

Supporting Information

The Structural Evolution of Poly(ethylene terephthalate) Oligomers Produced via Glycolysis
Depolymerization

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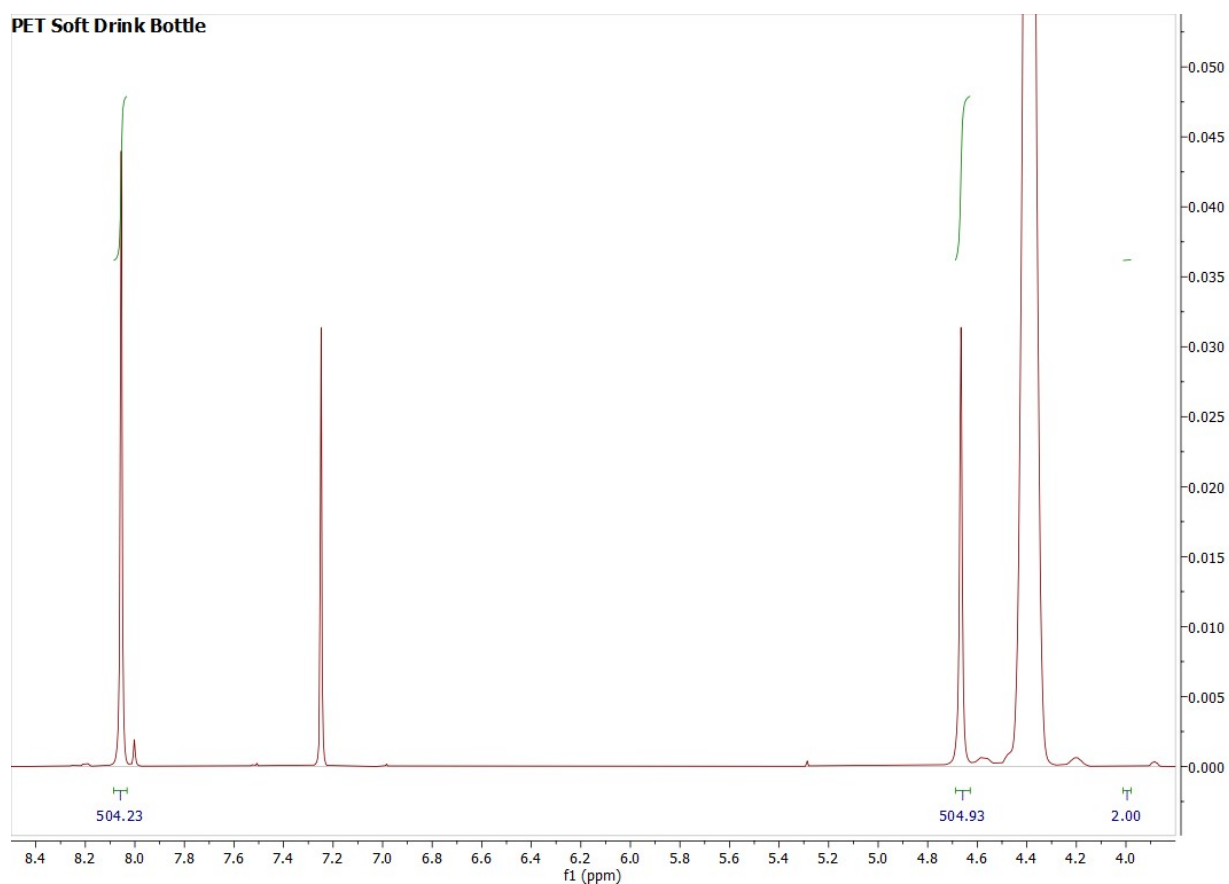


Figure S1- NMR spectra for the starting PET material.

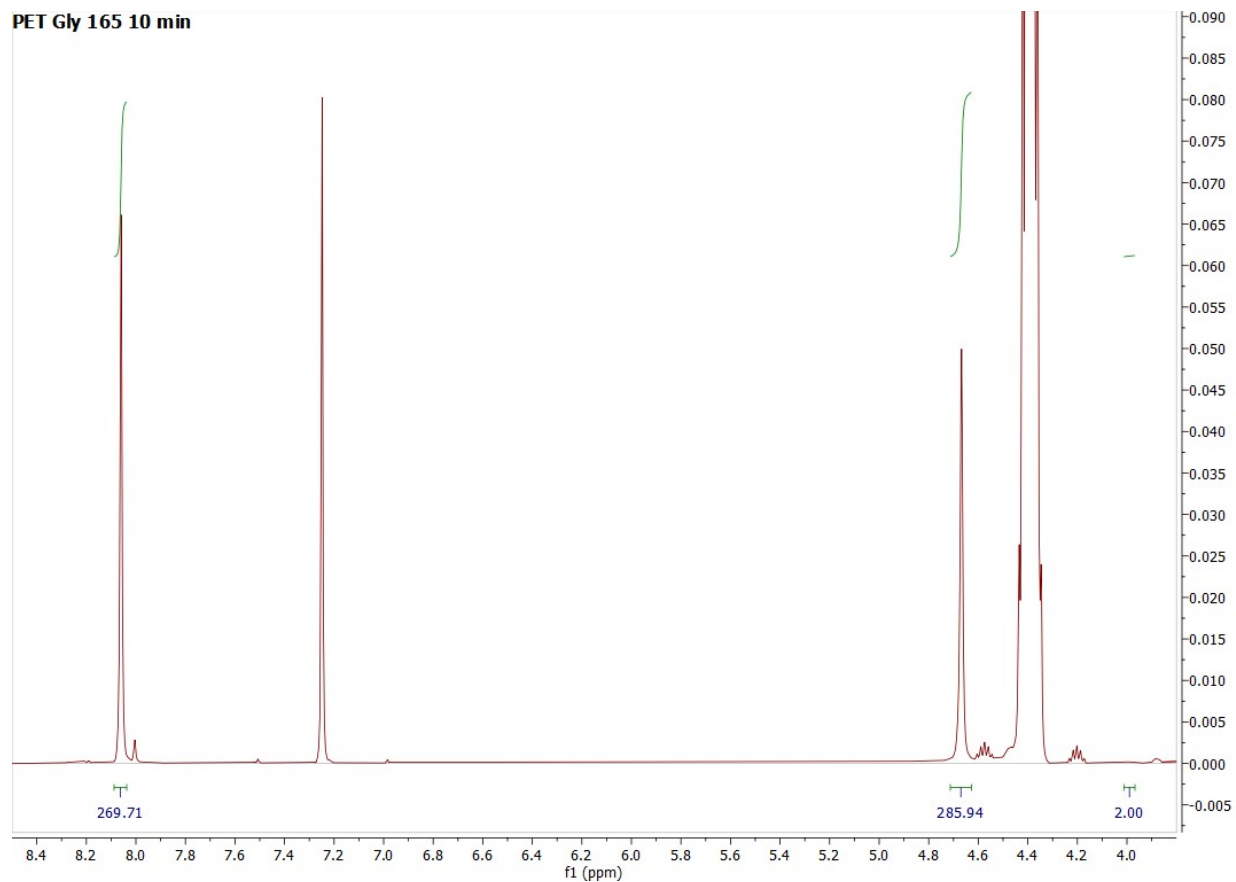


Figure S2-NMR spectra for the depolymerized PET from a 10-minute glycolysis reaction run at 165 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

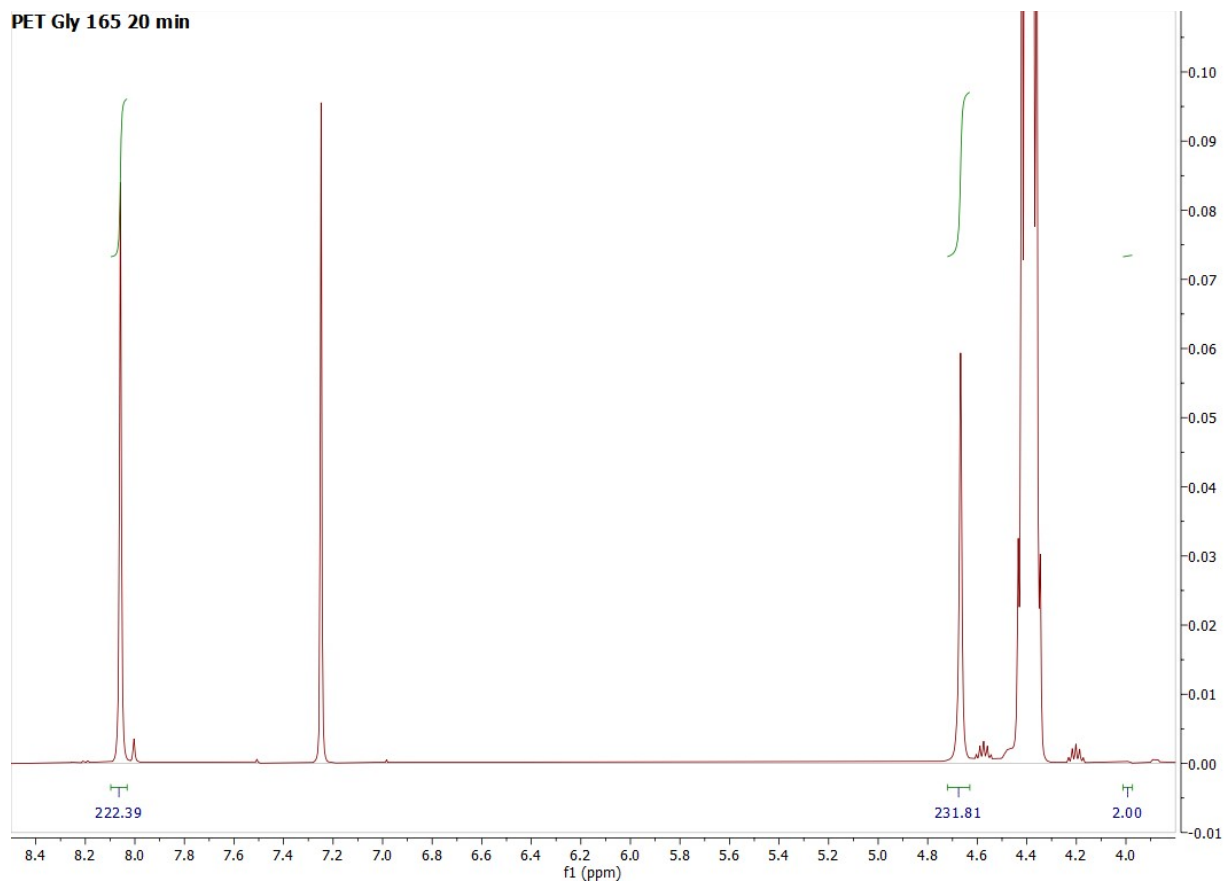


Figure S3- NMR spectra for the depolymerized PET from a 20-minute glycolysis reaction run at 165 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

