

Supporting Information for

Poly(carbonate) Copolymers with Tailored Number of Hydroxyl Groups from Glycidyl Ethers and CO₂

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1. Experimental Section
2. GPC data for the copolymers
3. Representative ¹H, ¹³C and 2 D spectra of the protected and deprotected P ((BGE-co-GME C) and P ((G-co-GME C) copolymers.
4. IR spectra of the resulting copolymers

1. Experimental Section

Instrumentation. ¹H NMR spectra (300 MHz and 400 MHz) and ¹³C NMR spectra (75.5 MHz) were recorded using a Bruker AC300 or a Bruker AMX400 spectrometer. All spectra were referenced internally to residual proton signals of the deuterated solvent. For SEC measurements in DMF (containing 0.25 g/L of lithium bromide as an additive) an Agilent 1100 Series was used as an integrated instrument, including a PSS HEMA column (10⁶/10⁵/10⁴ g mol⁻¹), a UV (275 nm) and a RI detector. Calibration was carried out using poly(ethylene oxide) standards provided by Polymer Standards Service. DSC measurements were performed using a PerkinElmer DSC 8500 with PerkinElmer CLN2 in the temperature range from – 100 to 150 °C at heating rates of 10 K min⁻¹ under nitrogen.

Reagents. Benzyl Glycidyl ether, epichlorohydrin (99%), sodium hydroxide as well as dimethylsulfoxide (puriss, over molecular sieve), tetrahydrofuran (puriss, over molecular sieve), and toluene (puriss, over molecular sieve) were purchased from Aldrich. Pyrogallol

was recrystallized from Benzene/EtOH. Deuterated chloroform- d_1 and DMSO- d_6 were purchased from Deutero GmbH. Carbon dioxide (99.995%) was purchased from Westfalen AG and used as received. All other solvents and reagents were purchased from Acros Organics.

