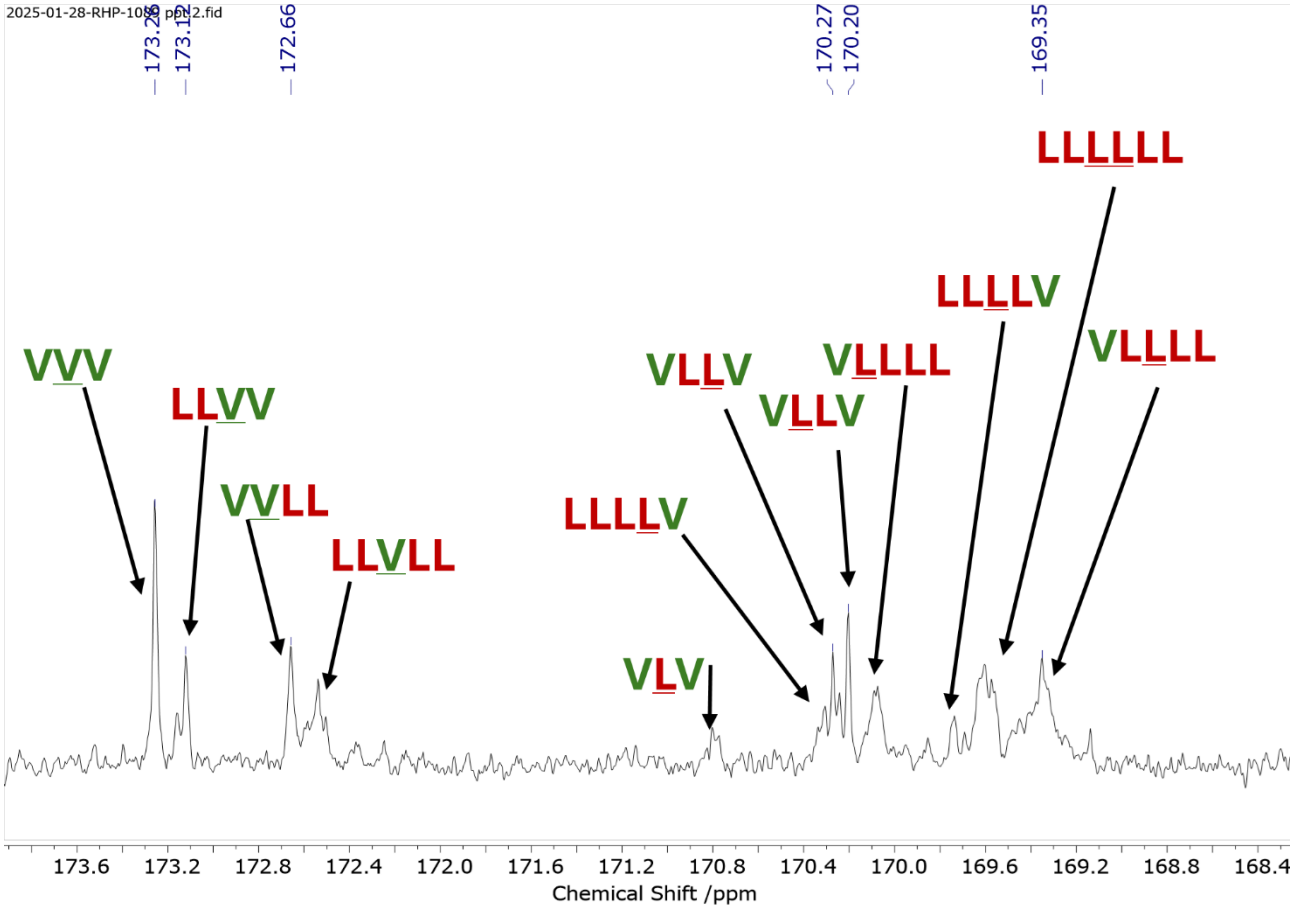


Figure S27: Carbonyl region of the ^{13}C NMR Spectrum of polymer from Table 1, entry 6

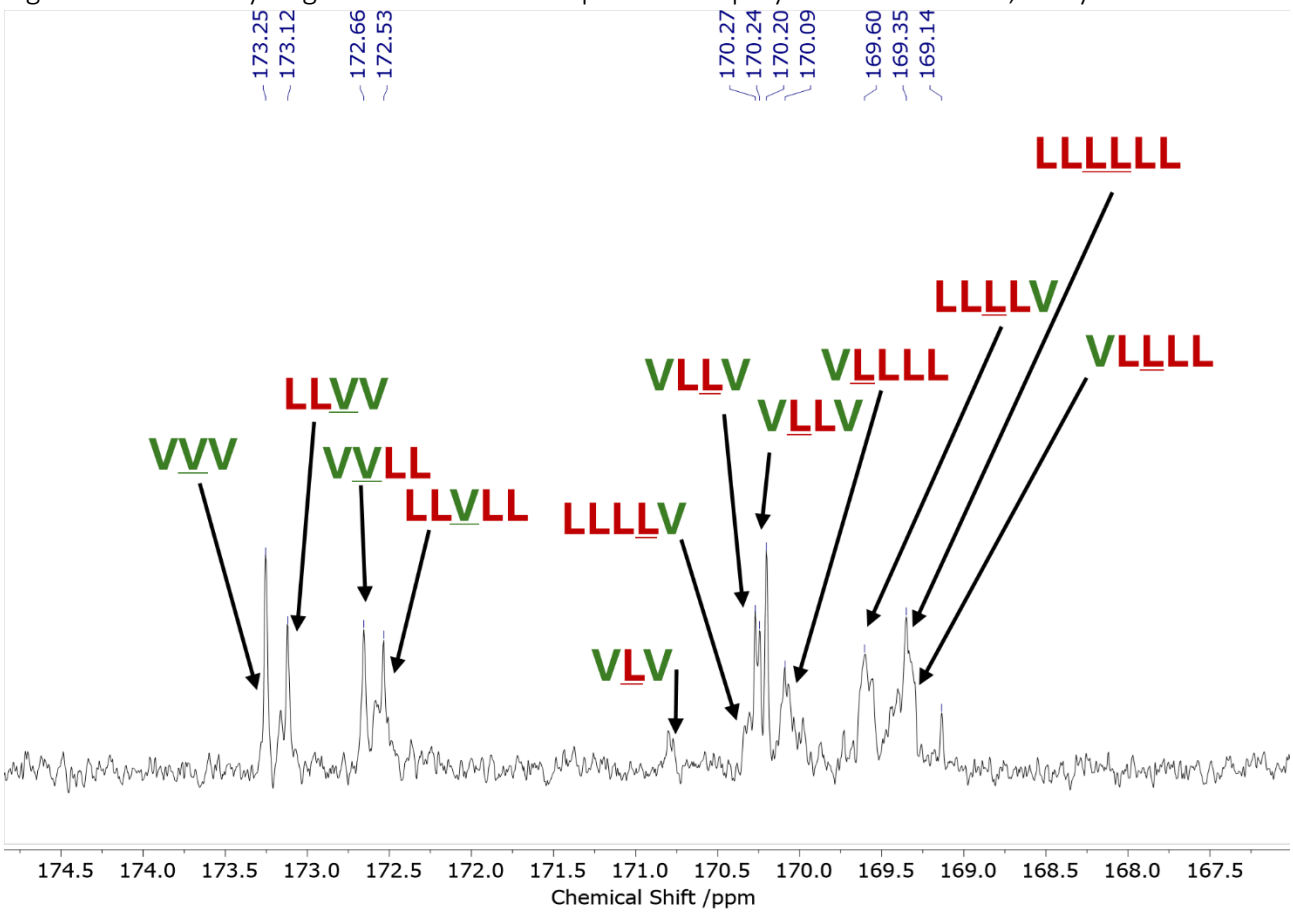


Figure S28: Carbonyl region of the ^{13}C NMR Spectrum of polymer from Table 1, entry 7

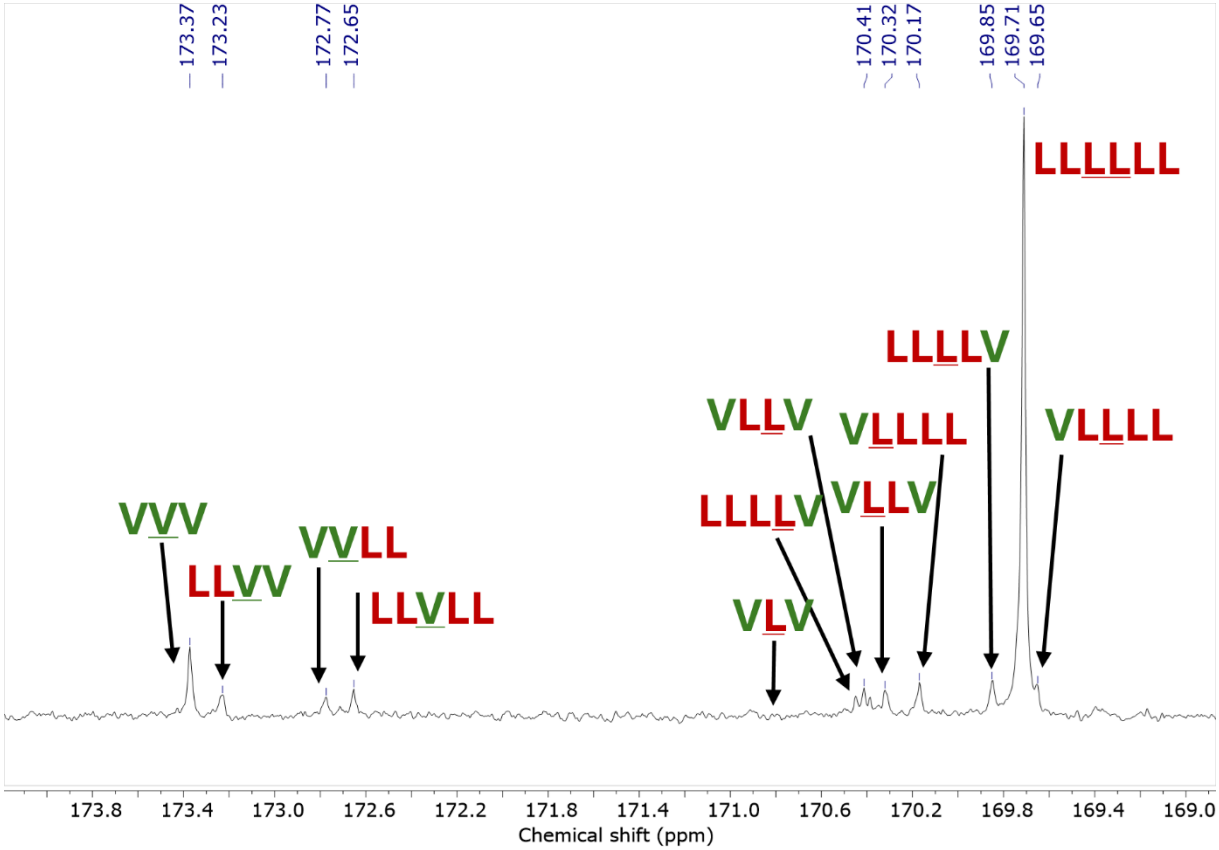


Figure S29: Carbonyl region of the ^{13}C NMR Spectrum of polymer from Table 1, entry 8

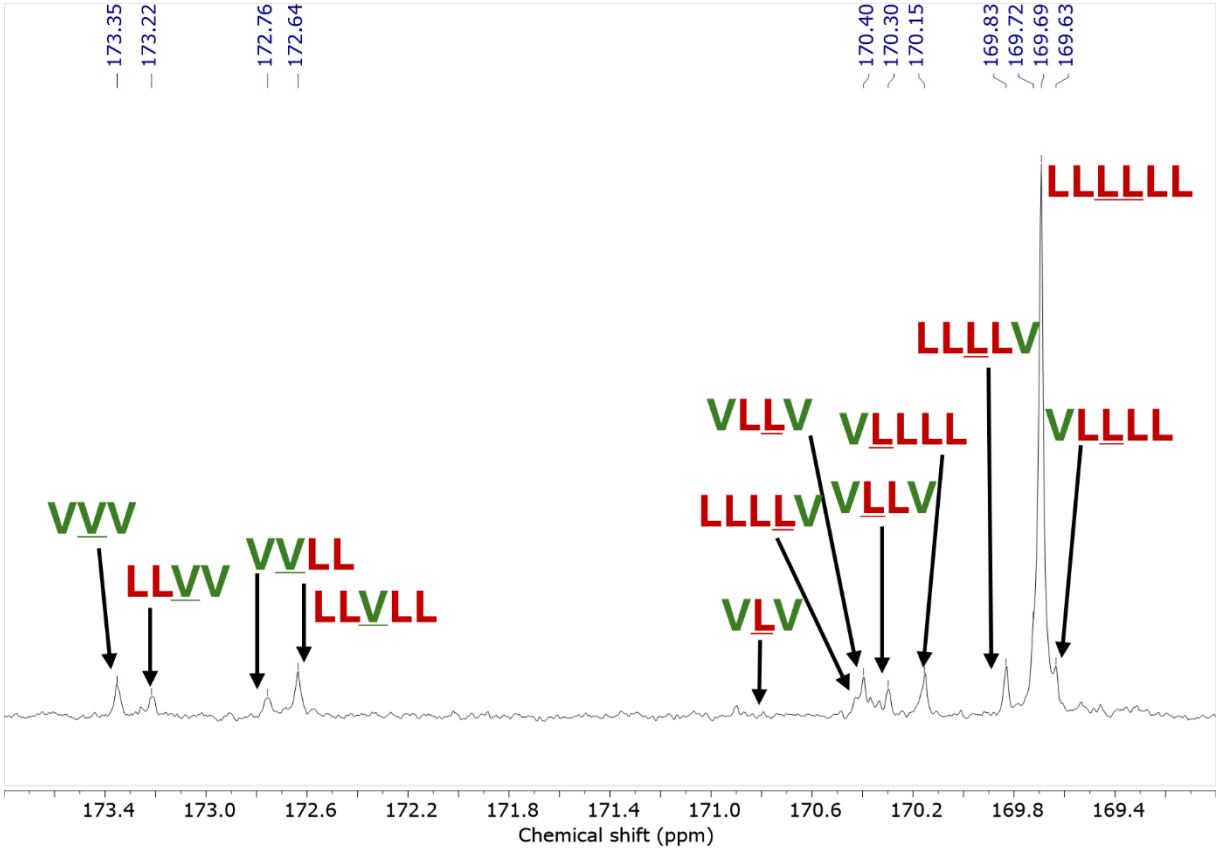


Figure S30: Carbonyl region of the ^{13}C NMR Spectrum of polymer from Table 1, entry 9