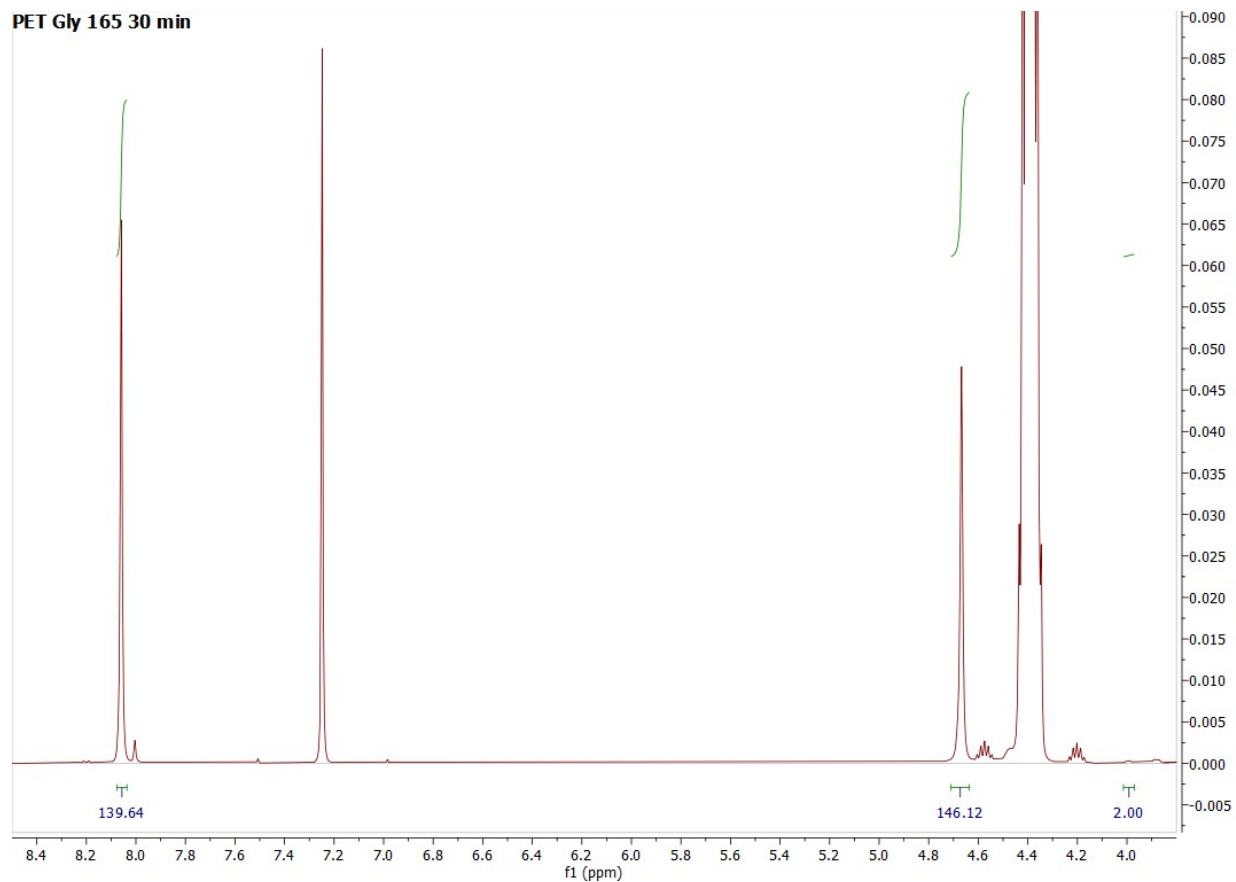


Figure S4-NMR spectra for the depolymerized PET from a 30-minute glycolysis reaction run at 165 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

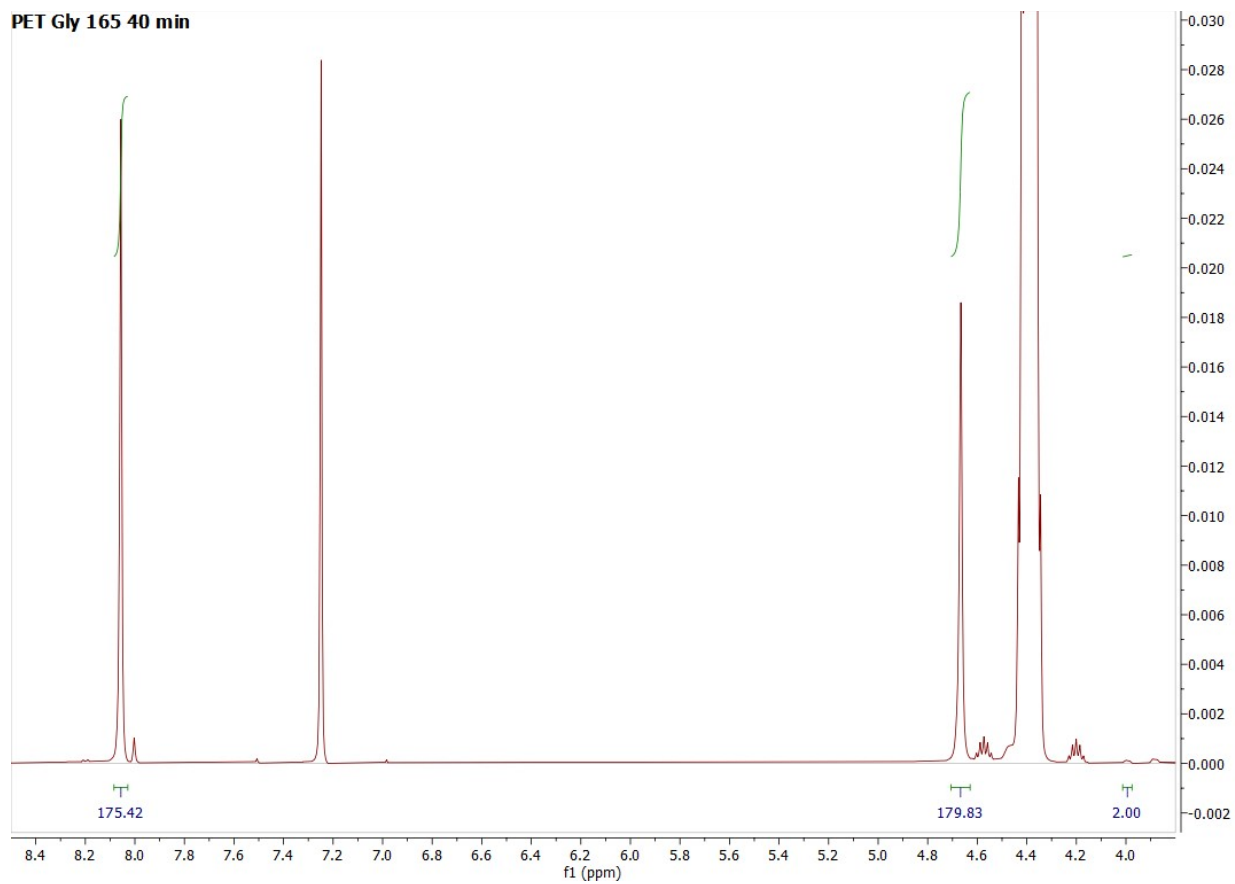


Figure S5-NMR spectra for the depolymerized PET from a 40-minute glycolysis reaction run at 165 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

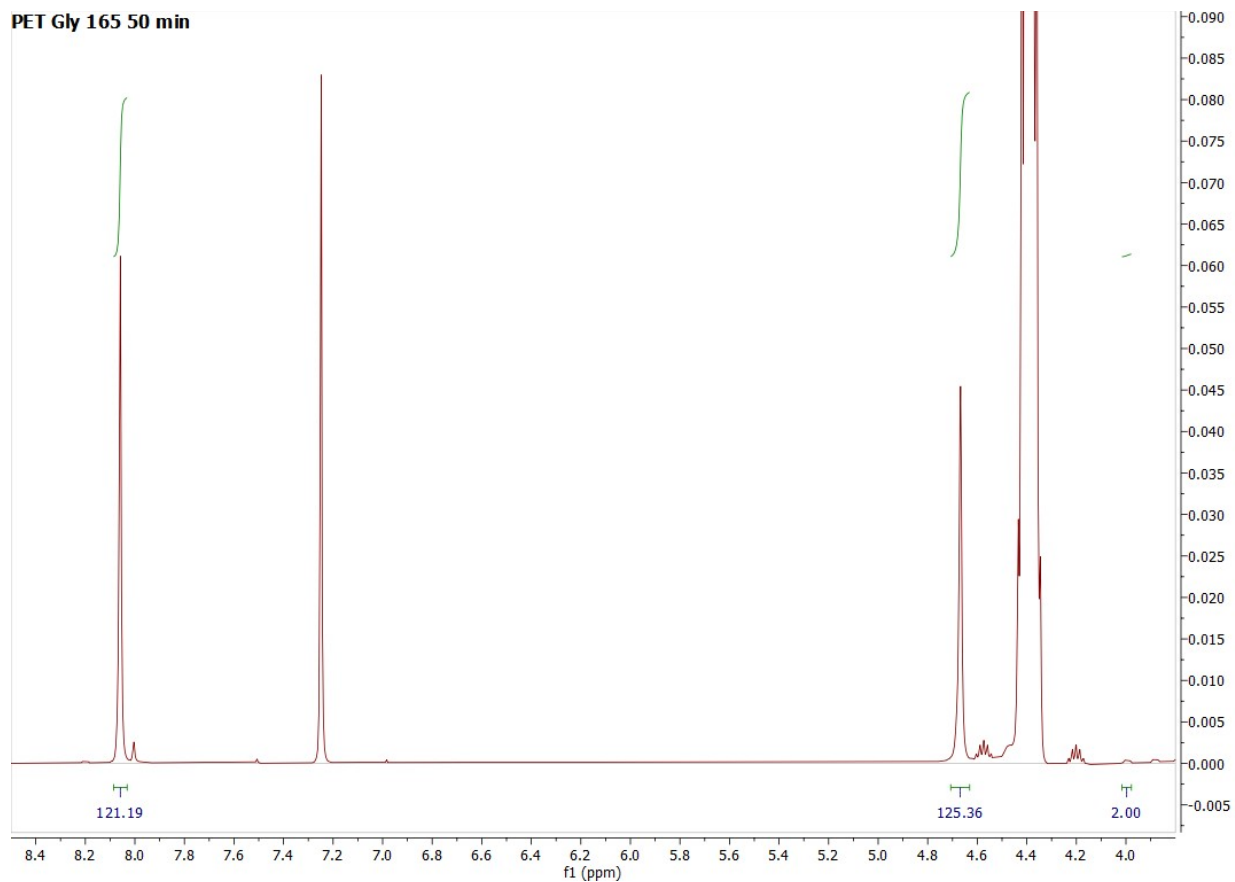


Figure S6-NMR spectra for the depolymerized PET from a 50-minute glycolysis reaction run at 165 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