2. GPC data for the copolymers

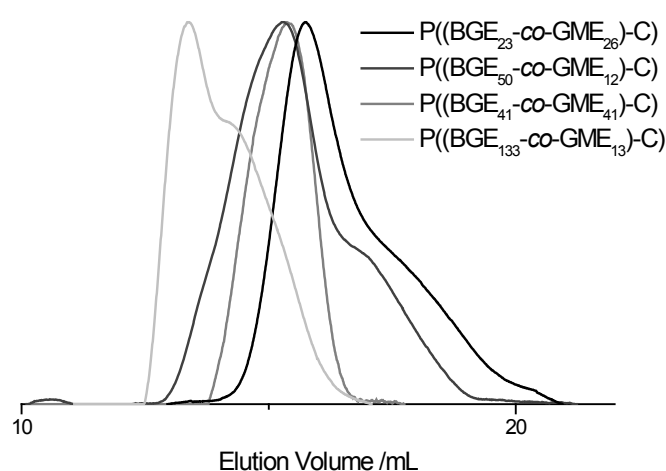


Figure S1. SEC diagrams of the synthesized P((BGE-co-GME) carbonate) copolymers

3. Representative ¹H and ¹³C of the protected and deprotected P((BGE-co-GME) C) and P((G-co-GME) C) copolymers.

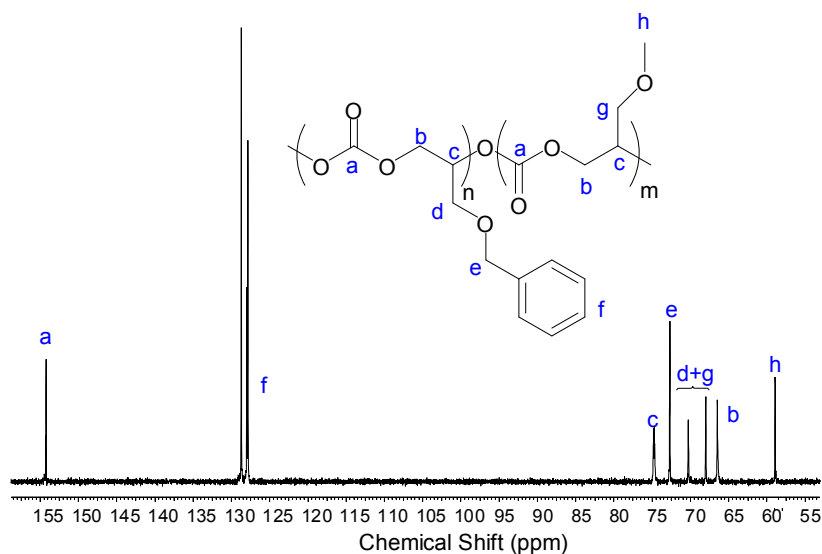


Figure S2. ¹³C NMR spectrum of the synthesized P((BGE-co-GME) carbonate) copolymer (Table 1, sample 4).

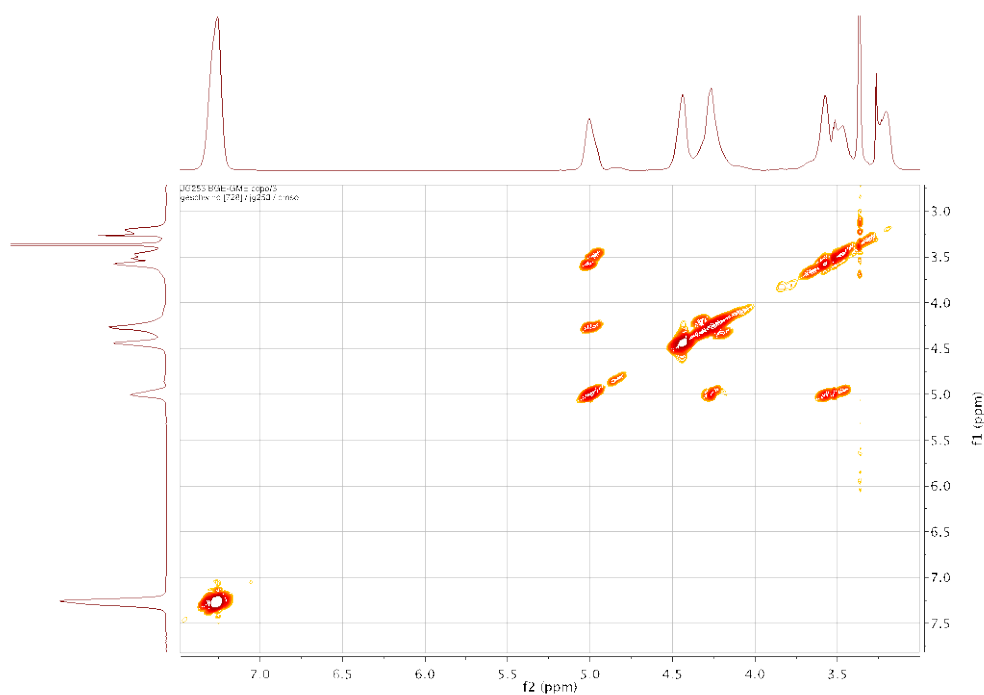


Figure S3. COSY spectrum of the synthesized P((BGE-*co*-GME) carbonate) copolymer (Table 1, sample 4)