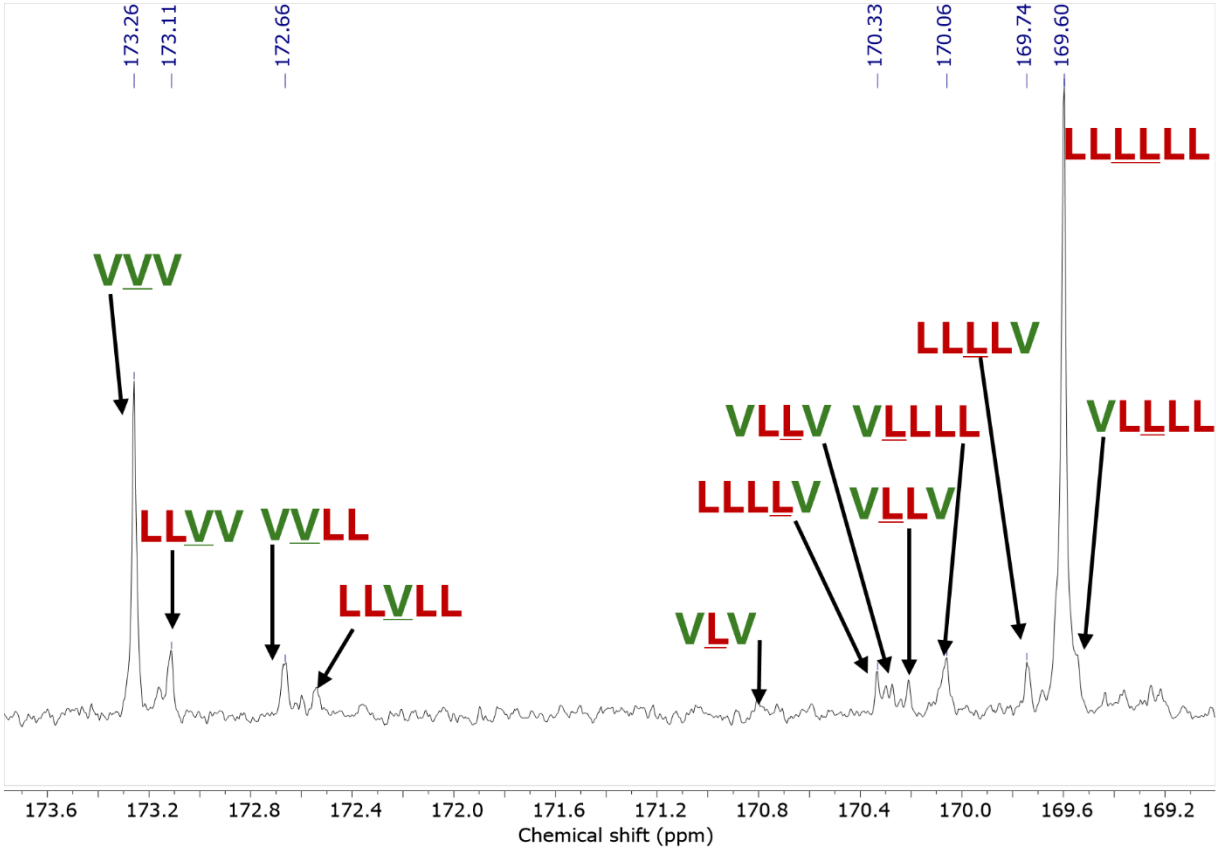


Figure S31: Carbonyl region of the ^{13}C NMR Spectrum of polymer from Table 1, entry 10

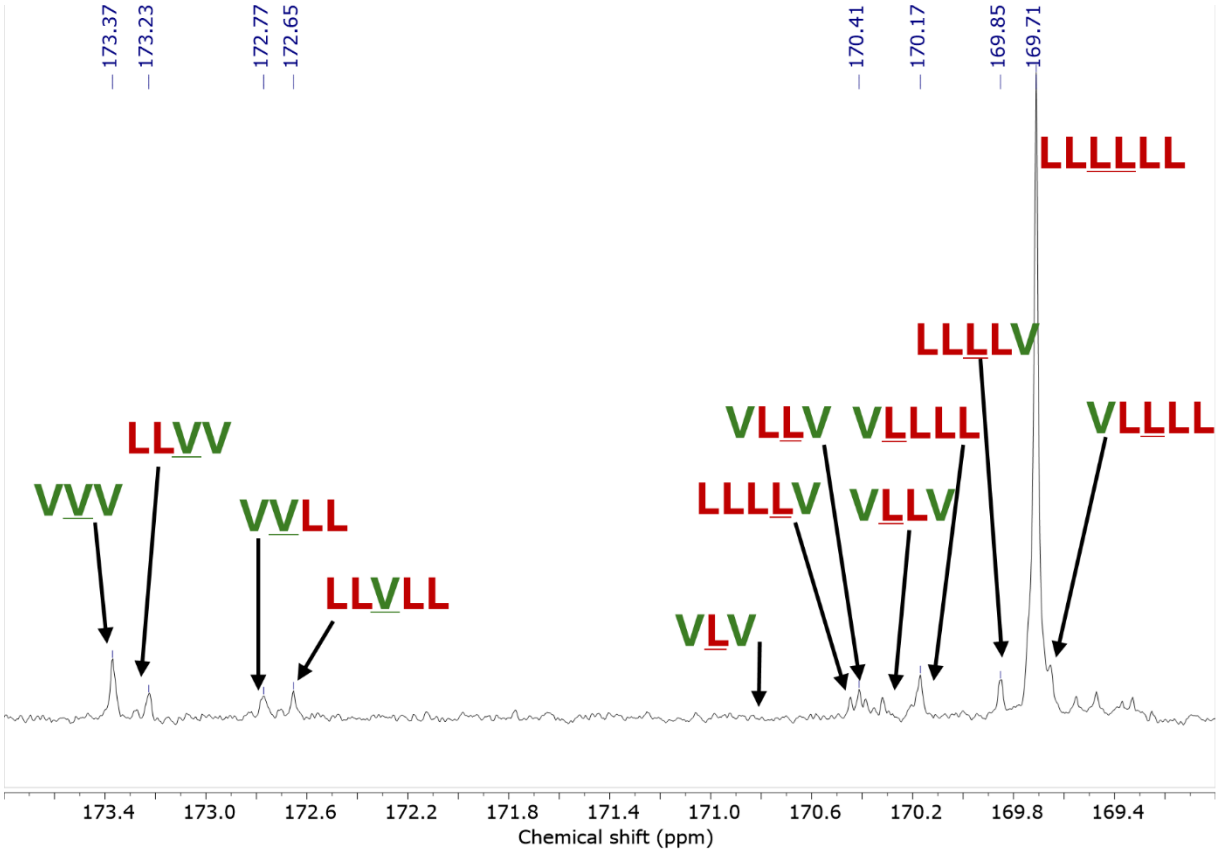


Figure S30: Carbonyl region of the ^{13}C NMR Spectrum of polymer from Table 1, entry 11

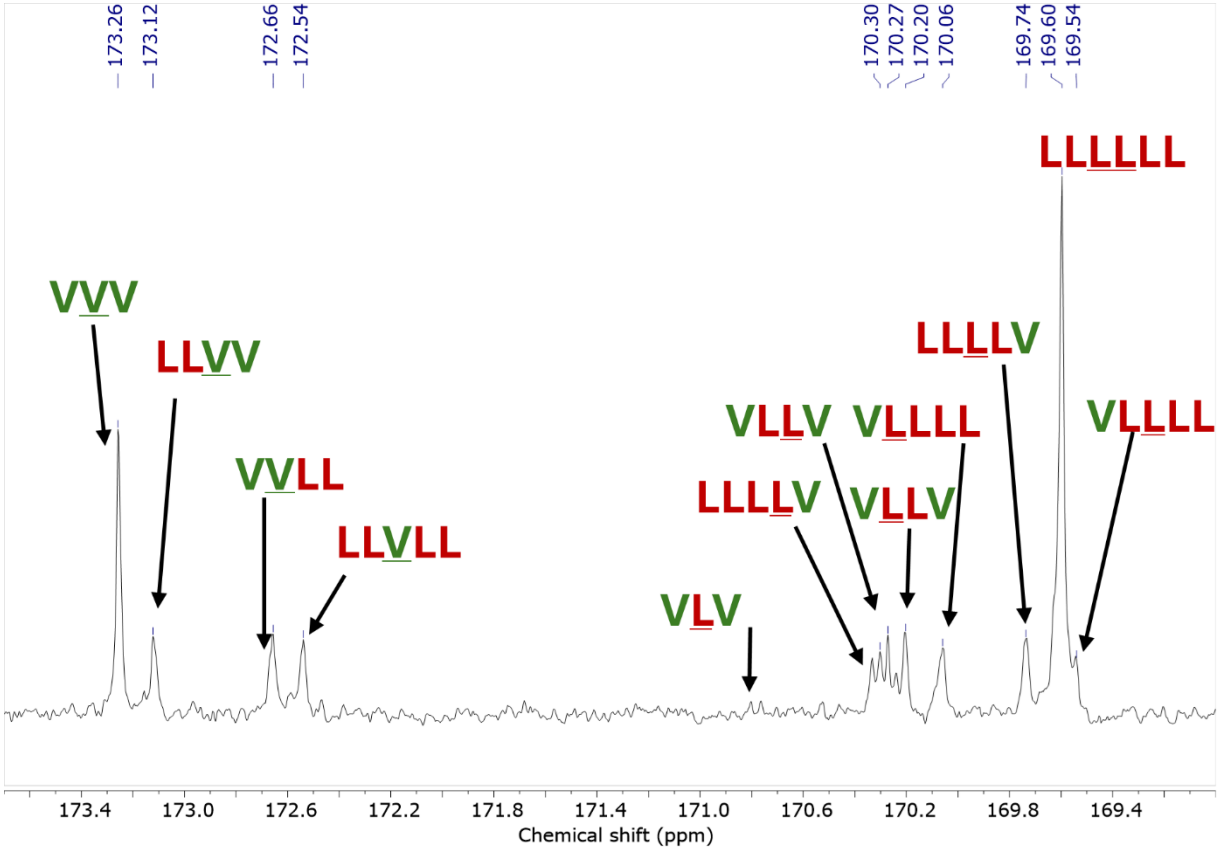


Figure S31: Carbonyl region of the ^{13}C NMR Spectrum of polymer from Table 1, entry 12