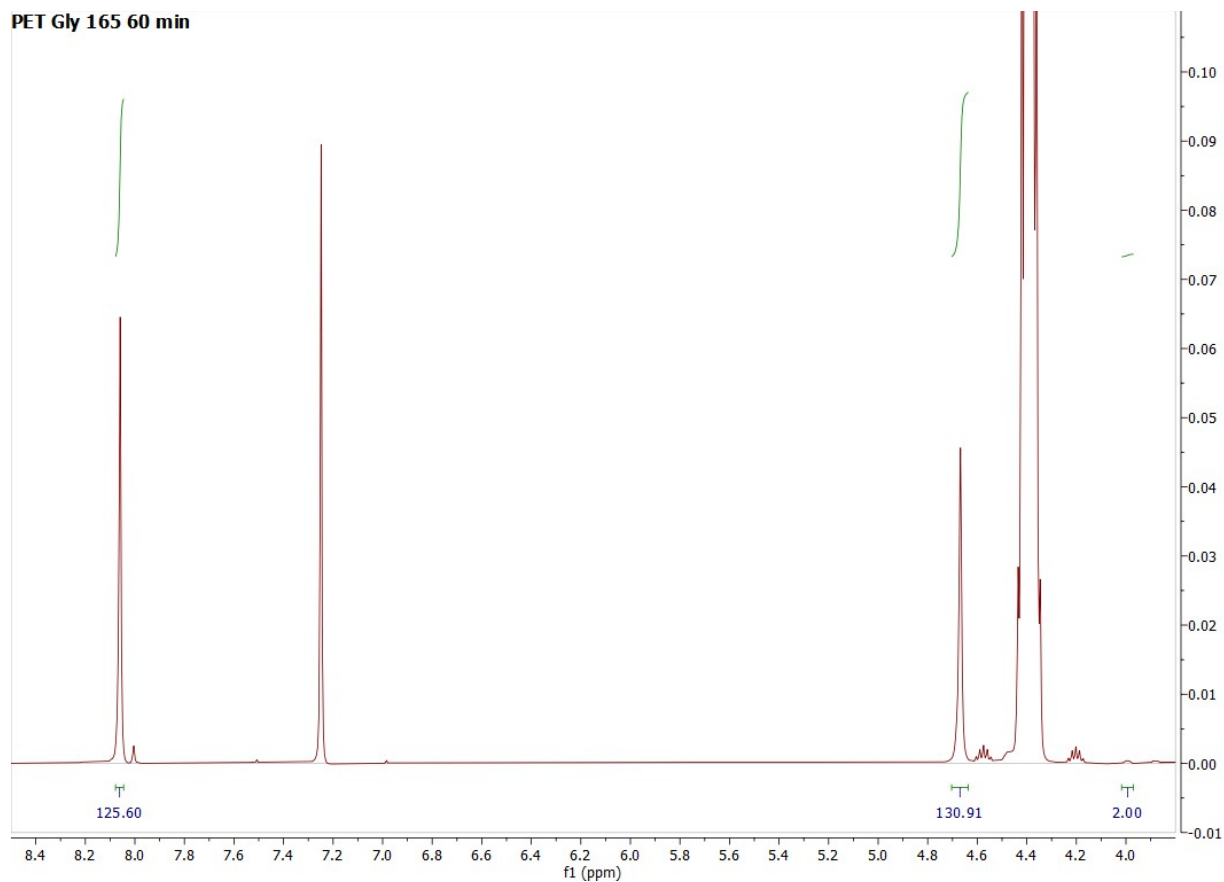


Figure S7-NMR spectra for the depolymerized PET from a 60-minute glycolysis reaction run at 165 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

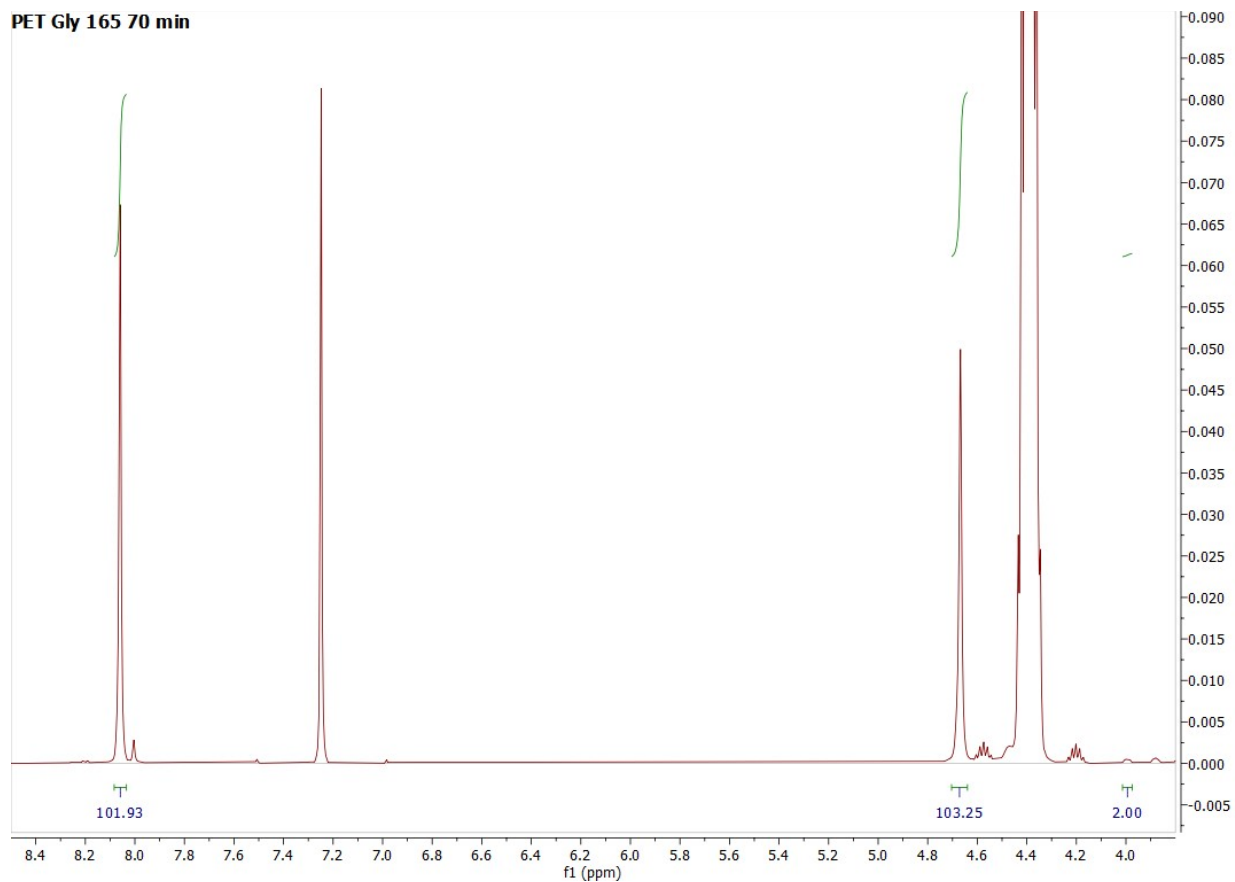


Figure S8-NMR spectra for the depolymerized PET from a 70-minute glycolysis reaction run at 165 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

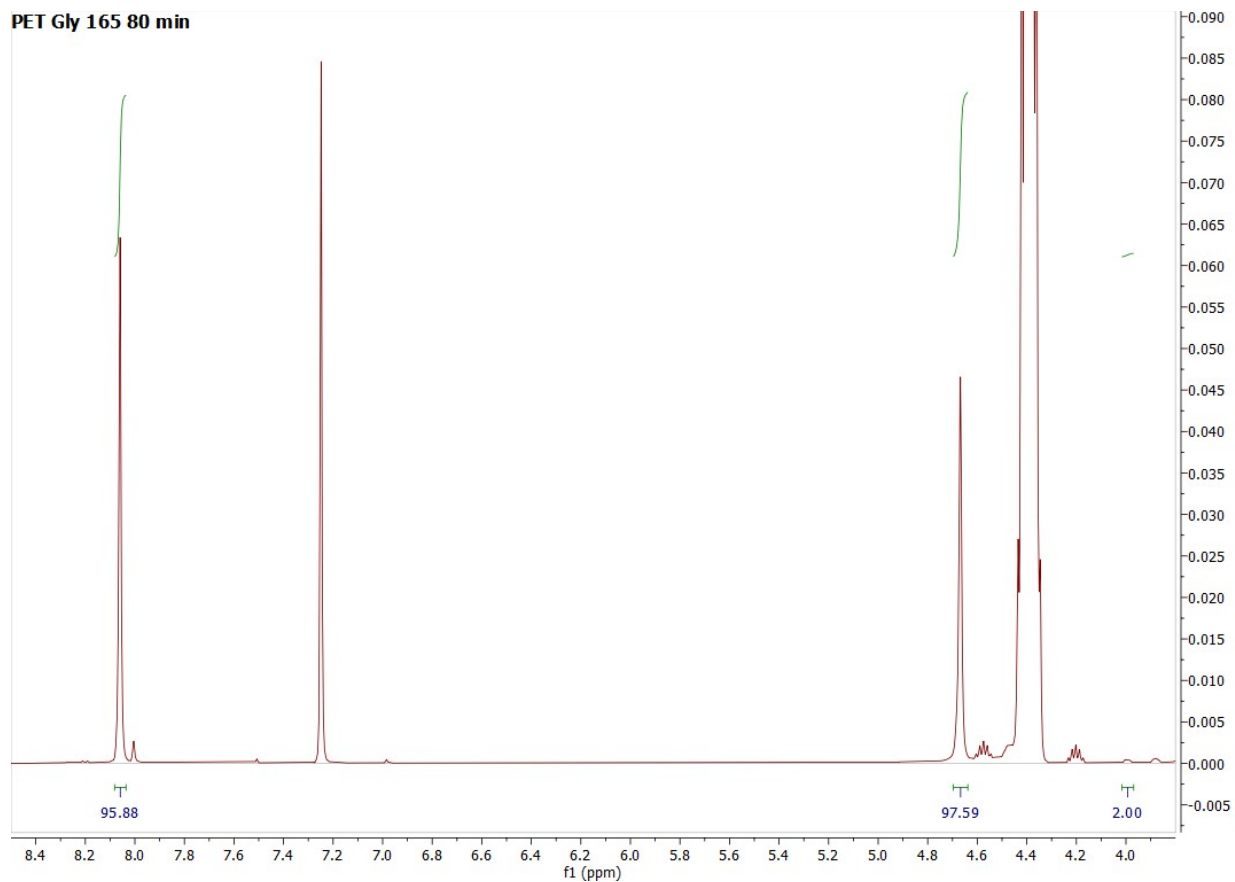


Figure S9-NMR spectra for the depolymerized PET from an 80-minute glycolysis reaction run at 165 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