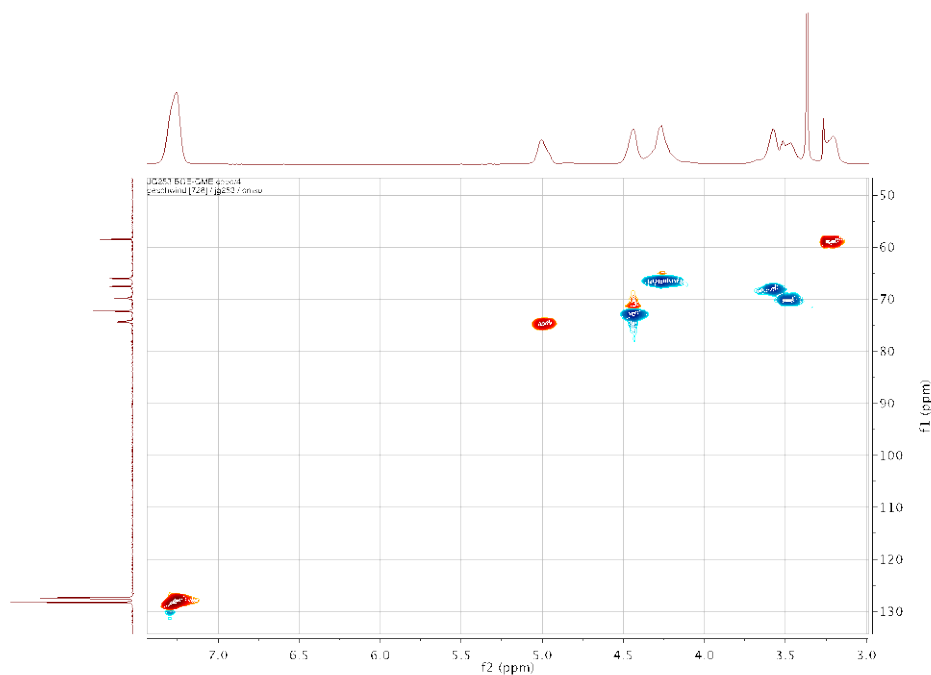


Figure S4. HSQC spectrum of the synthesized P((BGE-*co*-GME) carbonate) copolymer (Table 1, sample 4).

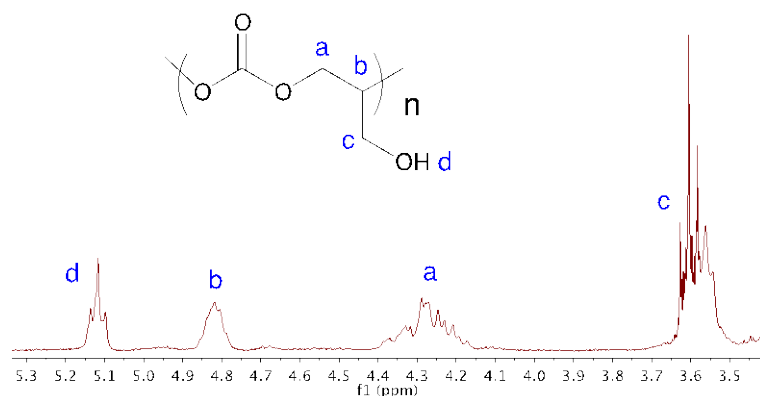


Figure S5. 1H NMR spectrum of the deprotected P((BGE-*co*-GME) carbonate) copolymer (Table 1, sample 18).

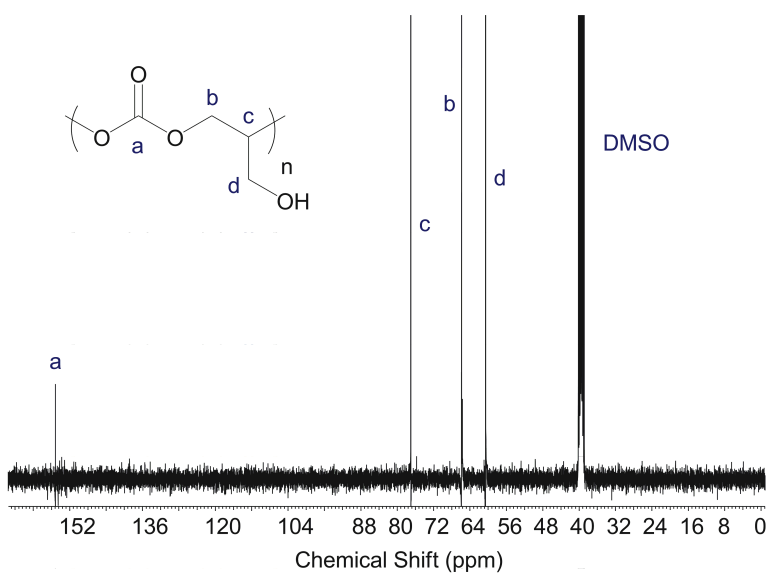


Figure S6. ^{13}C NMR spectrum for poly(1,2-glycerol carbonate).