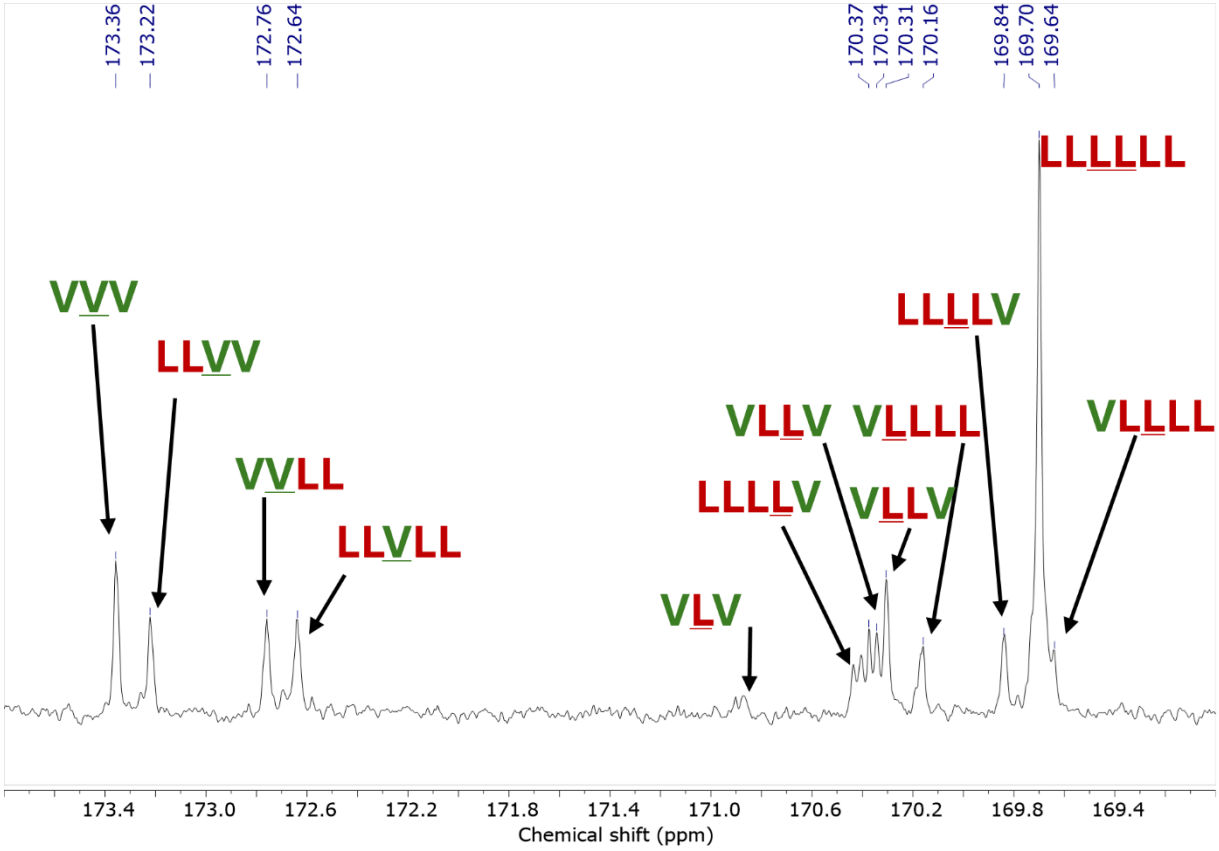


Figure S32: ^{1}H NMR Spectrum of polymer from Table 3, entry 1

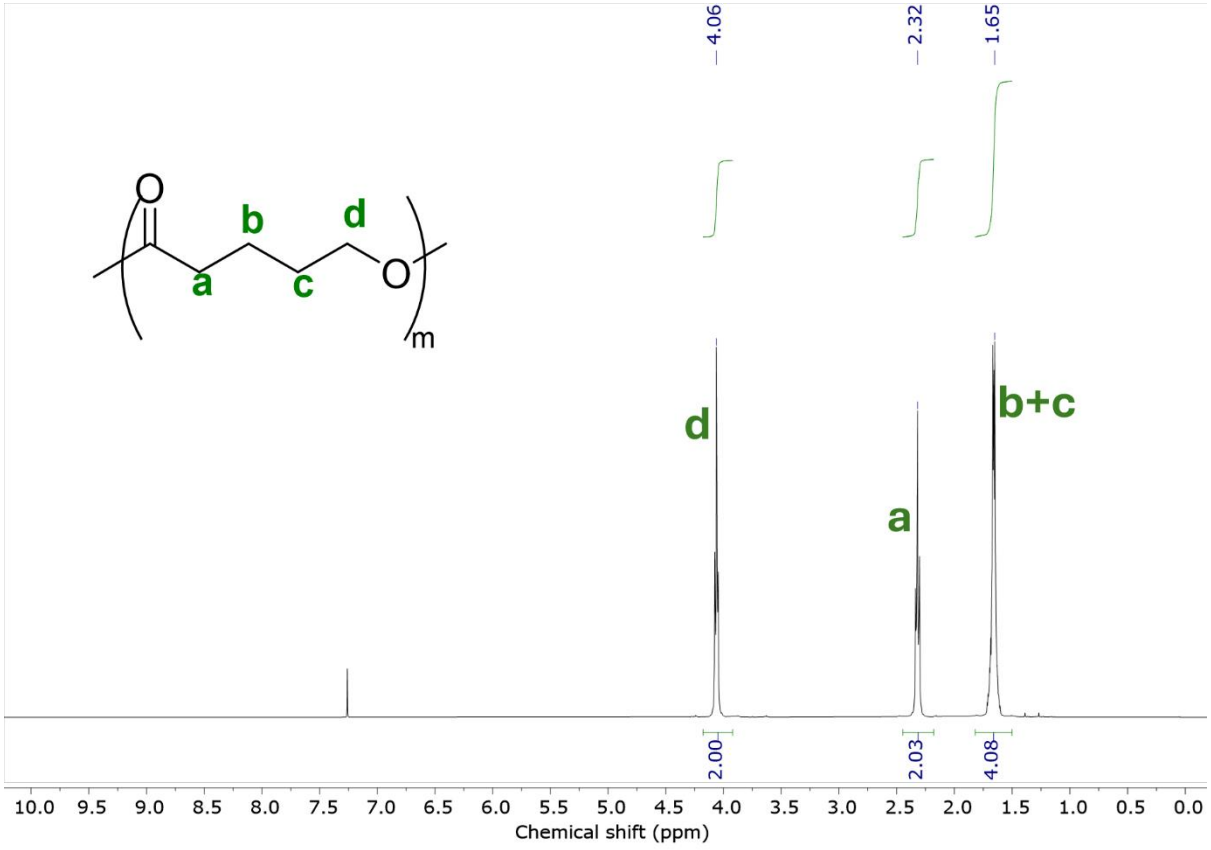


Figure S33: ^{1}H NMR Spectrum of polymer from Table 3, entry 2

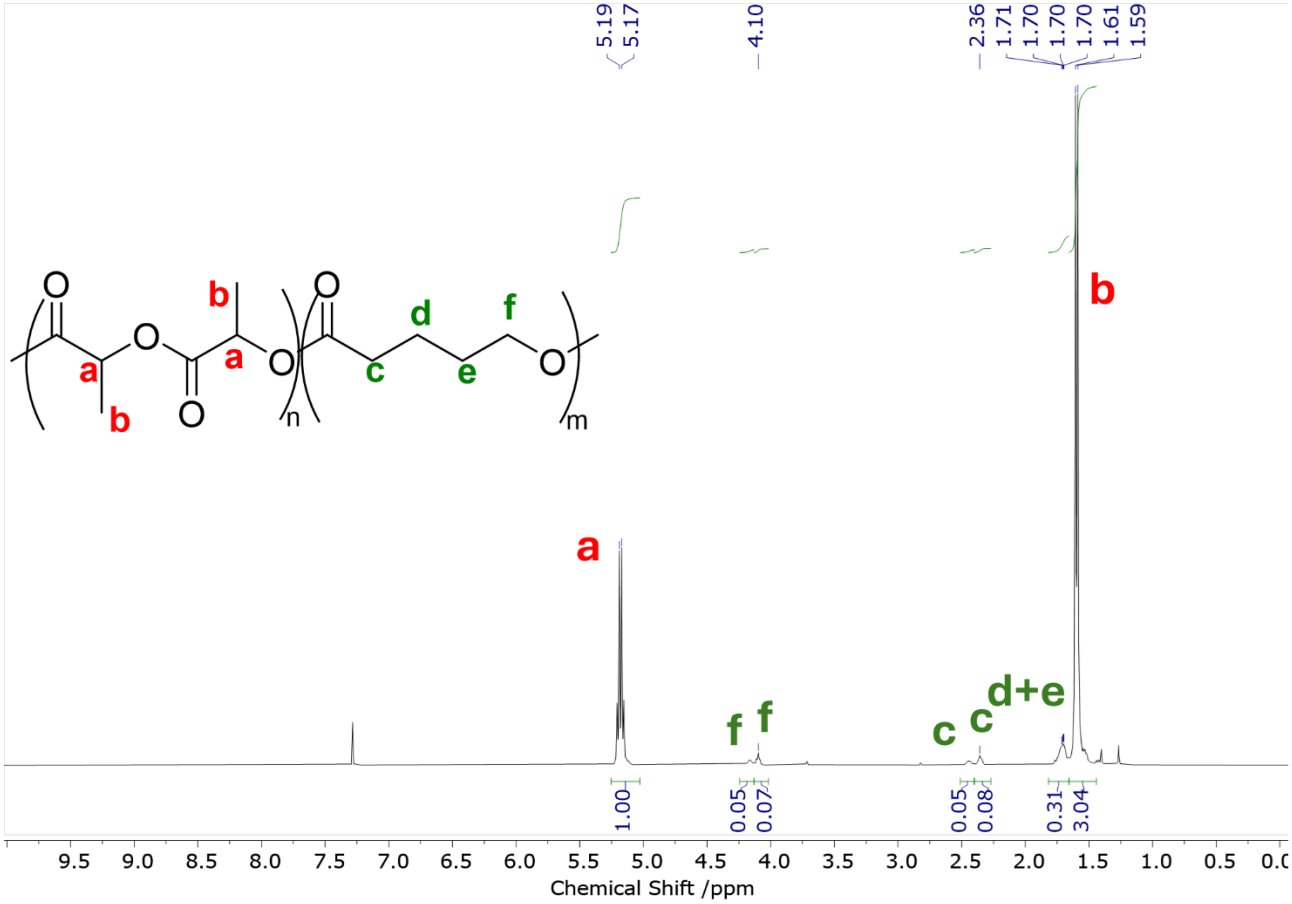


Figure S34: ^{1}H NMR Spectrum of polymer from Table 3, entry 3

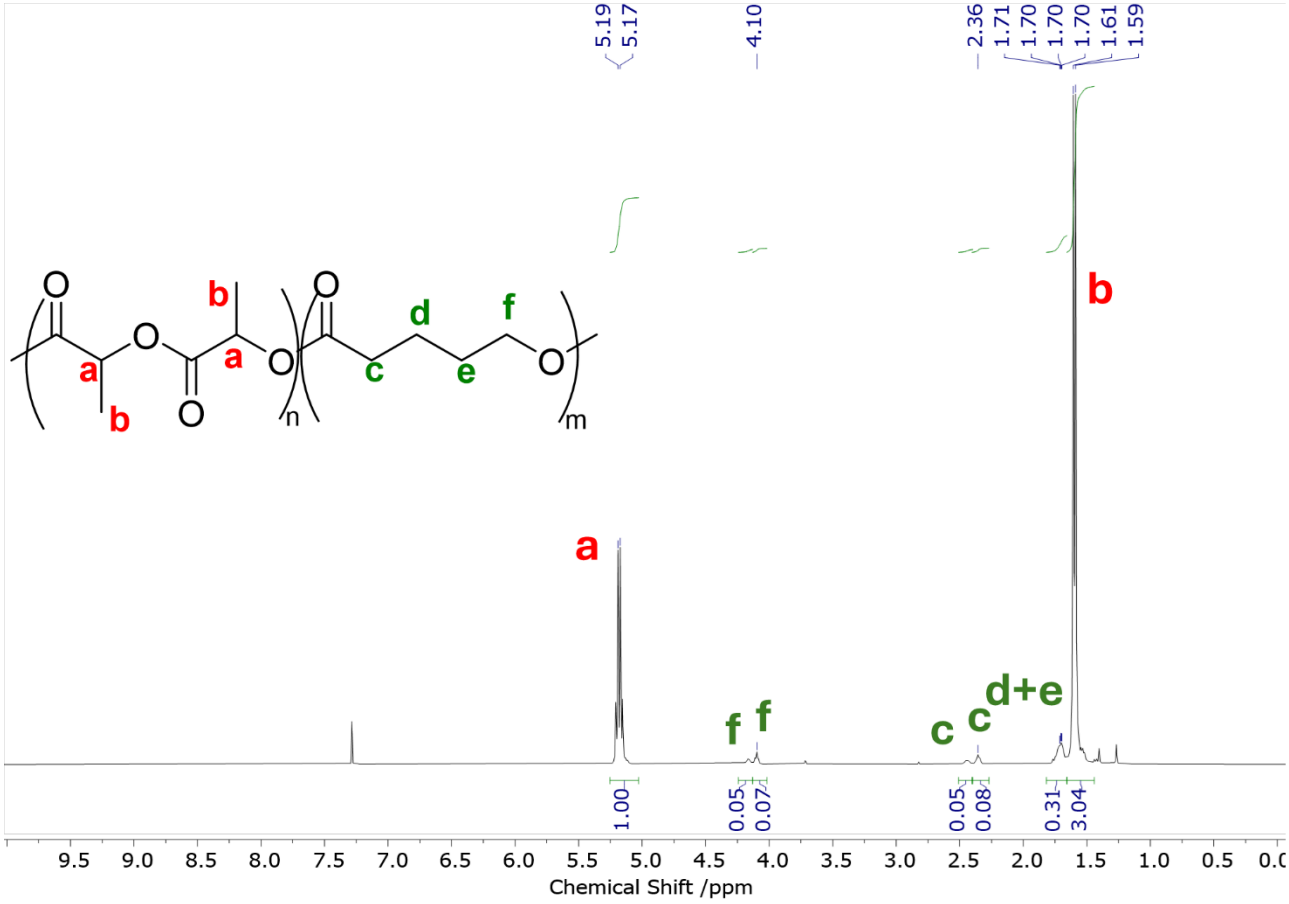


Figure S35: ^{1}H NMR Spectrum of polymer from Table 3, entry 4

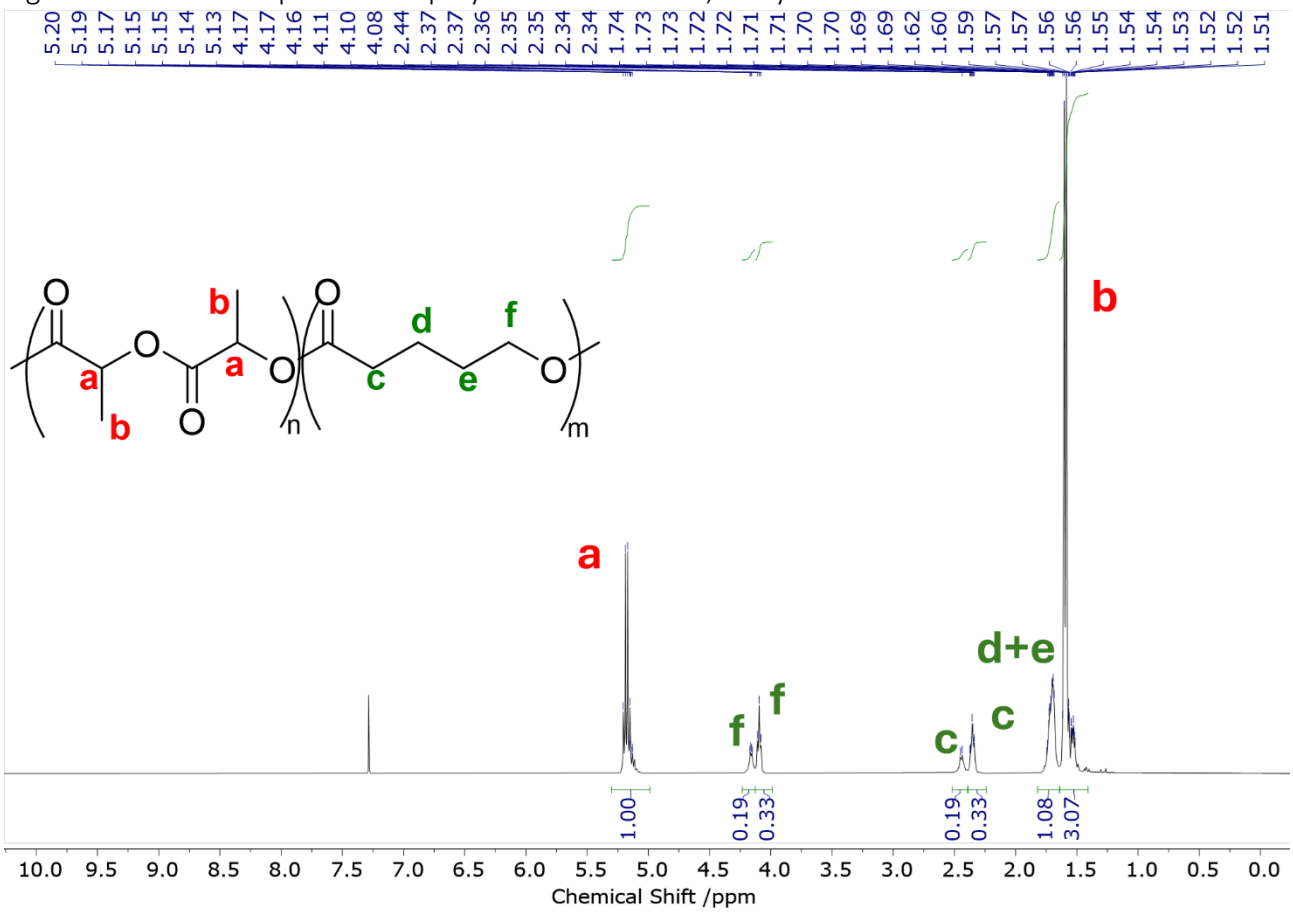


Figure S36: ^{1}H NMR Spectrum of polymer from Table 3, entry 5

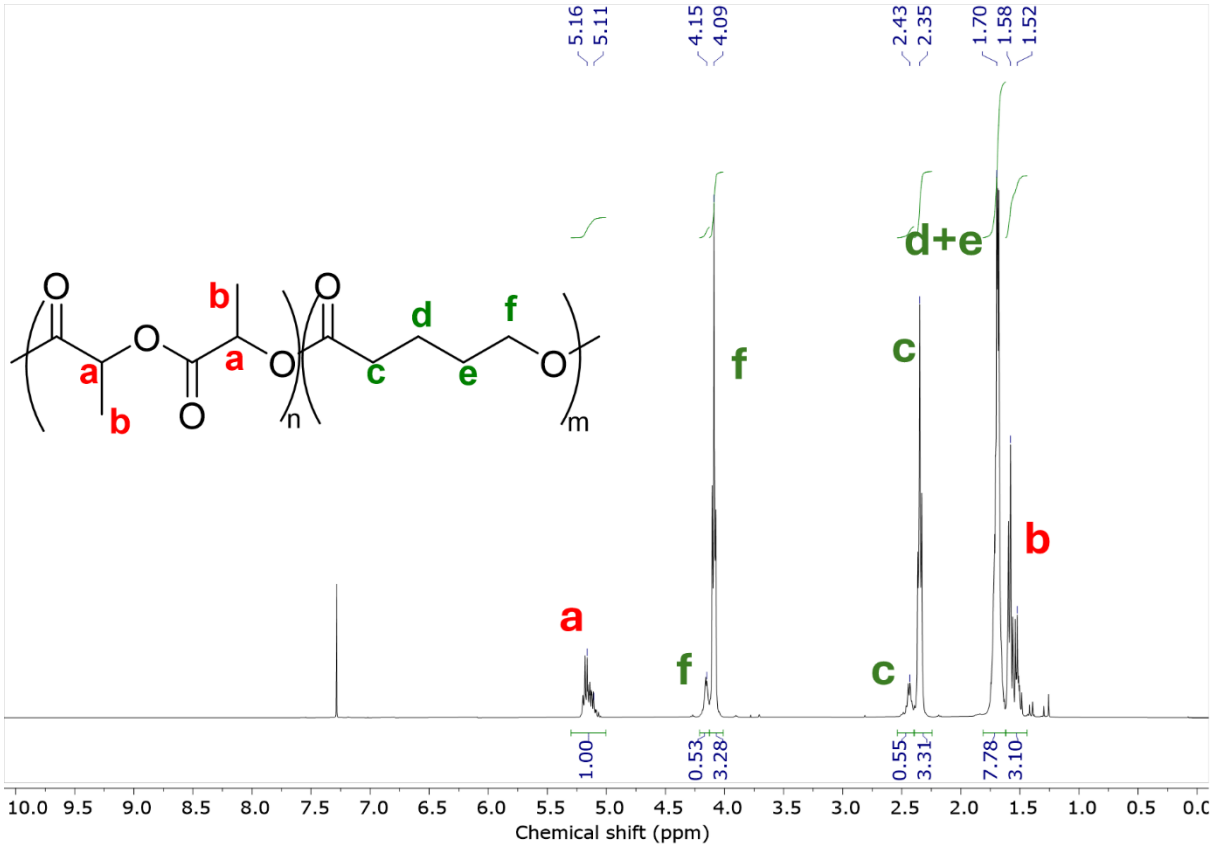