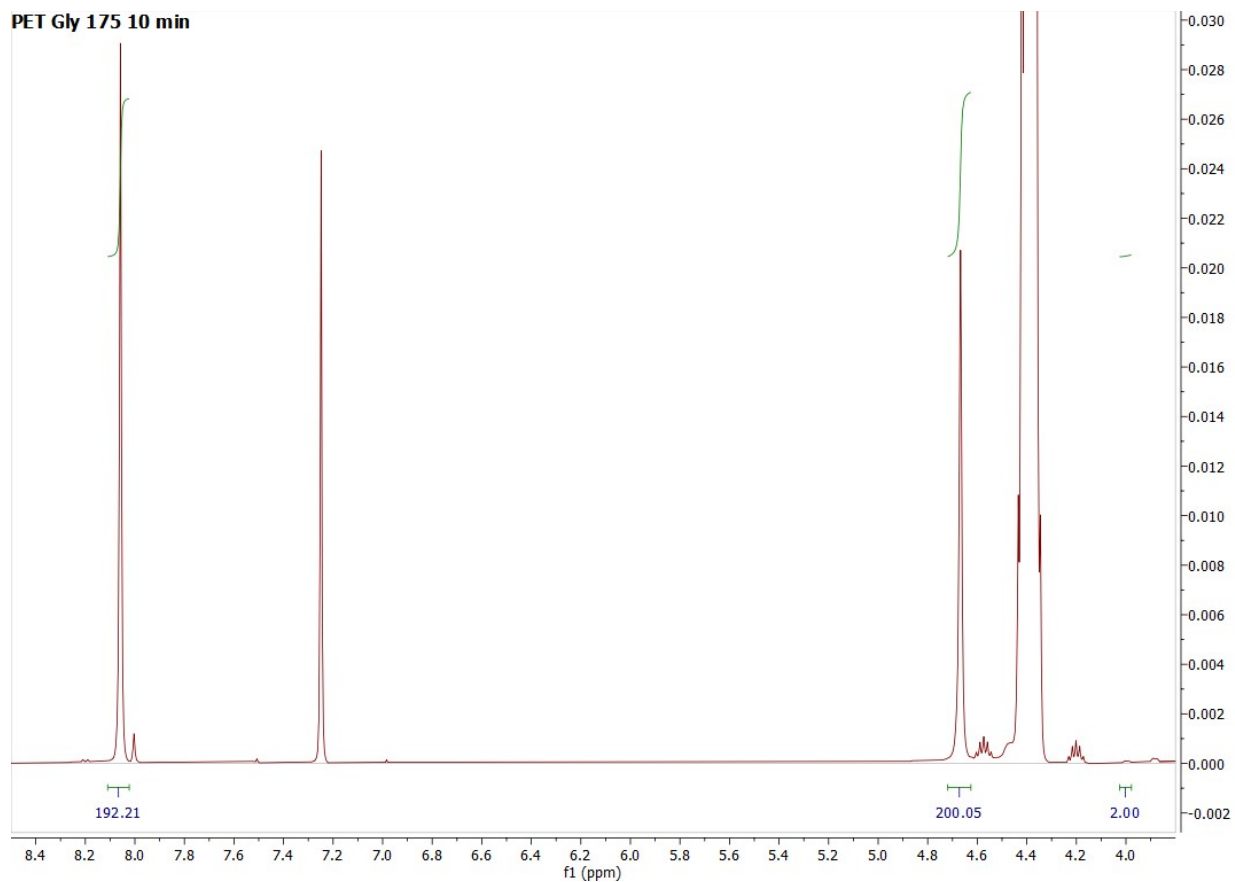


Figure S10-NMR spectra for the depolymerized PET from a 10-minute glycolysis reaction run at 175 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

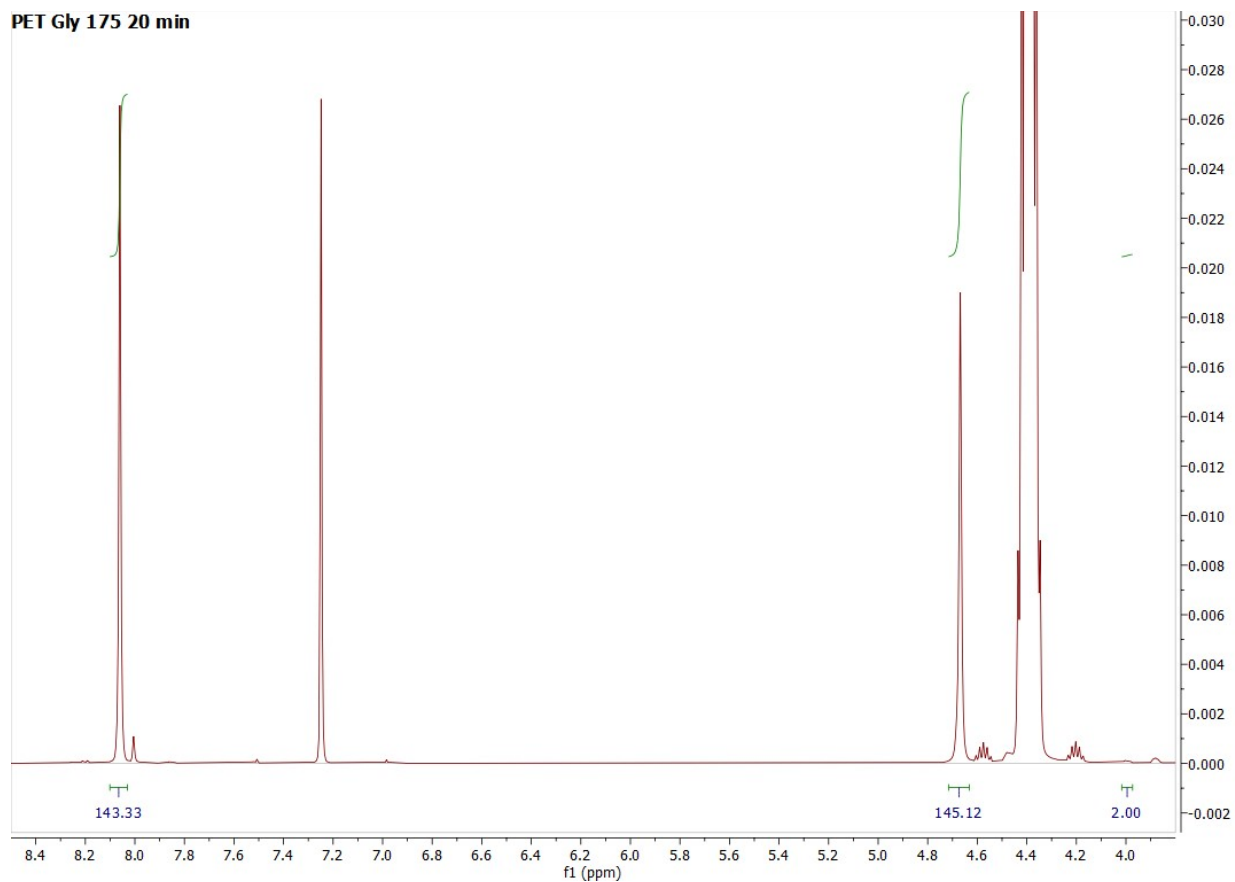


Figure S11-NMR spectra for the depolymerized PET from a 20-minute glycolysis reaction run at 175 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

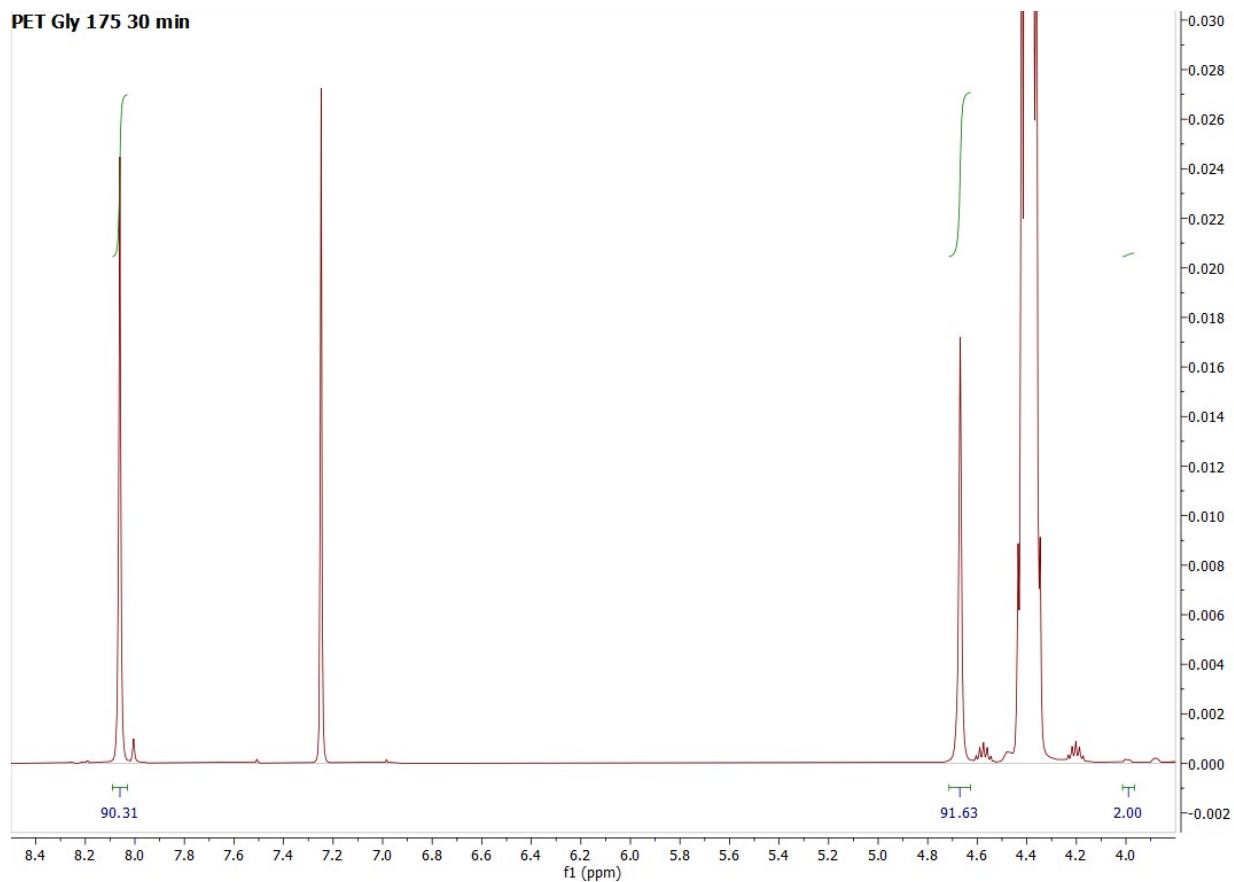


Figure S12-NMR spectra for the depolymerized PET from a 30-minute glycolysis reaction run at 175 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