4. IR spectra of the resulting polymers

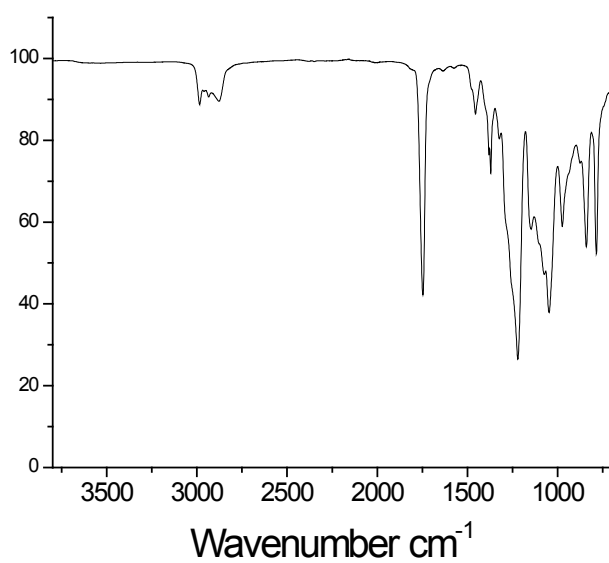


Figure S7 : IR spectrum of Poly((benzyl glycidyl ether-*co*- glycidyl methyl ether) carbonate)

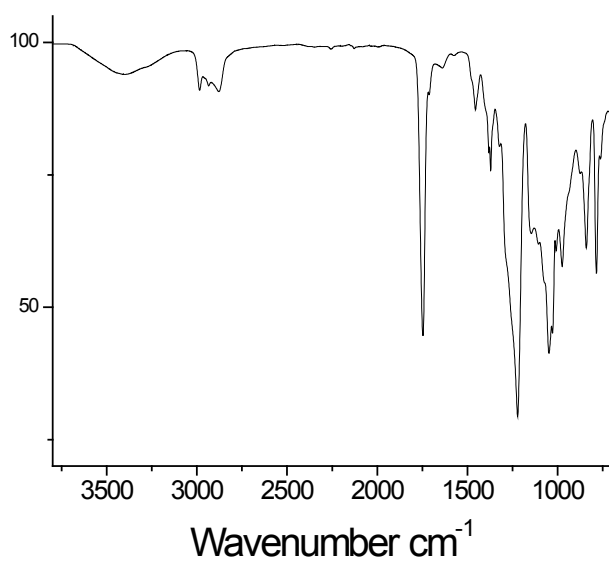


Figure S8 : IR spectrum of the deprotected Poly((benzyl glycidyl ether-*co*- glycidyl methyl ether) carbonate)

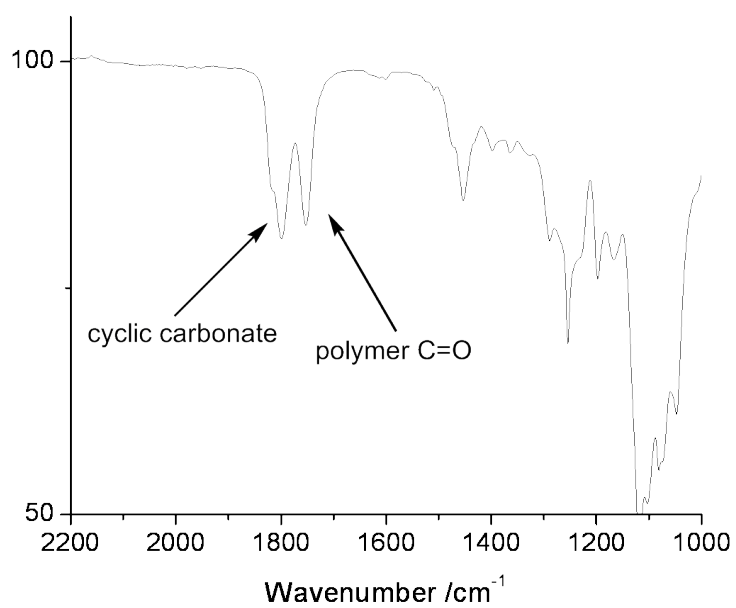


Figure S9: IR spectrum of poly(1,2-glycerol carbonate) degradation and formation of cyclic glycerol carbonate