Figure S37: ^{13}C NMR Spectrum of polymer from Table 2, entry 1

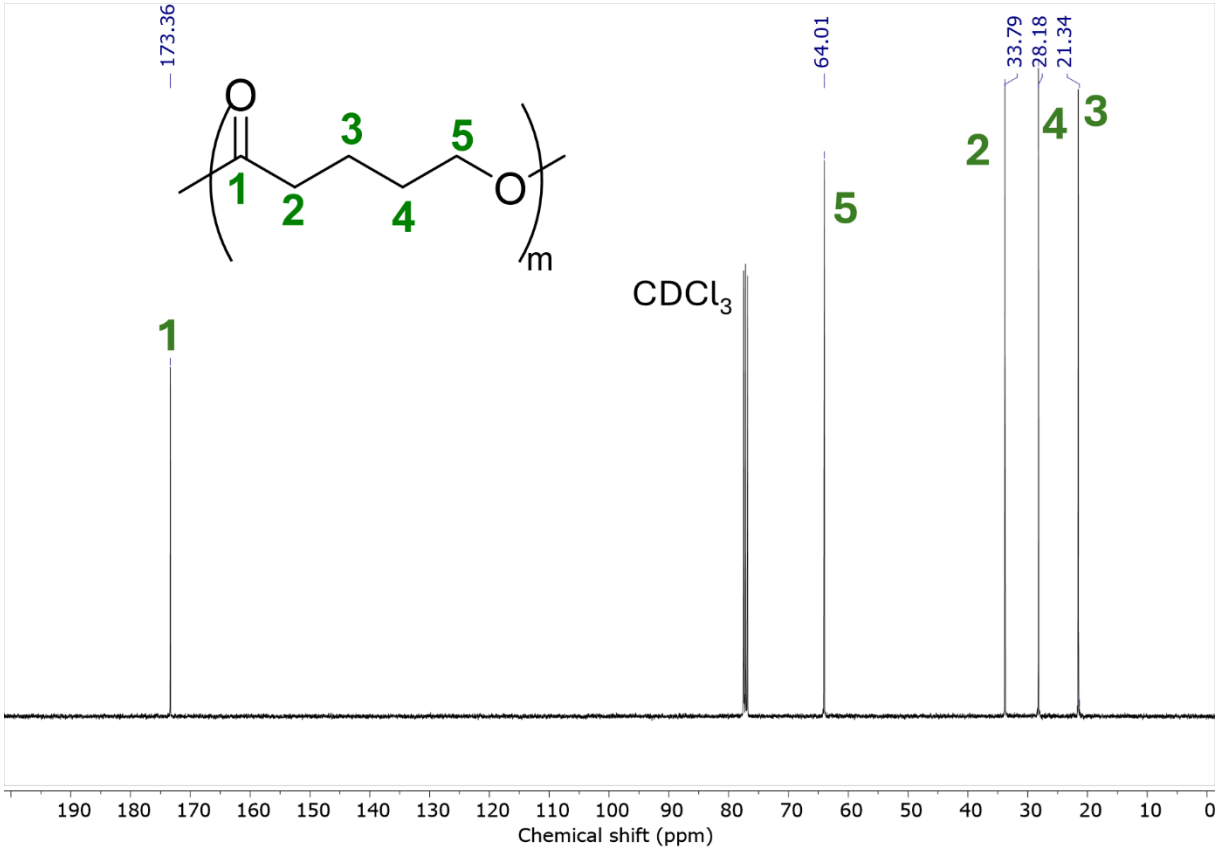


Figure S38: ^{13}C NMR Spectrum of polymer from Table 2, entry 2

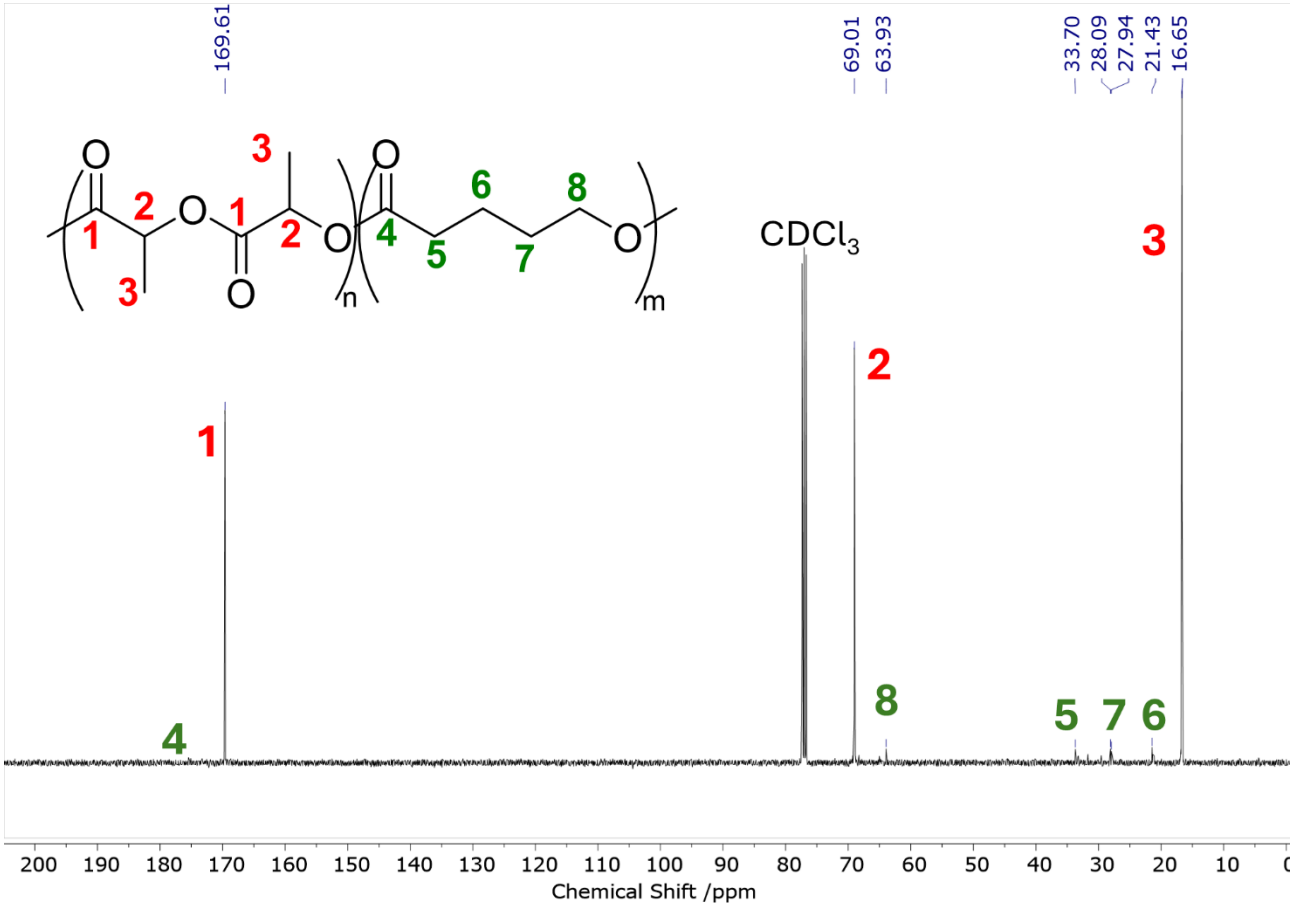


Figure S39: ^{13}C NMR Spectrum of polymer from Table 2, entry 3

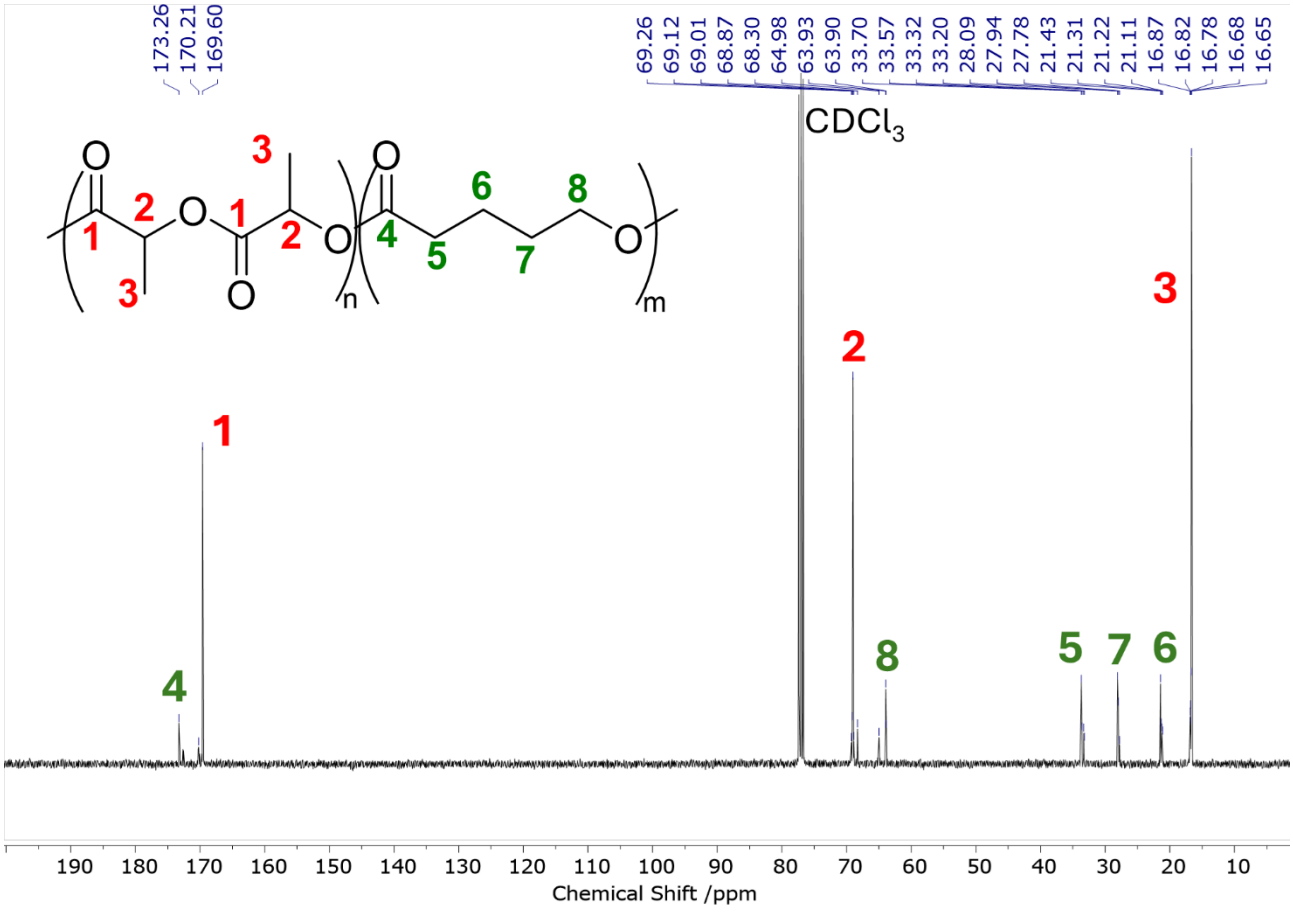


Figure S40: ^{13}C NMR Spectrum of polymer from Table 2, entry 4

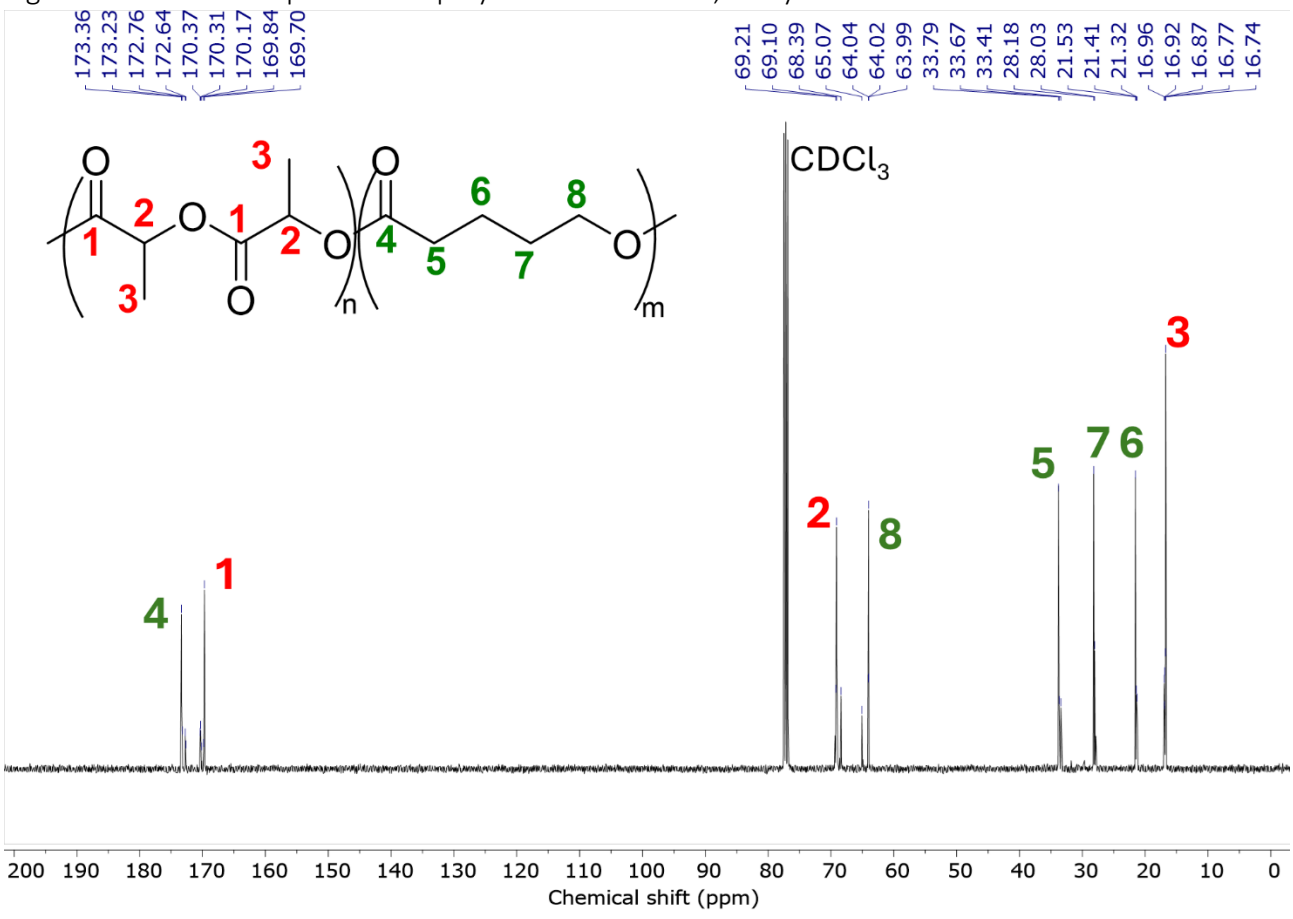


Figure S41: ^{13}C NMR Spectrum of polymer from Table 2, entry 5

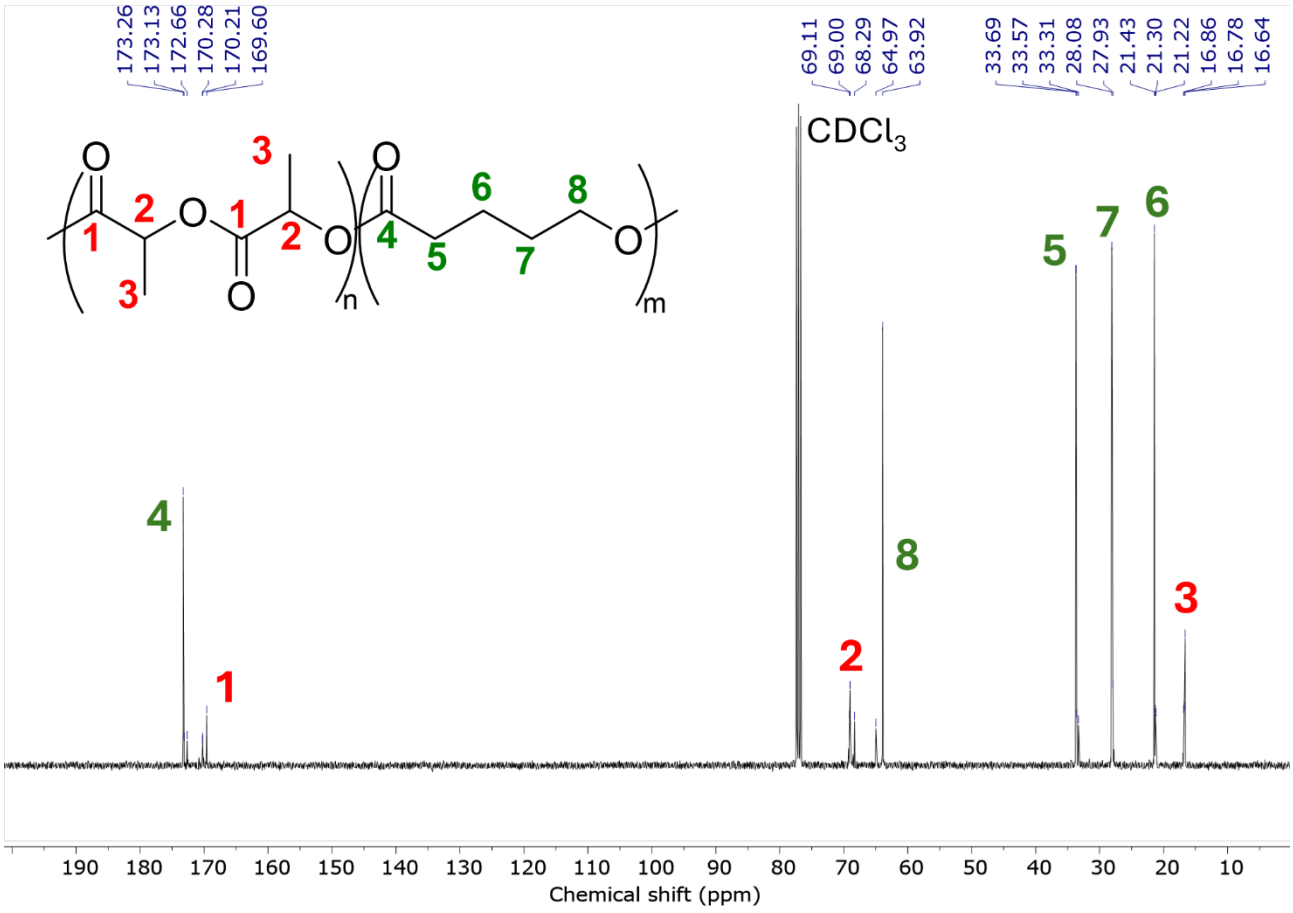


Figure S42: Carbonyl region of the ^{13}C NMR Spectrum of polymer from Table 2, entry 2