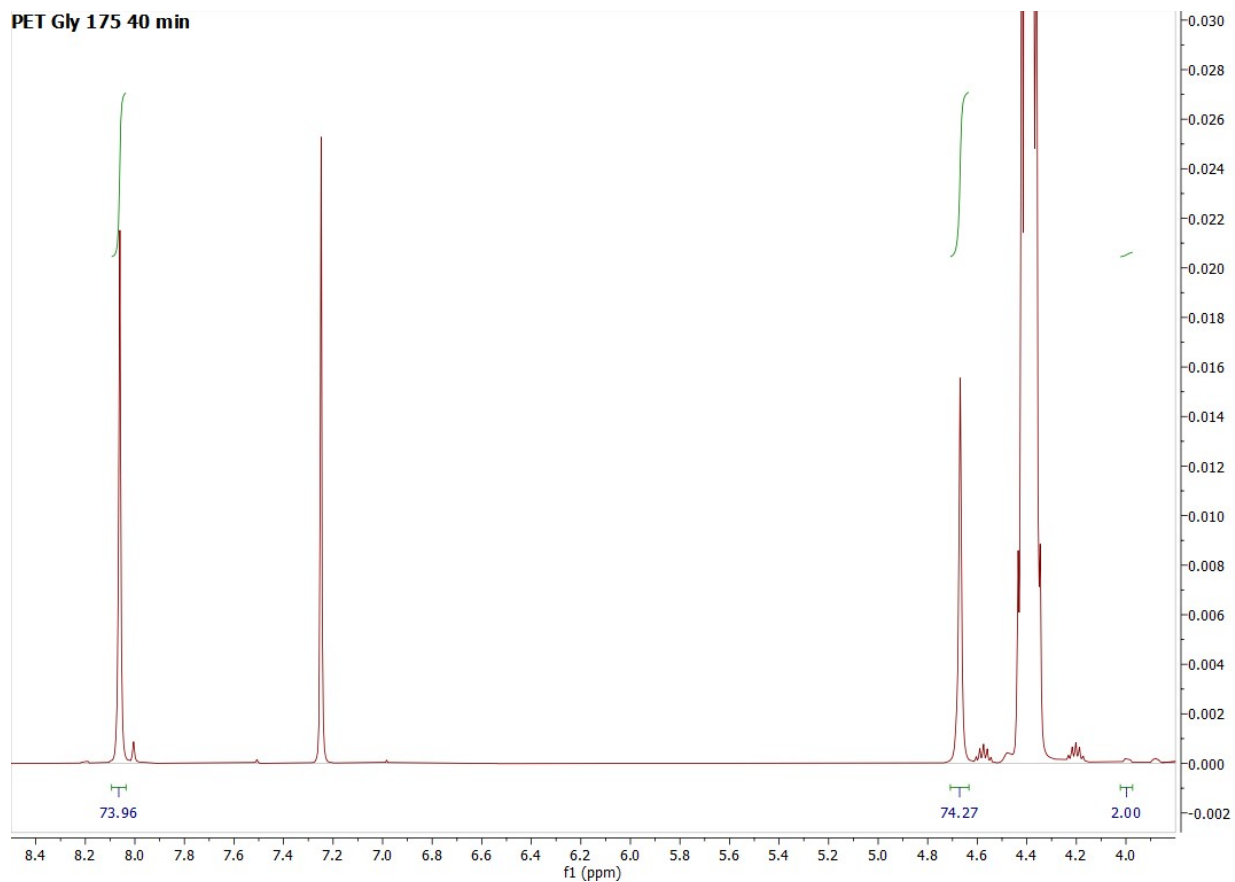


Figure S13-NMR spectra for the depolymerized PET from a 40-minute glycolysis reaction run at 175 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

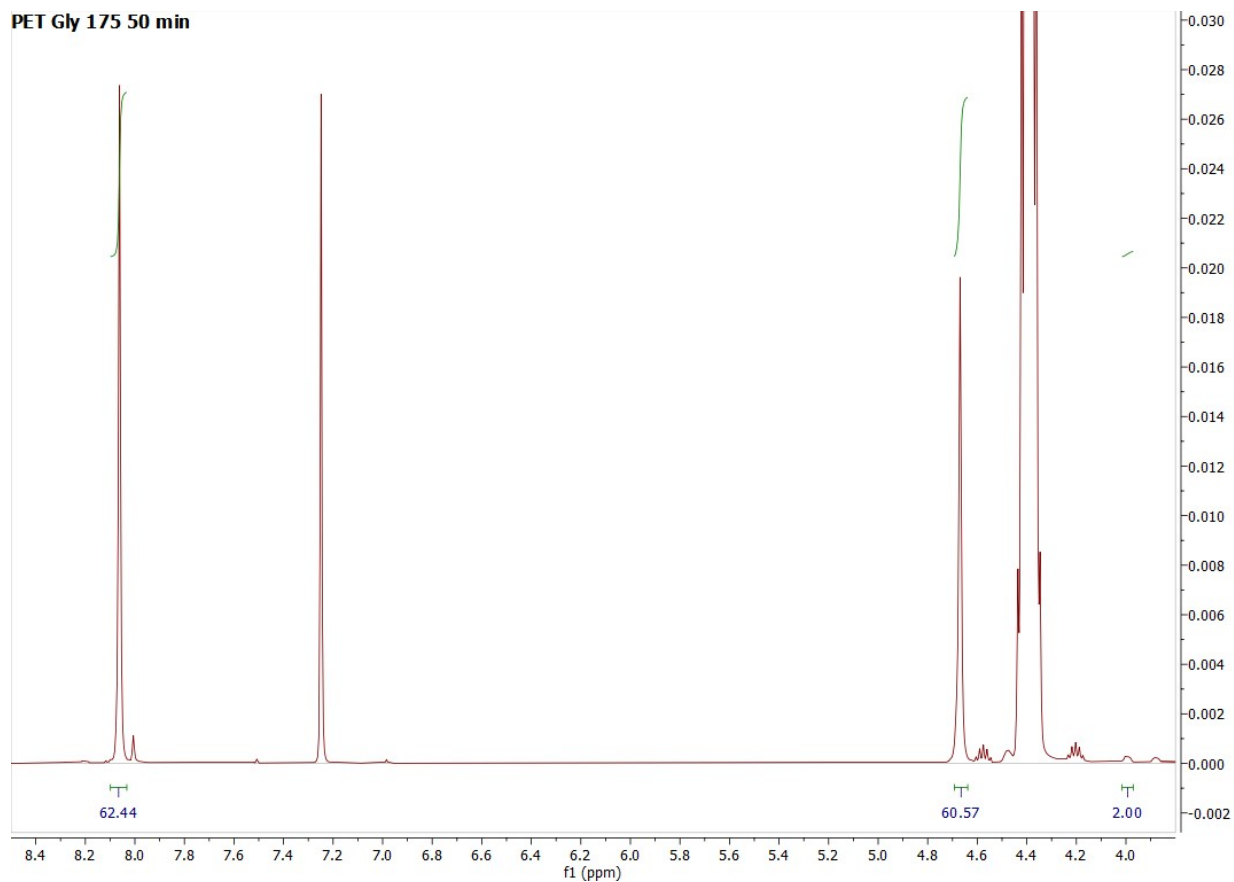


Figure S14-NMR spectra for the depolymerized PET from a 50-minute glycolysis reaction run at 175 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

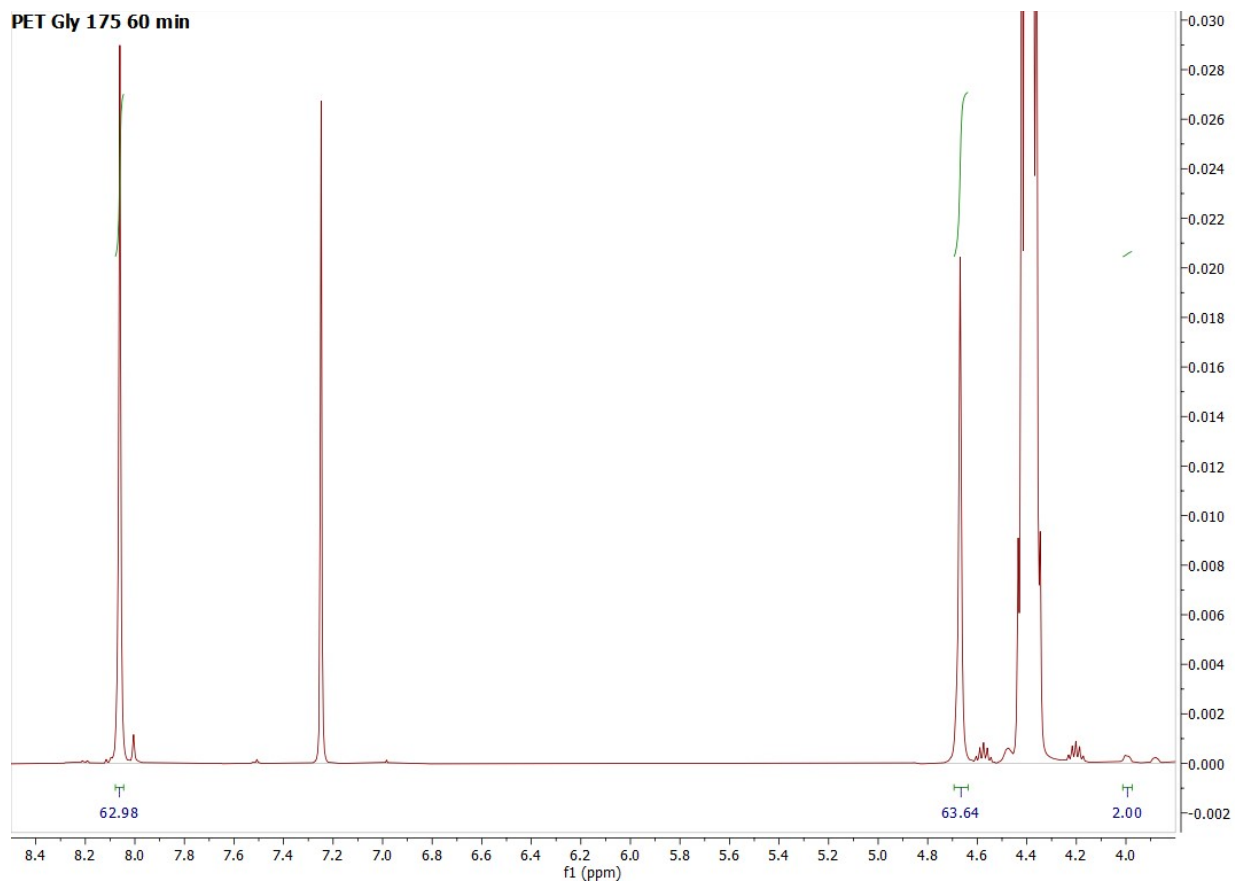


Figure S15-NMR spectra for the depolymerized PET from a 60-minute glycolysis reaction run at 175 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