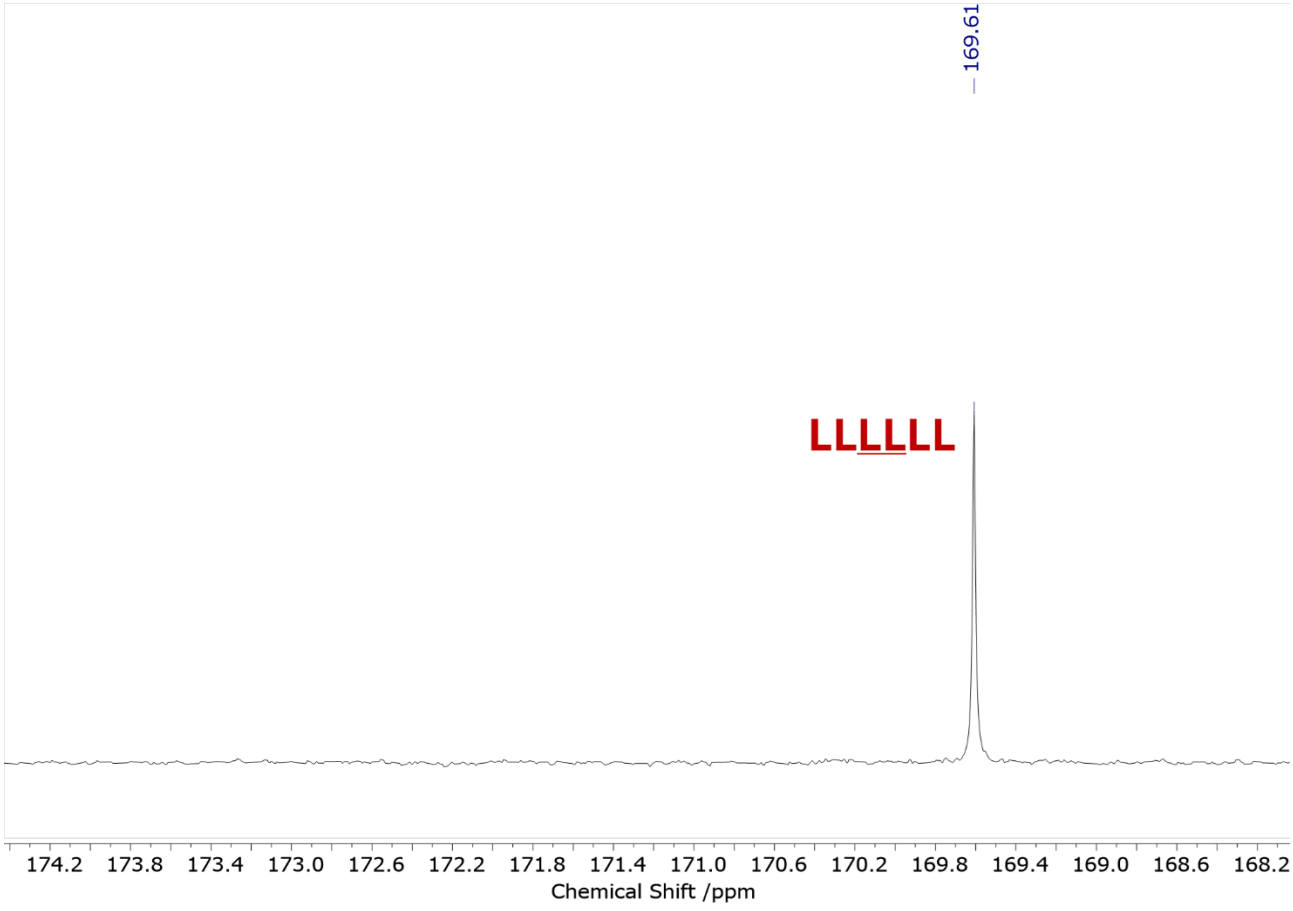


Figure S43: Carbonyl region of the ^{13}C NMR Spectrum of polymer from Table 2, entry 3

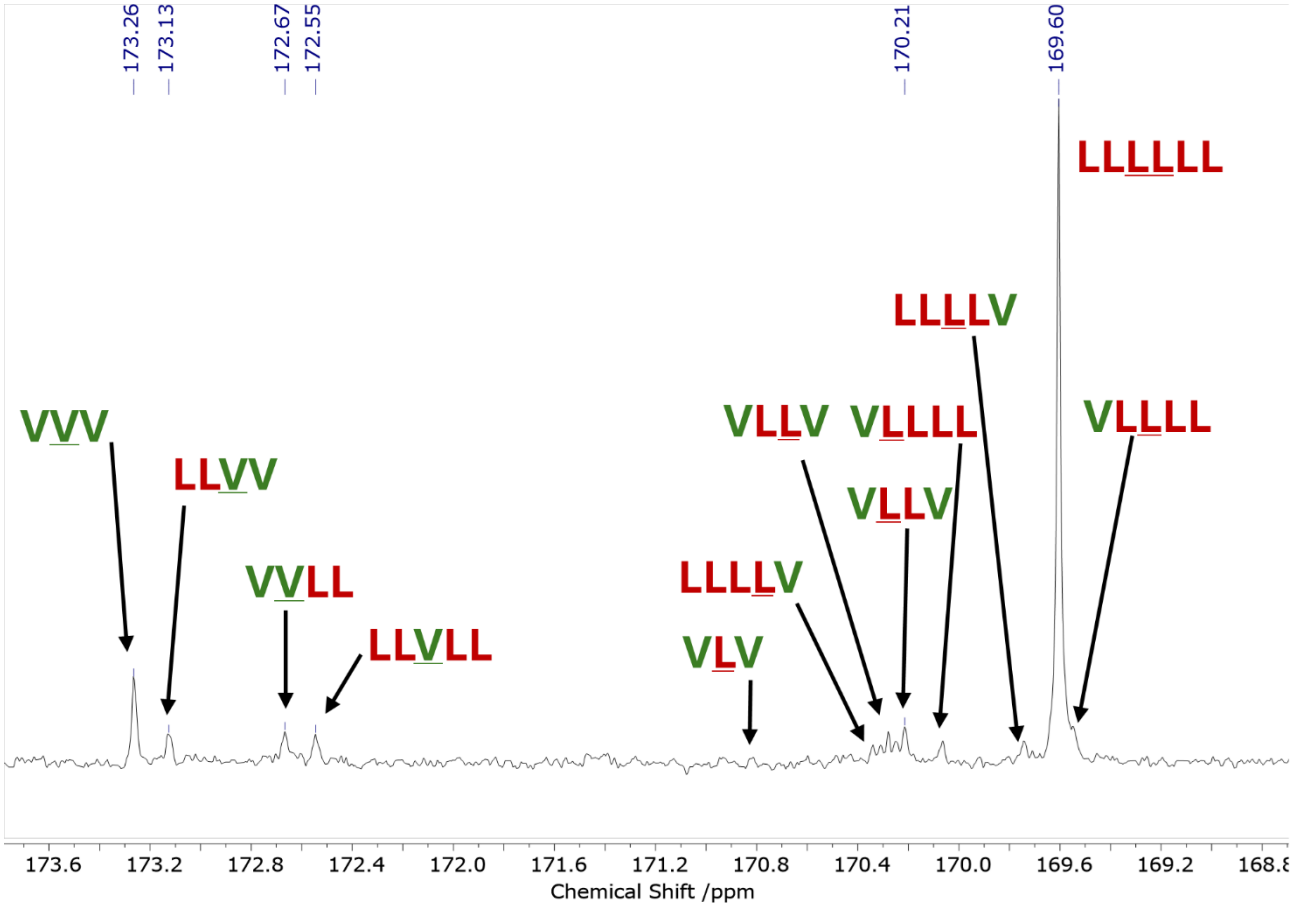


Figure S44: Carbonyl region of the ^{13}C NMR Spectrum of polymer from Table 2, entry 4

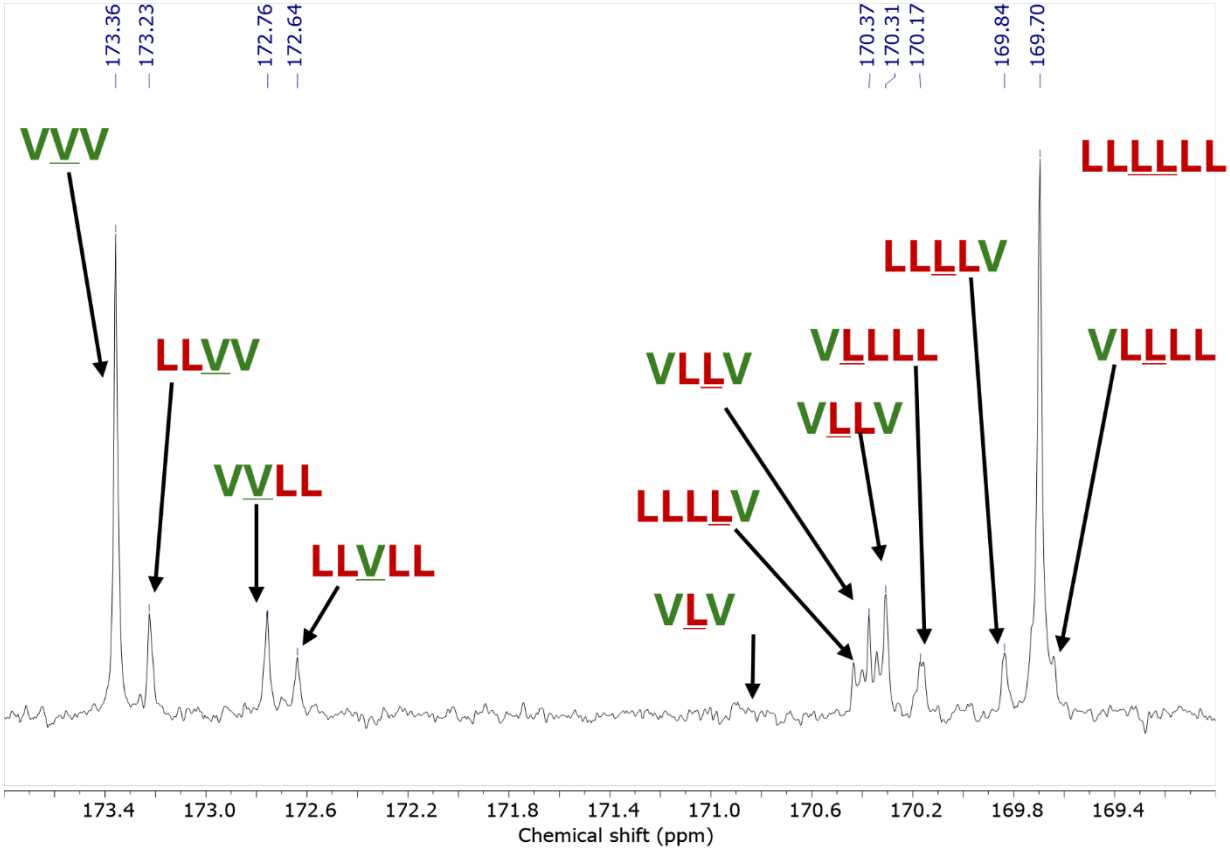
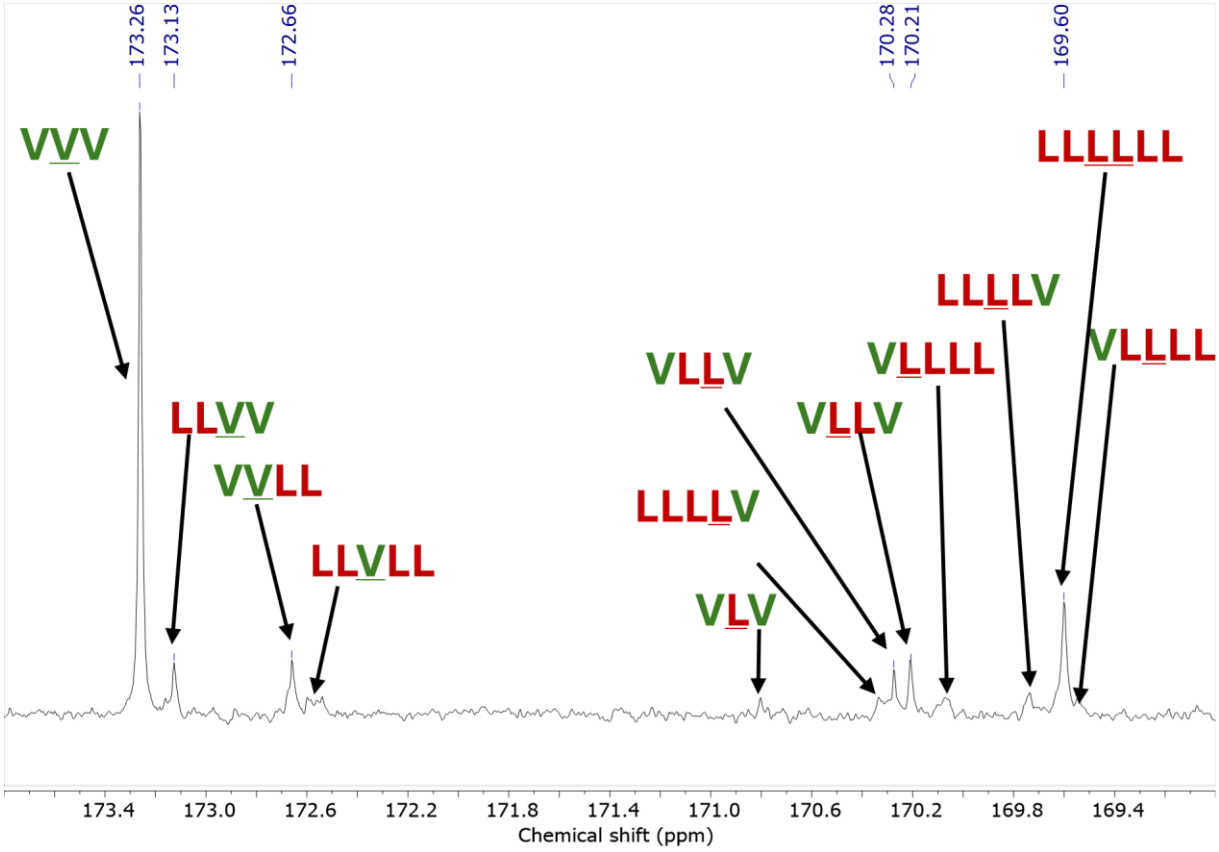


Figure S45: Carbonyl region of the ^{13}C NMR Spectrum of polymer from Table 2, entry 5