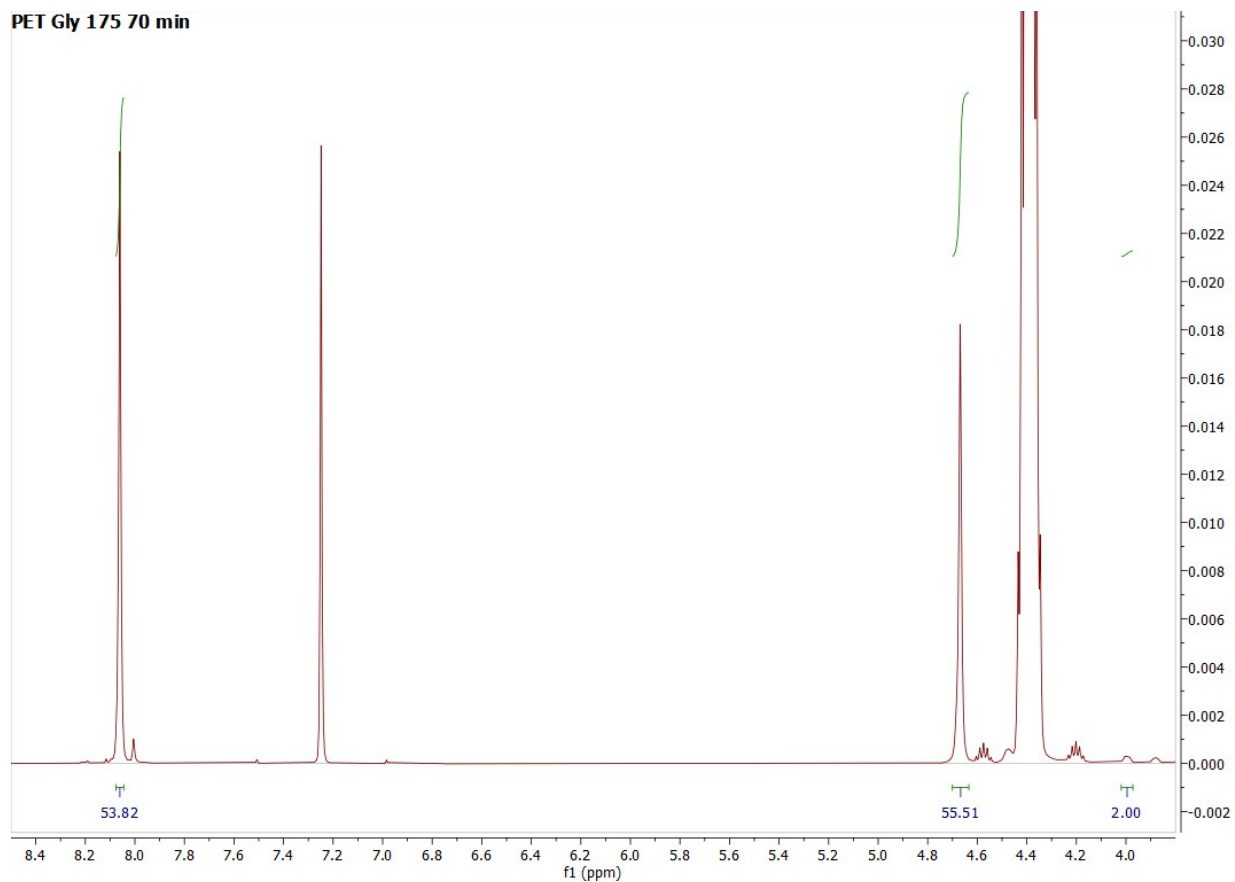


Figure S16-NMR spectra for the depolymerized PET from a 70-minute glycolysis reaction run at 175 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

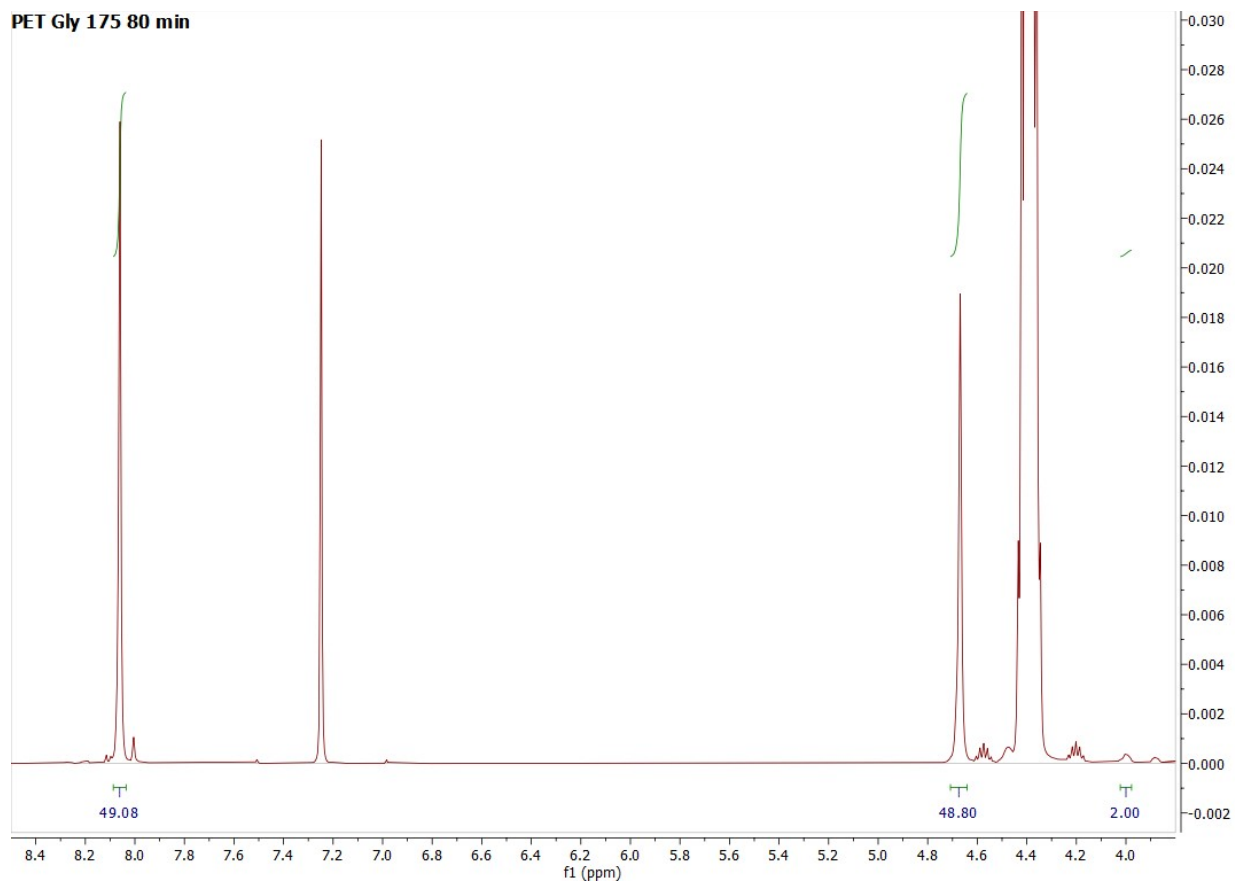


Figure S17-NMR spectra for the depolymerized PET from an 80-minute glycolysis reaction run at 175 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

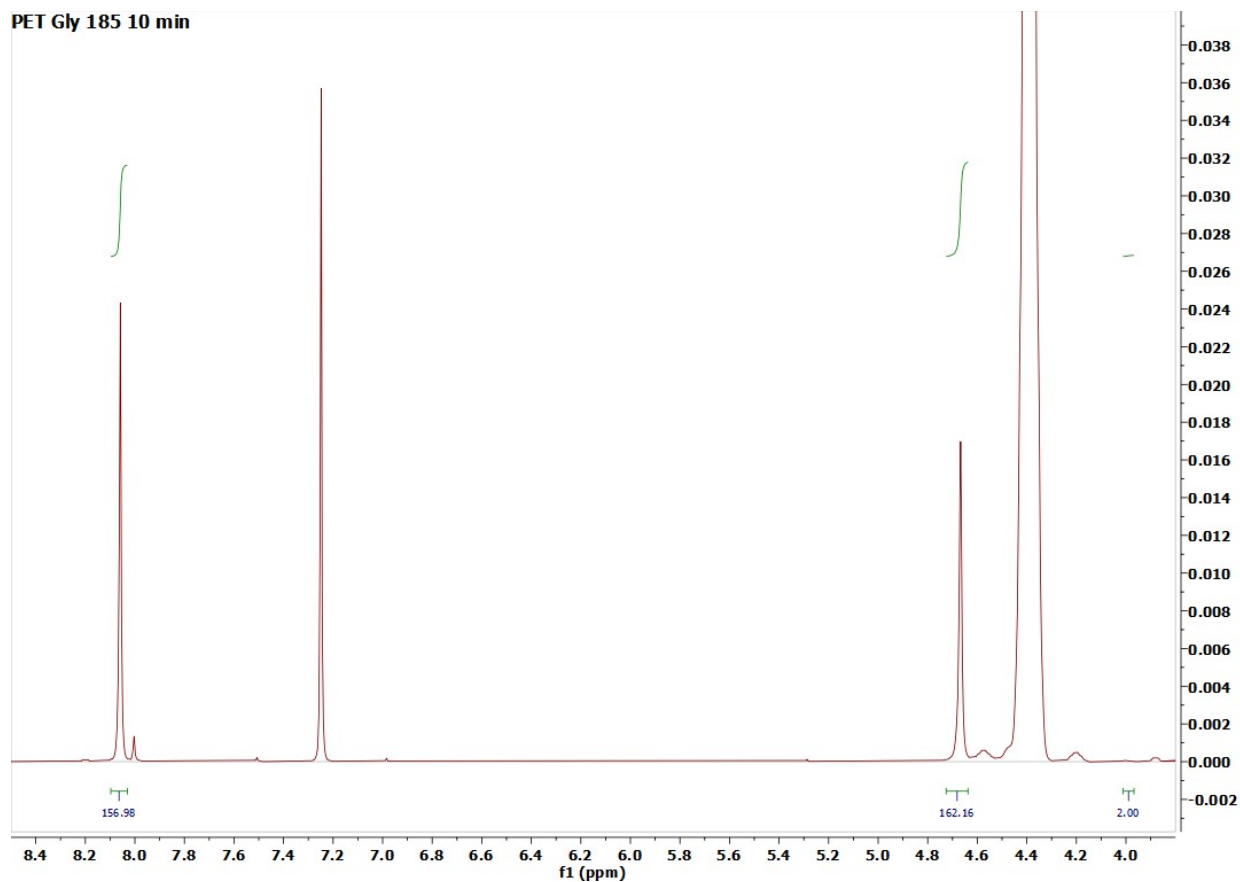


Figure S18-NMR spectra for the depolymerized PET from a 10-minute glycolysis reaction run at 185 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