2. Representative GPC Traces of Copolymers

Figure S46: GPC Trace of sample from Table 1 entry 1

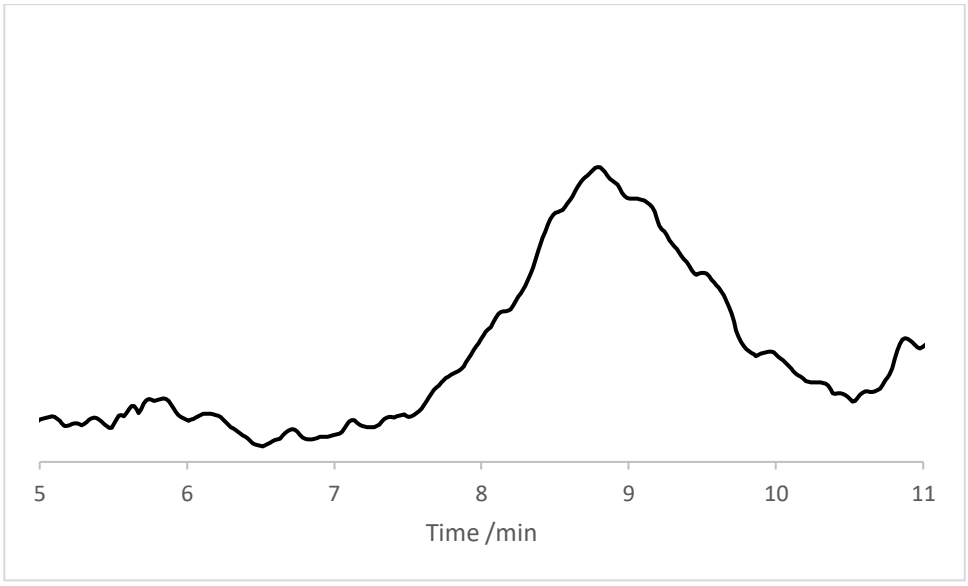


Figure S47: GPC Trace of sample from Table 1 entry 2

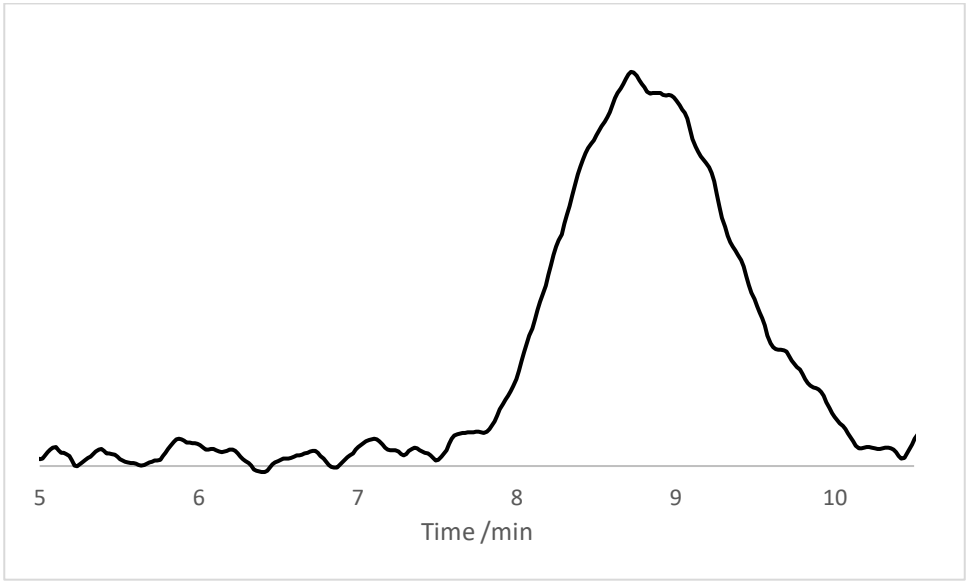


Figure S48: GPC Trace of sample from Table 1 entry 3

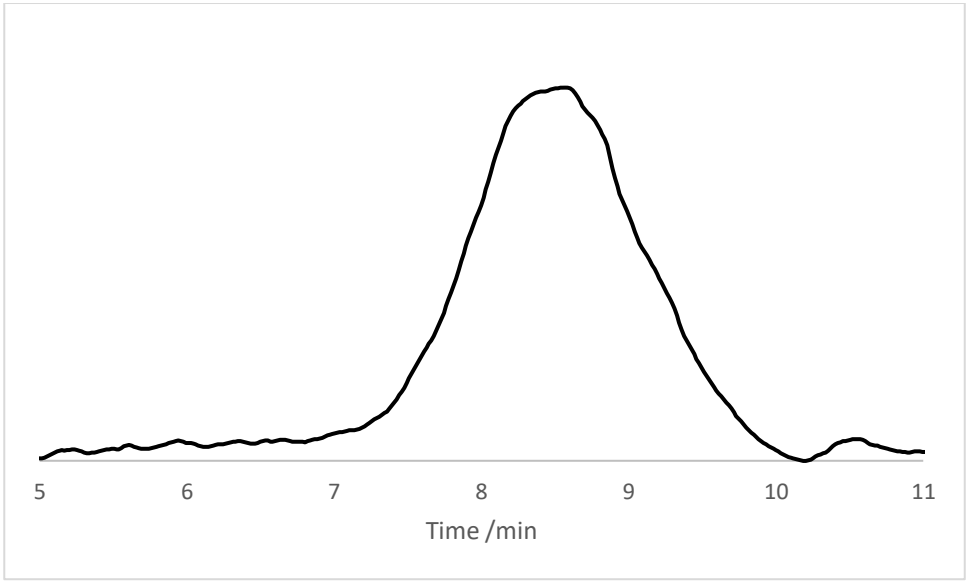


Figure S49: GPC Trace of sample from Table 1 entry 4

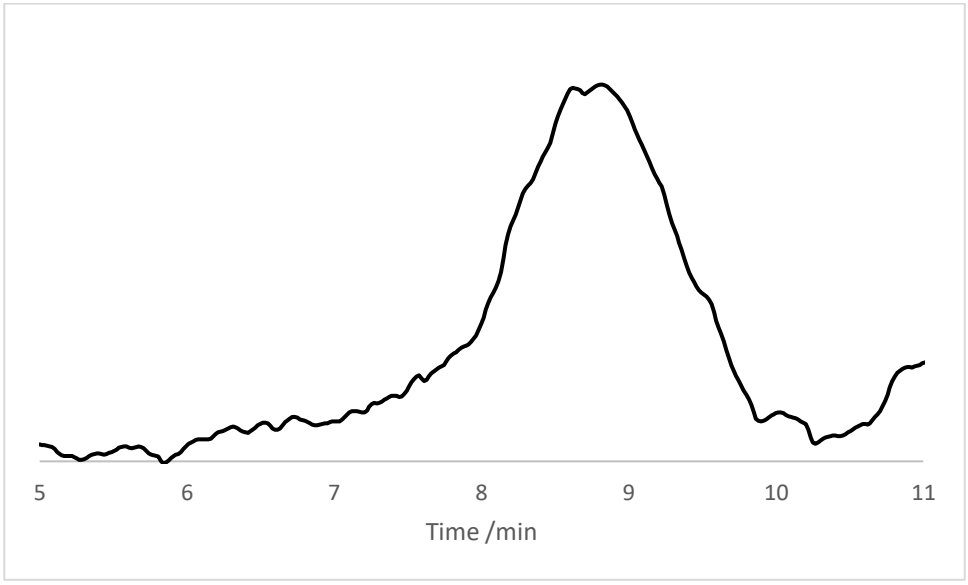


Figure S50: GPC Trace of sample from Table 1 entry 5

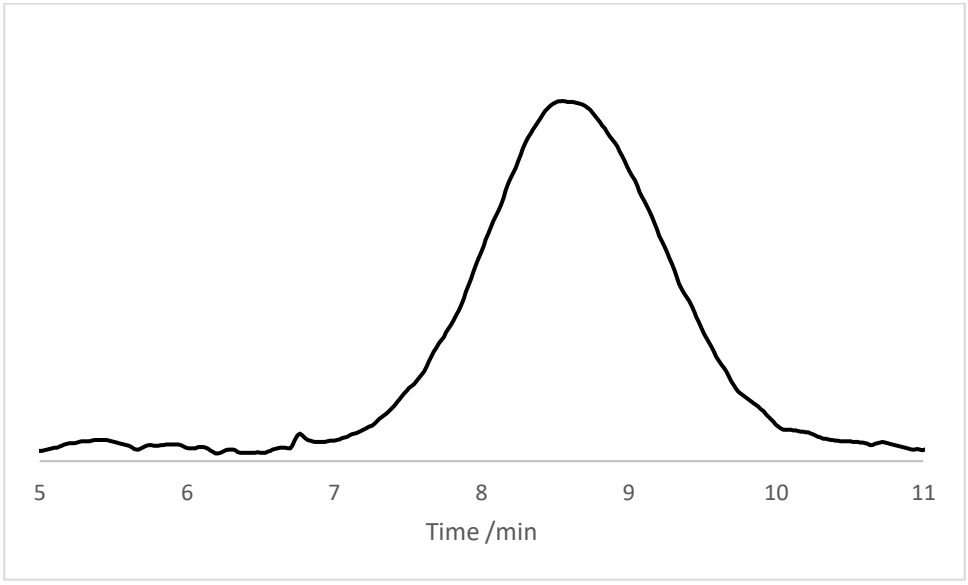


Figure S51: GPC Trace of sample from Table 1 entry 6

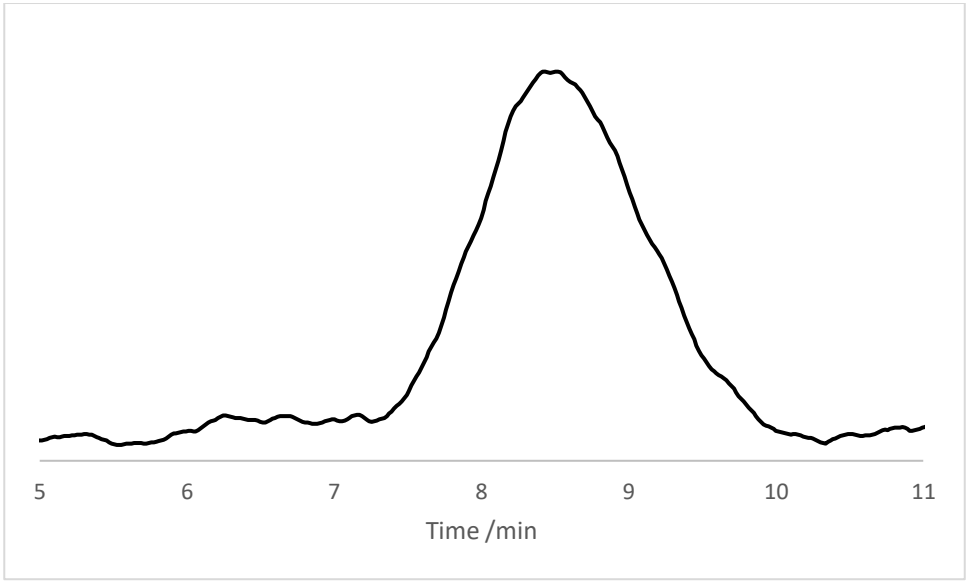


Figure S52: GPC Trace of sample from Table 1 entry 7

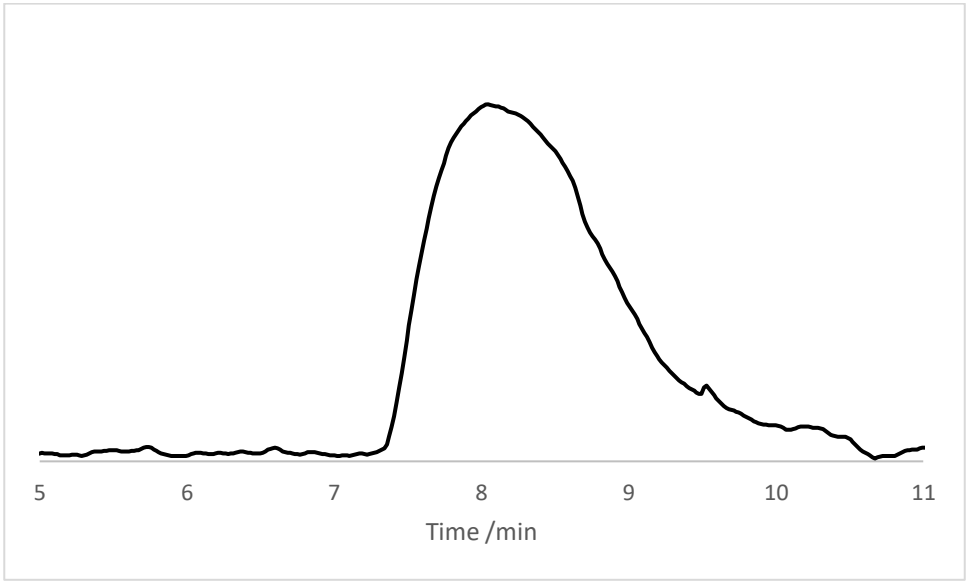


Figure S53: GPC Trace of sample from Table 1 entry 8

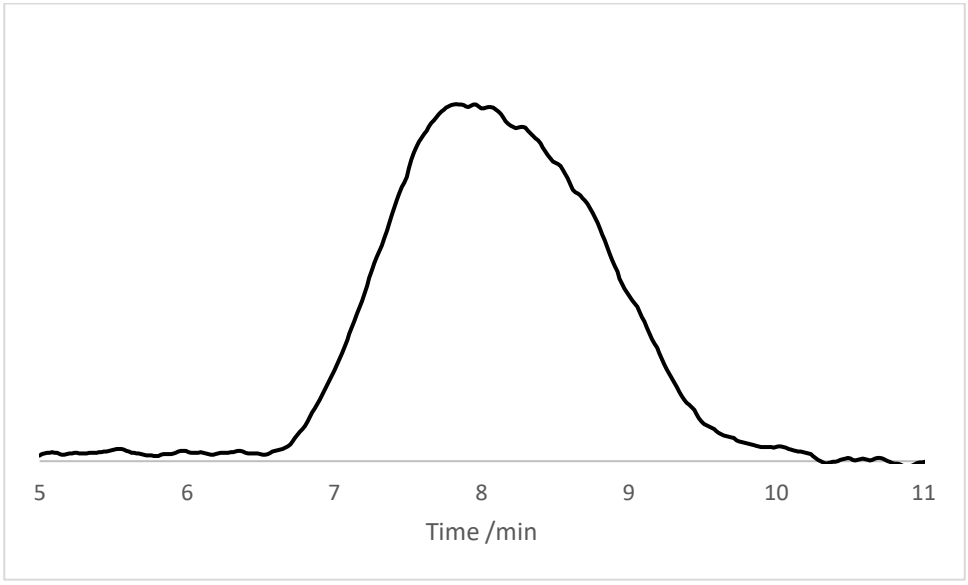


Figure S54: GPC Trace of sample from Table 1 entry 9

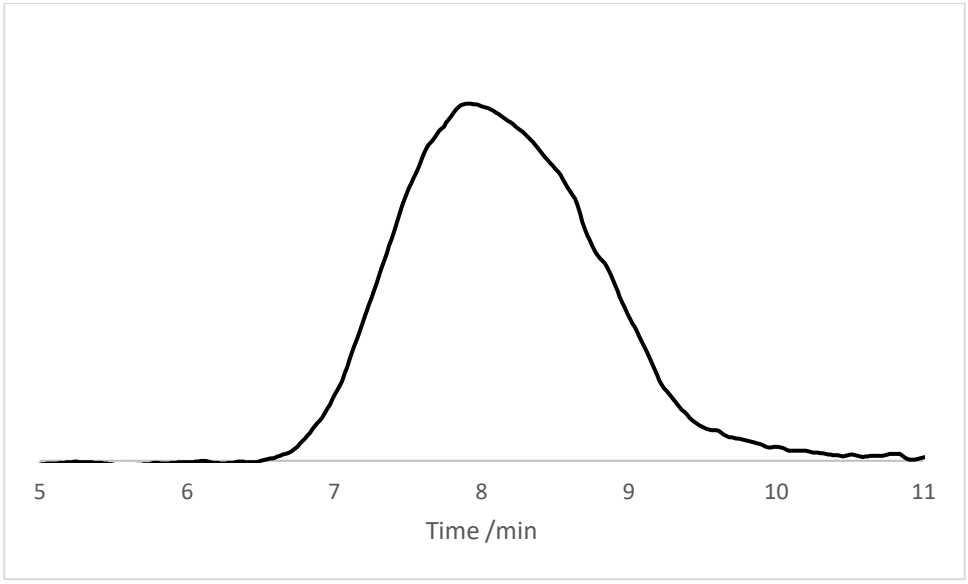


Figure S55: GPC Trace of sample from Table 1 entry 10

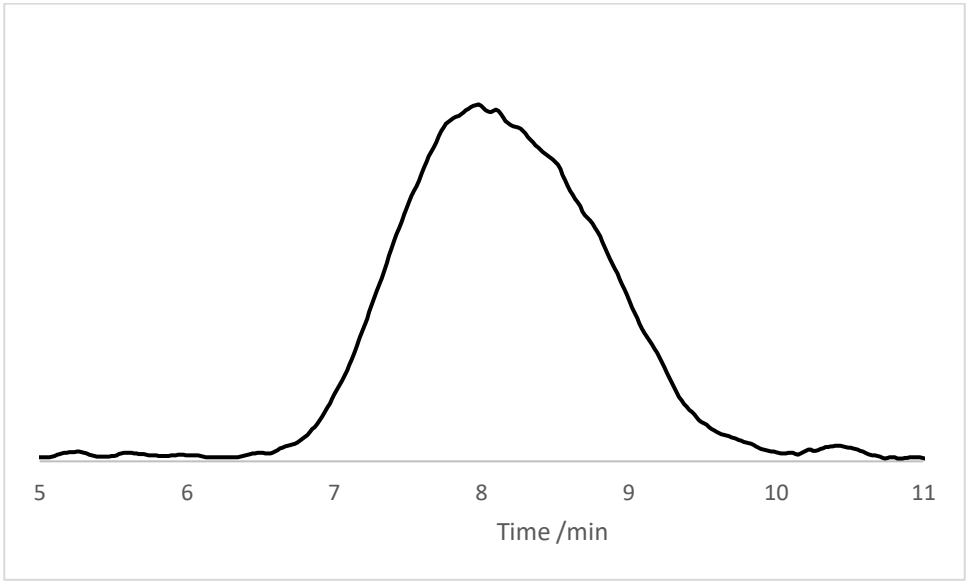


Figure S56: GPC Trace of sample from Table 1 entry 11

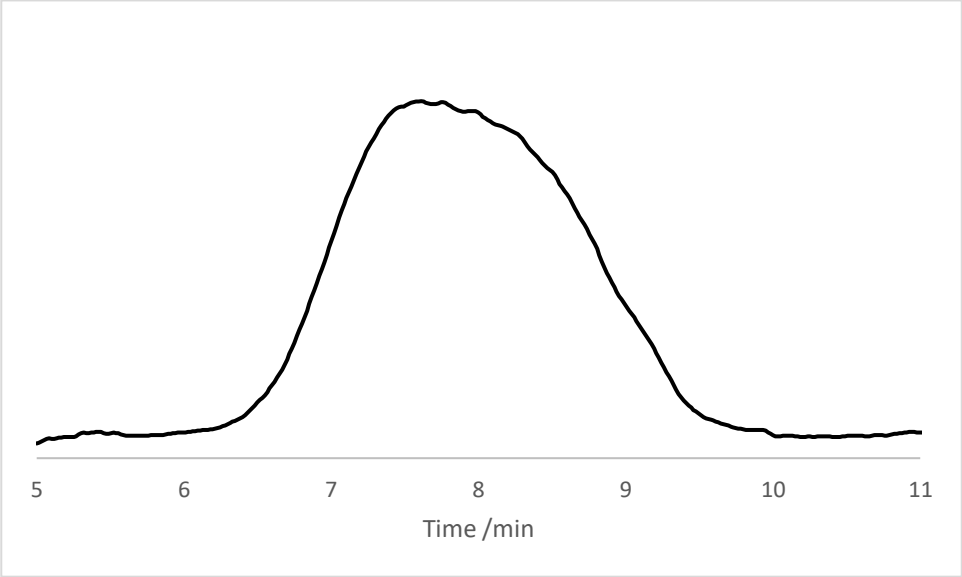
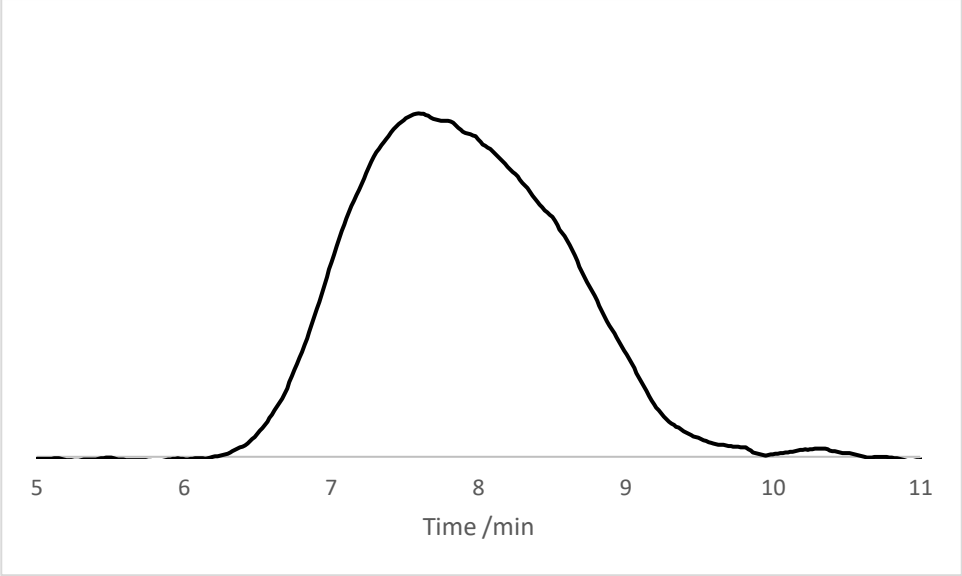
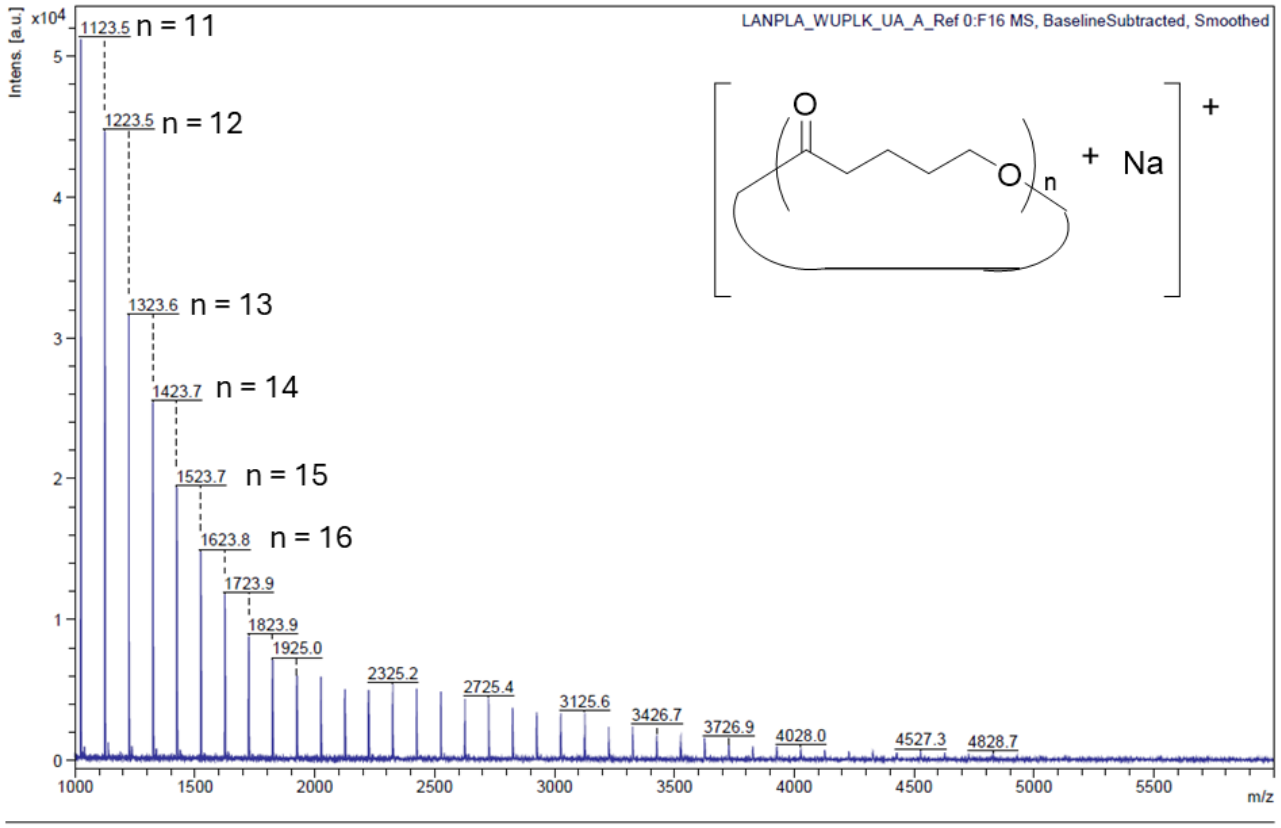


Figure S57: GPC Trace of sample from Table 1 entry 12



3. MALDI-ToF Data

Figure S58: MALDI-ToF spectrum of a PVL formed by complex **3** (Table 1, entry 7).



4. DOSY NMR Spectra of Copolymers

Figure S59: ^{1}H DOSY NMR spectrum of a copolymer prepared by complex **1.**

*Reaction conditions: [*rac*-LA]$_0$ = [δ-VL]$_0$ = 0.5 M in toluene, [*rac*-LA]$_0$/[**1**] = 10, reaction time: 20 min.

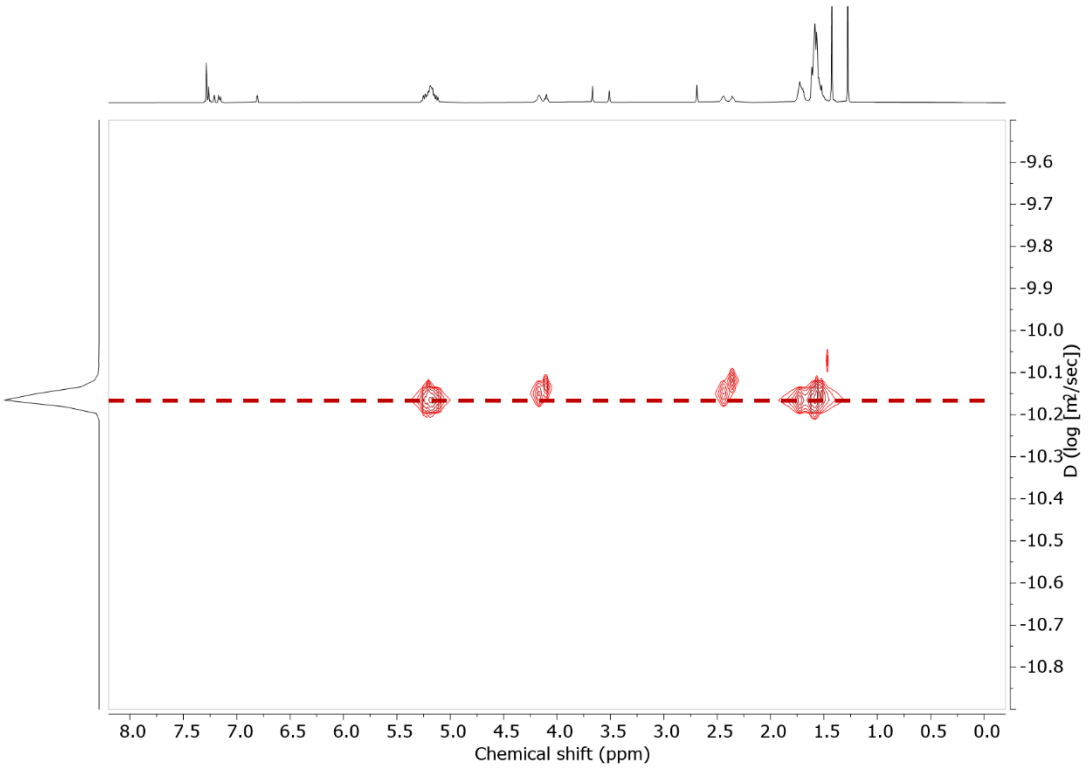
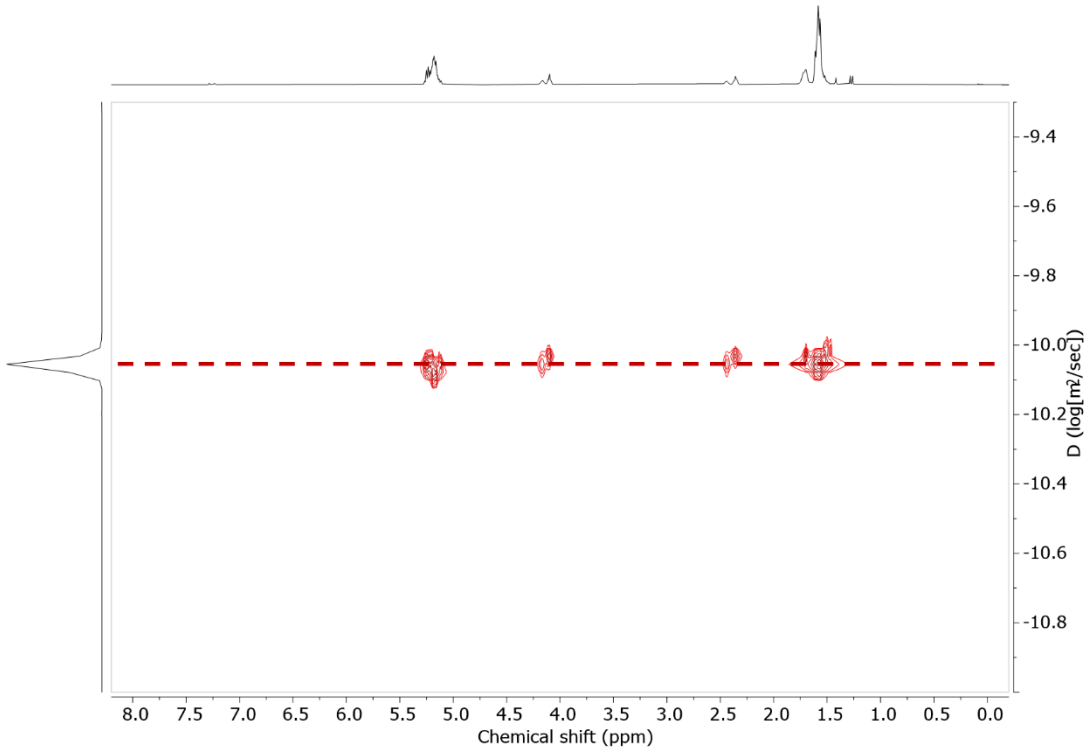


Figure S60: ^{1}H DOSY NMR spectrum of a copolymer prepared by complex **2.**
*Reaction conditions: [*rac*-LA]$_0$ = [δ-VL]$_0$ = 0.5 M in toluene, [*rac*-LA]$_0$/[**2**] = 10, reaction time: 20 min.



4. DSC Traces of Copolymers

In each case, the first cooling cycle and second heating cycle are displayed.