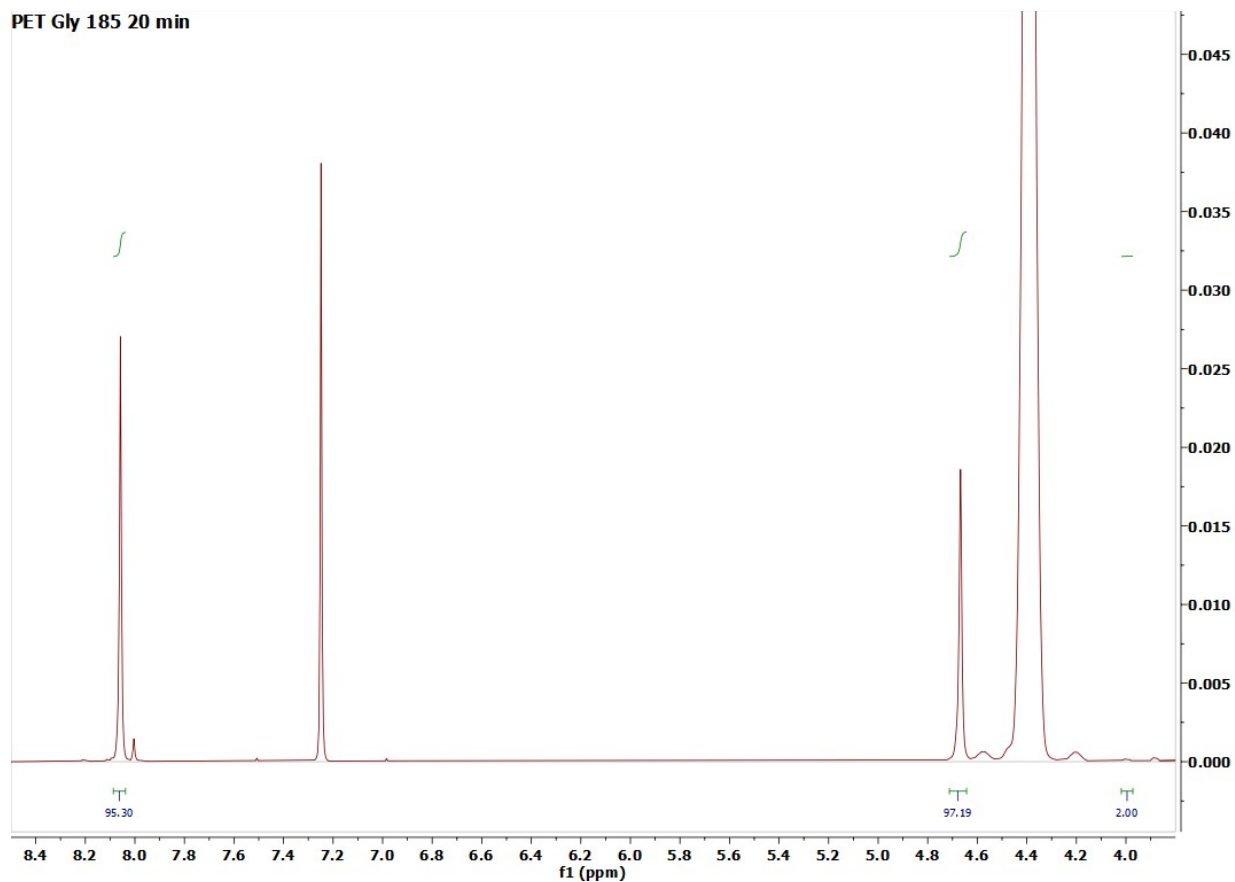


Figure S19-NMR spectra for the depolymerized PET from a 20-minute glycolysis reaction run at 185 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

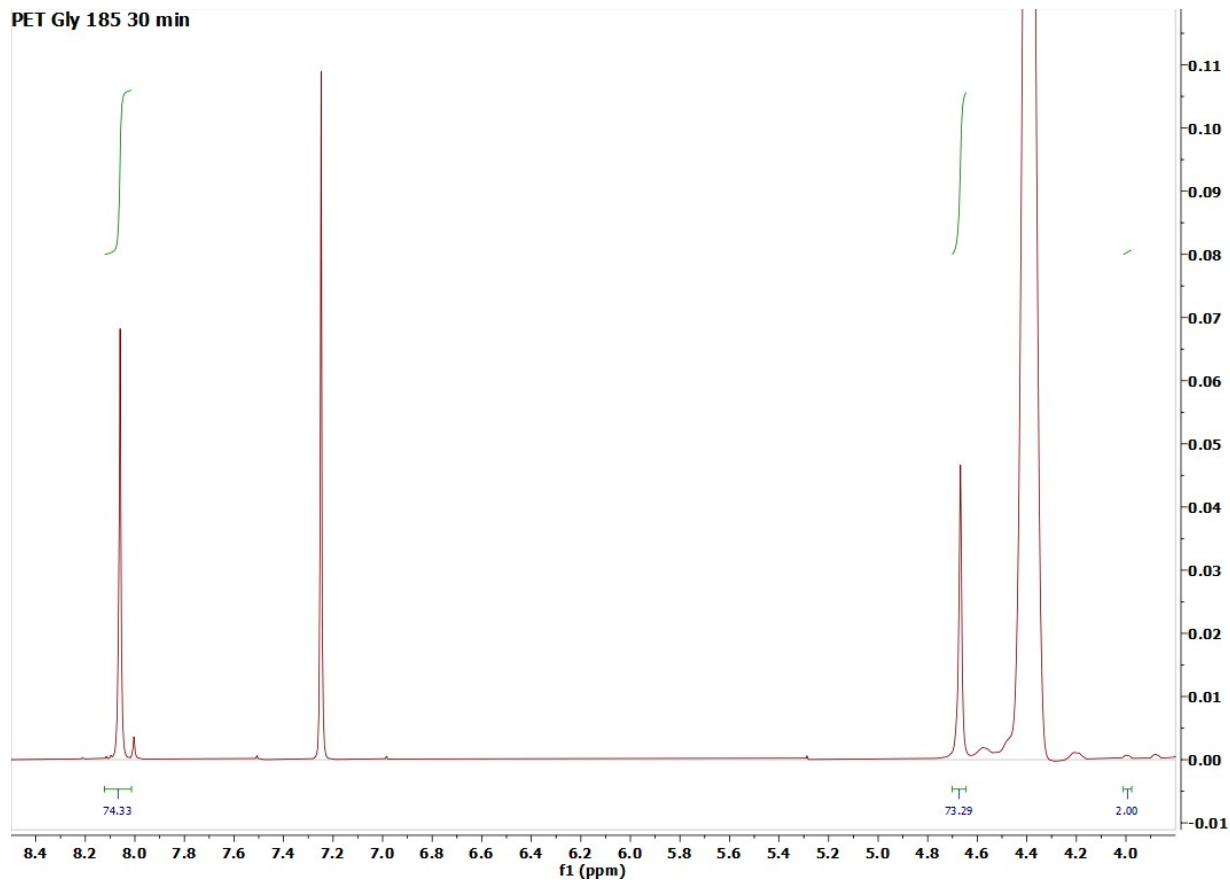


Figure S20-NMR spectra for the depolymerized PET from a 30-minute glycolysis reaction run at 185 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

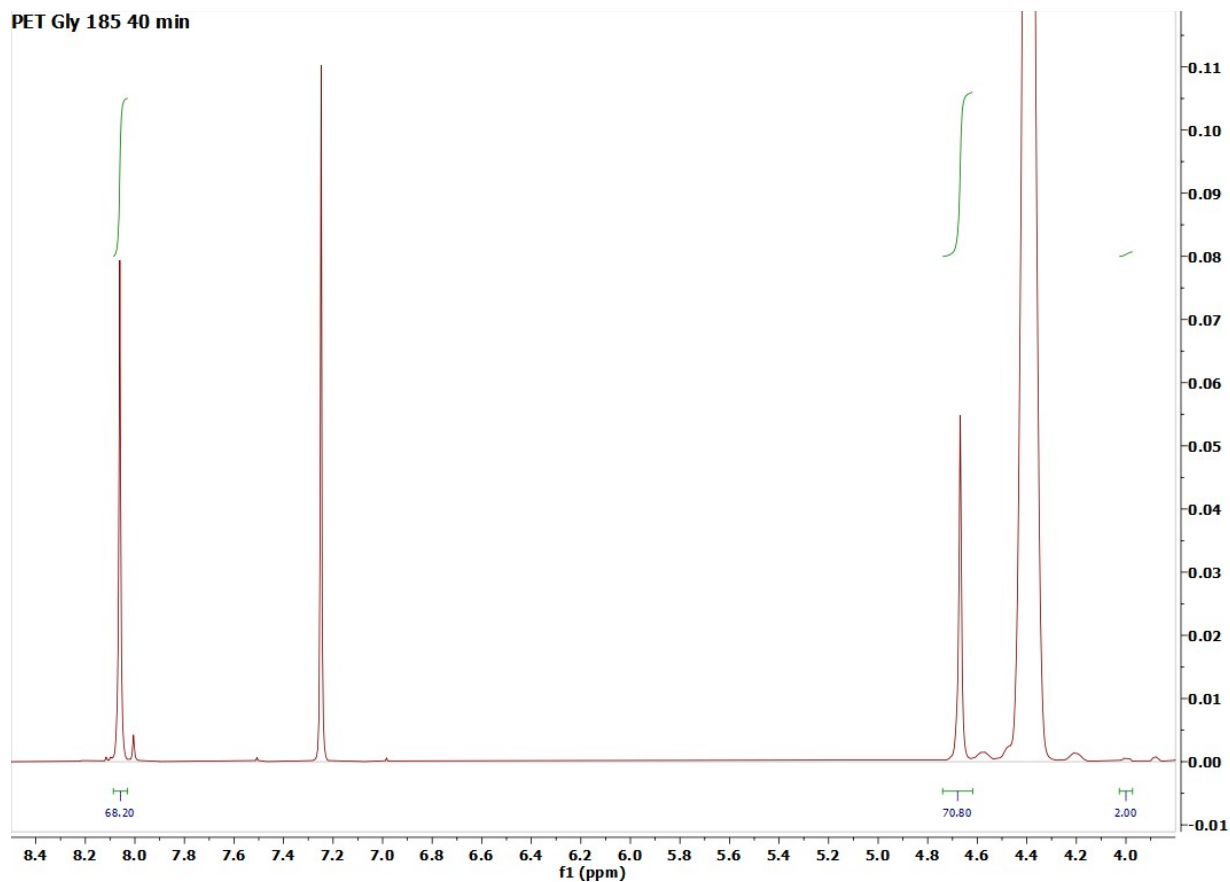


Figure S21-NMR spectra for the depolymerized PET from a 40-minute glycolysis reaction run at 185 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