Figure S61: DSC trace for Table 4, Entry 1

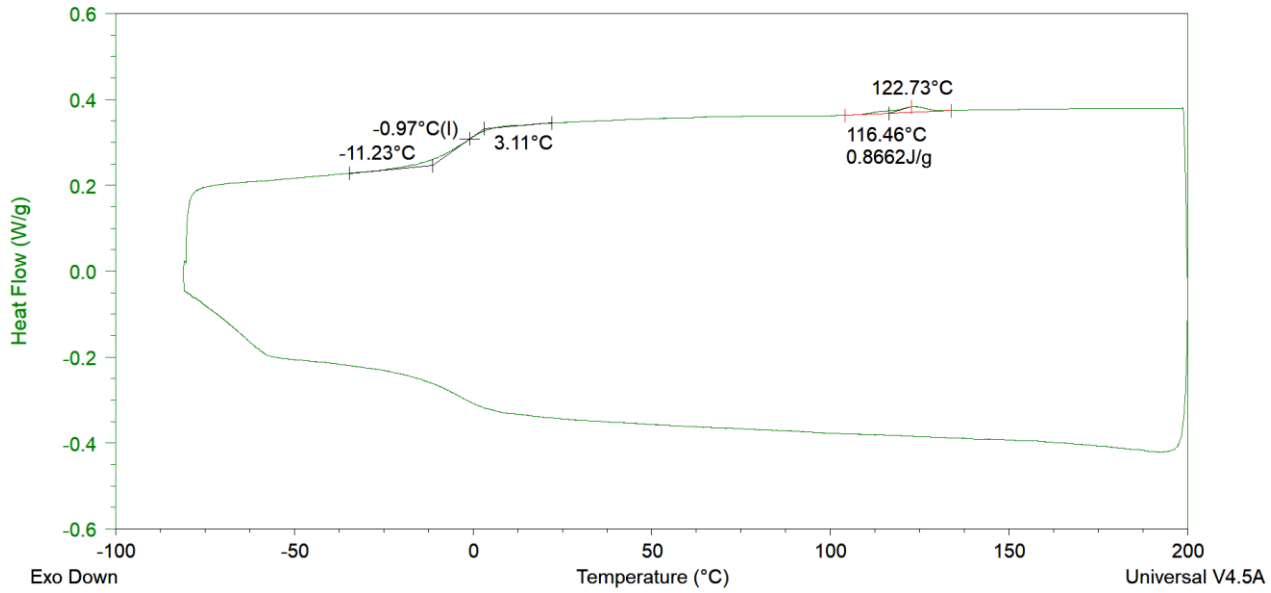


Figure S62: DSC trace for Table 4, Entry 2

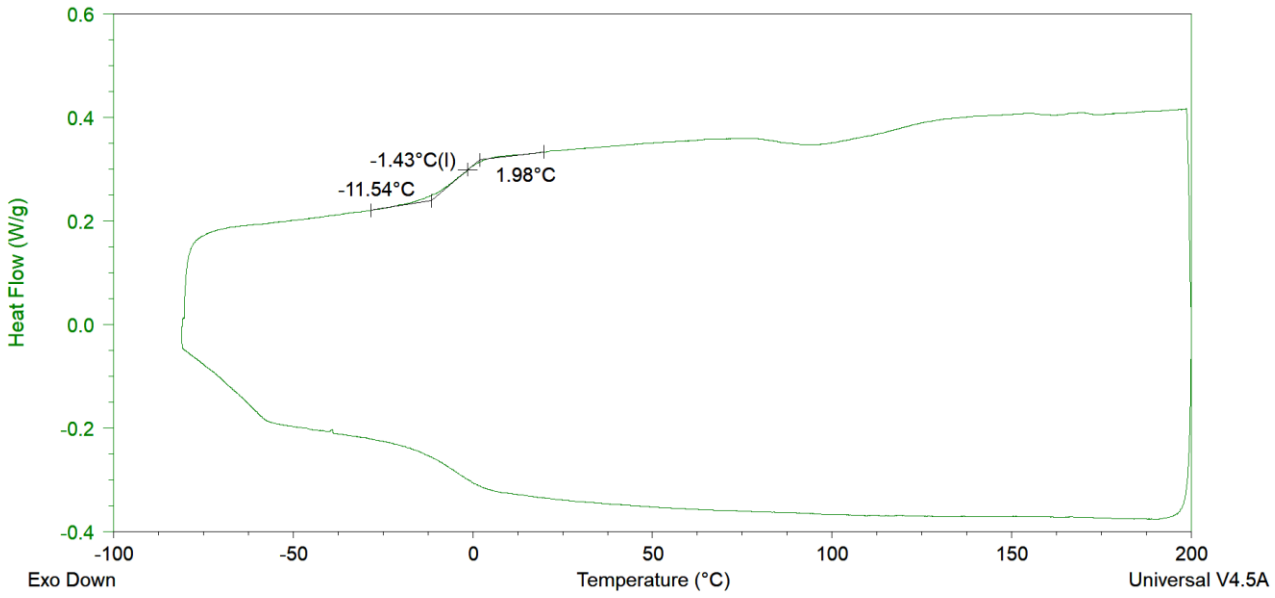


Figure S63: DSC trace for Table 4, Entry 3

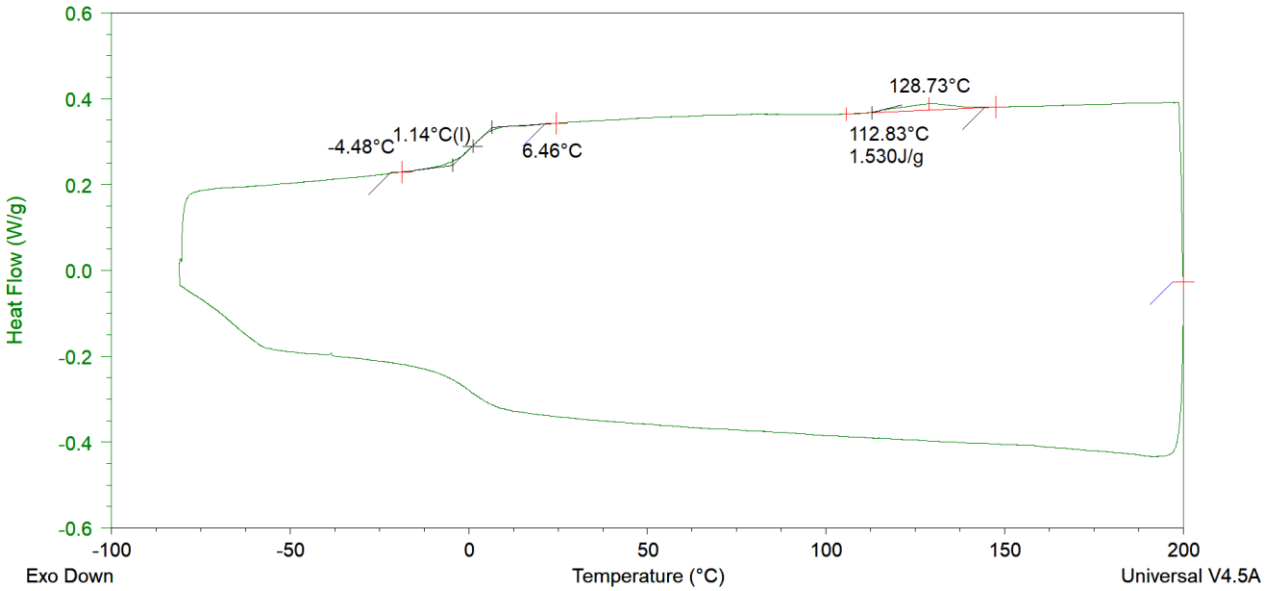


Figure S64: DSC trace for Table 4, Entry 4

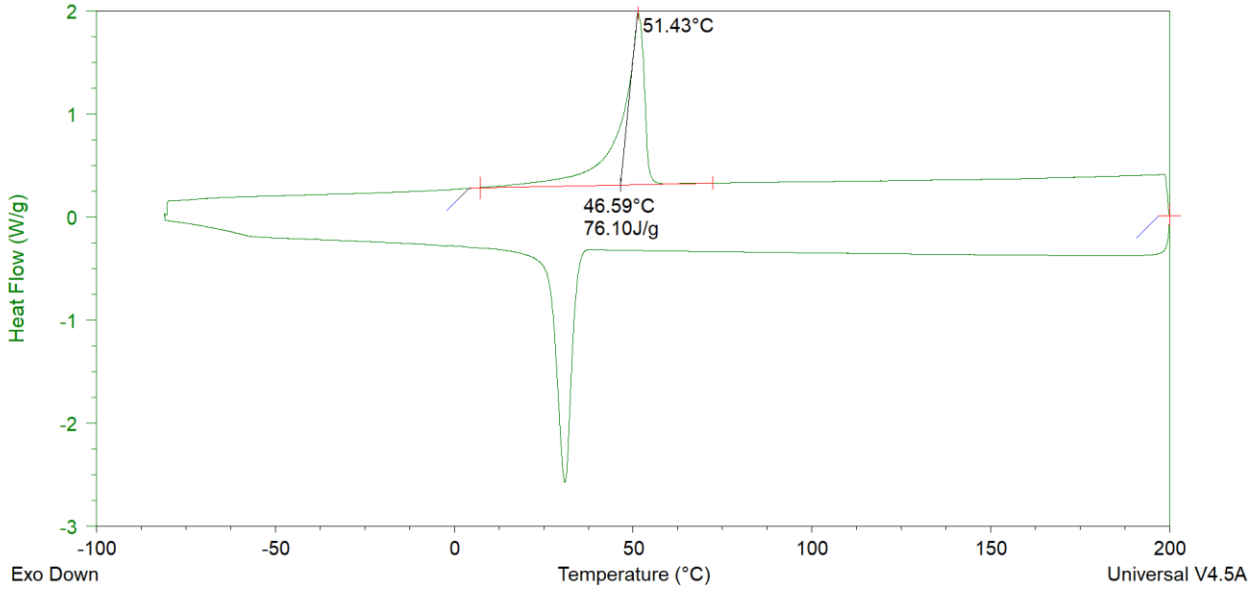


Figure S65: DSC trace for Table 4, Entry 5

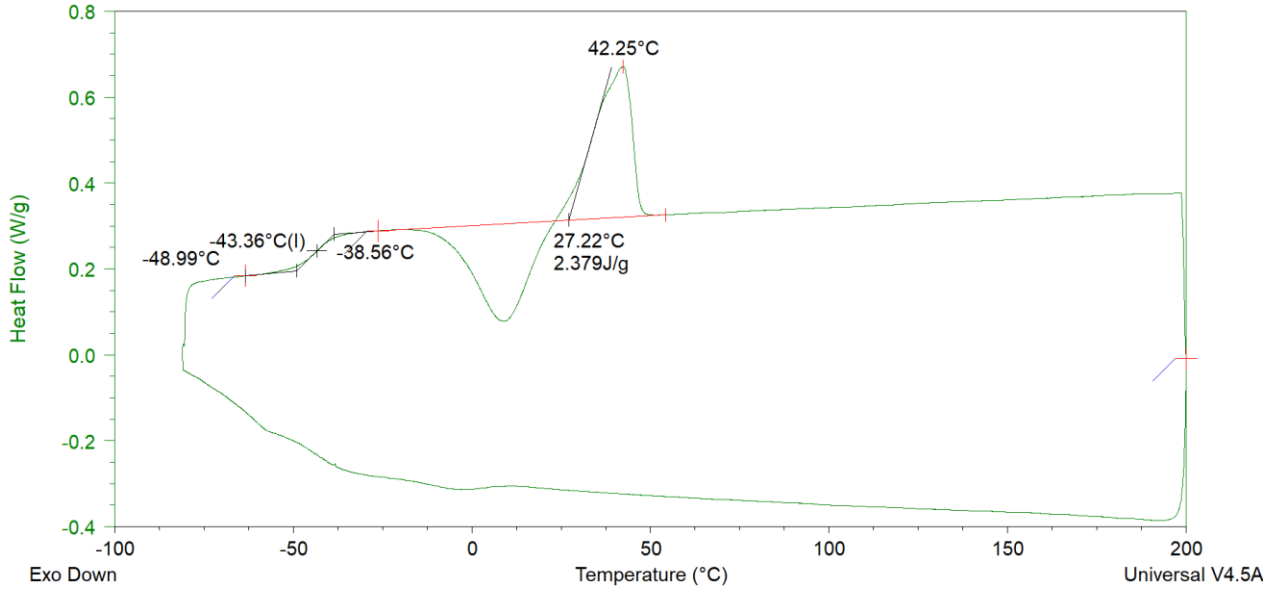


Figure S66: DSC trace for Table 4, Entry 6

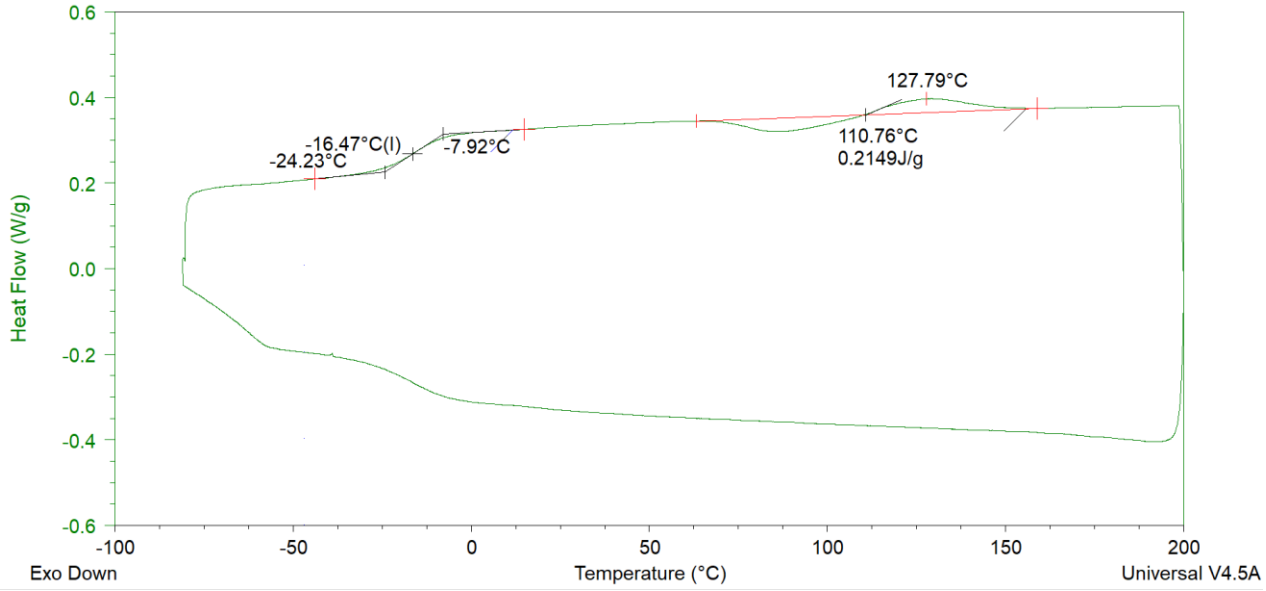


Figure S67: DSC trace for Table 4, Entry 7

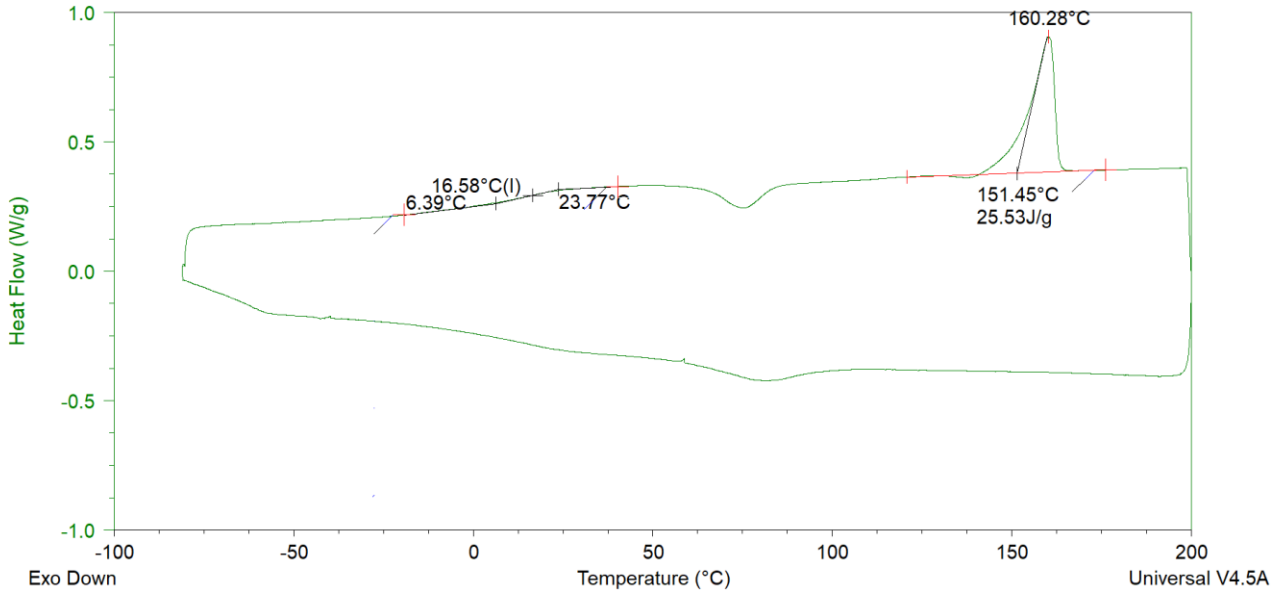


Figure S68: DSC trace for Table 4, Entry 8