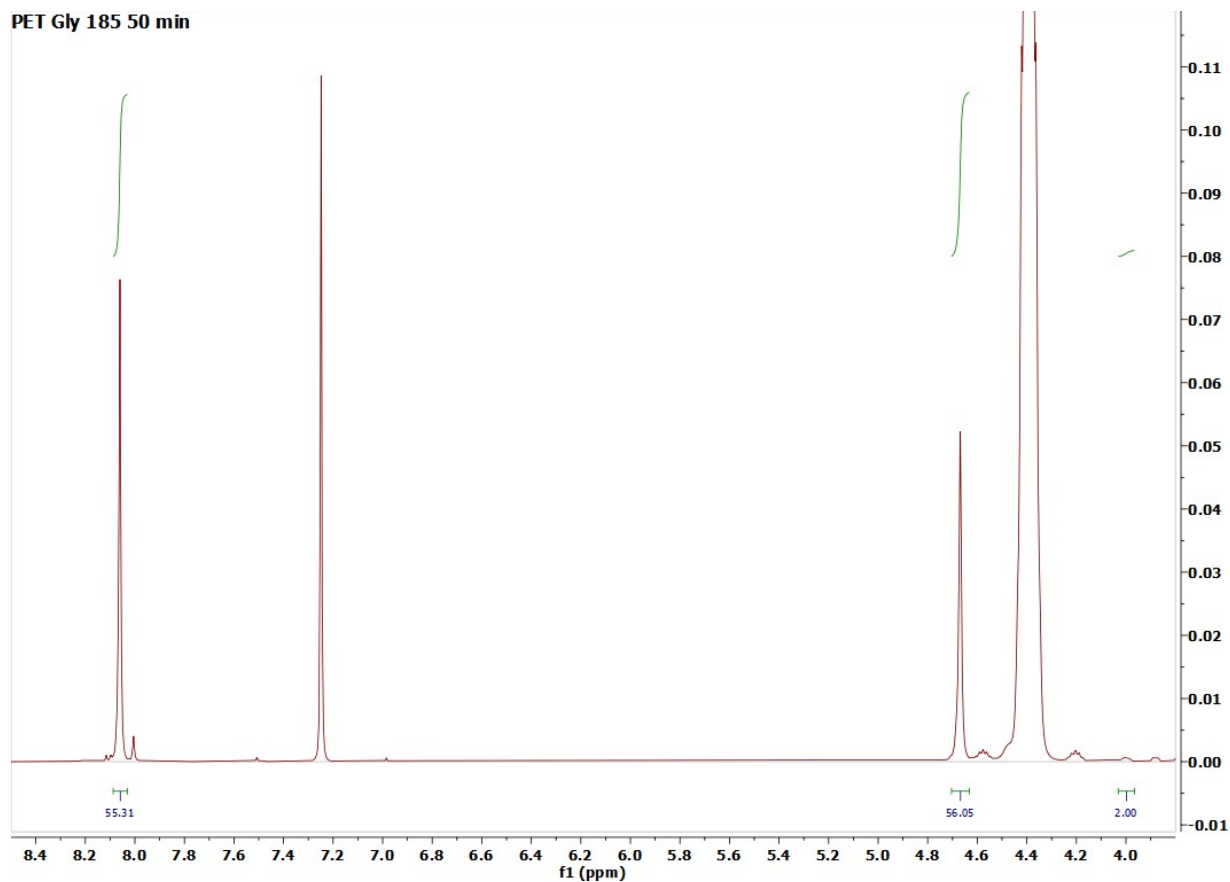


Figure S22-NMR spectra for the depolymerized PET from a 50-minute glycolysis reaction run at 185 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

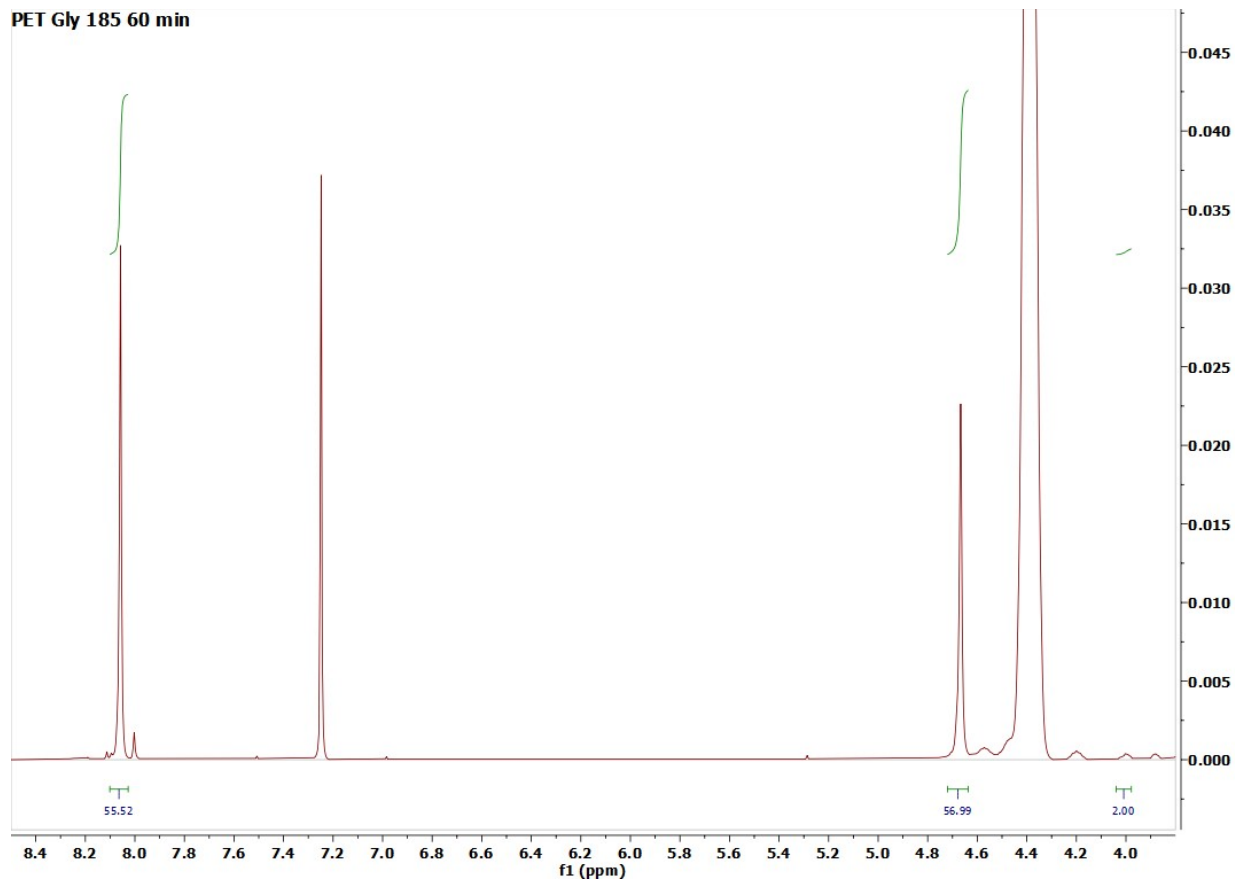


Figure S23-NMR spectra for the depolymerized PET from a 60-minute glycolysis reaction run at 185 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

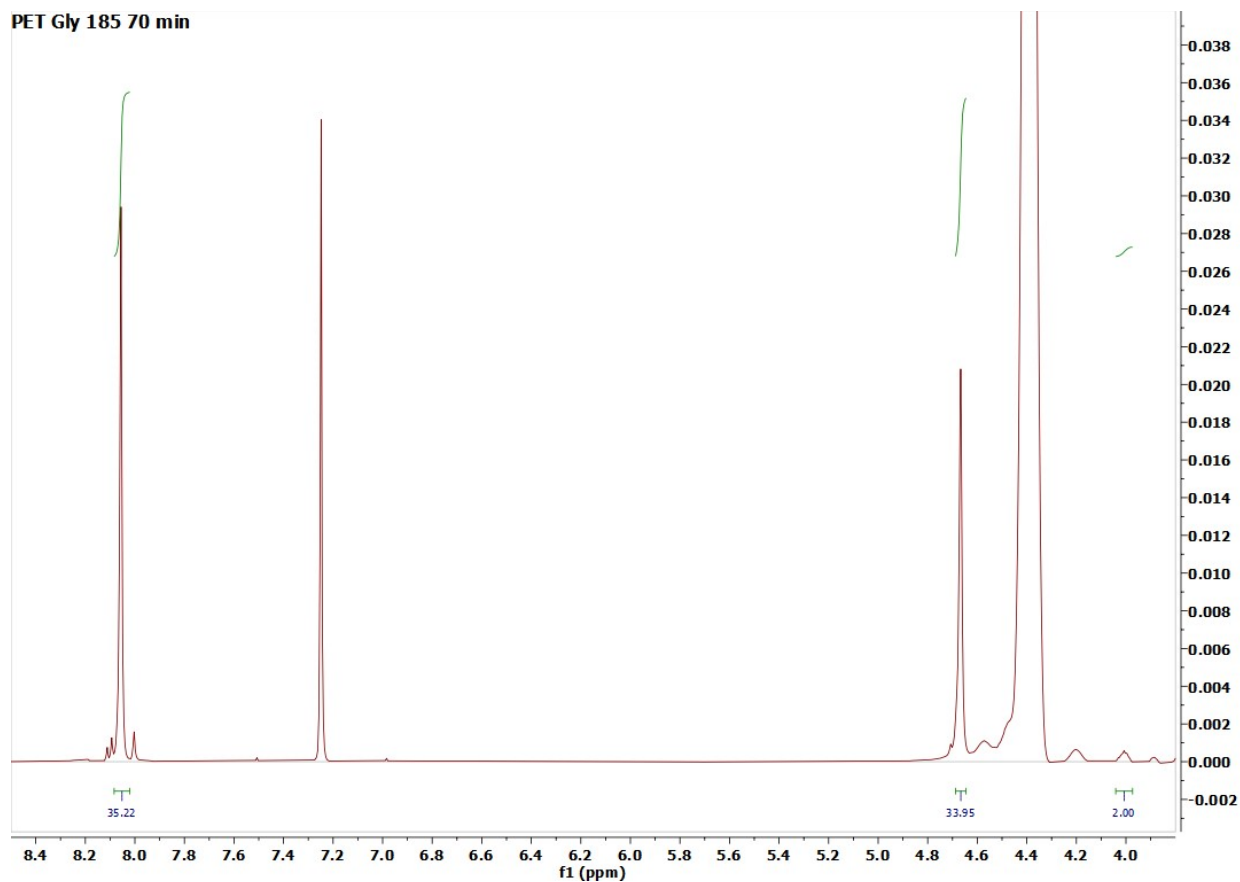


Figure S24-NMR spectra for the depolymerized PET from a 70-minute glycolysis reaction run at 185 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

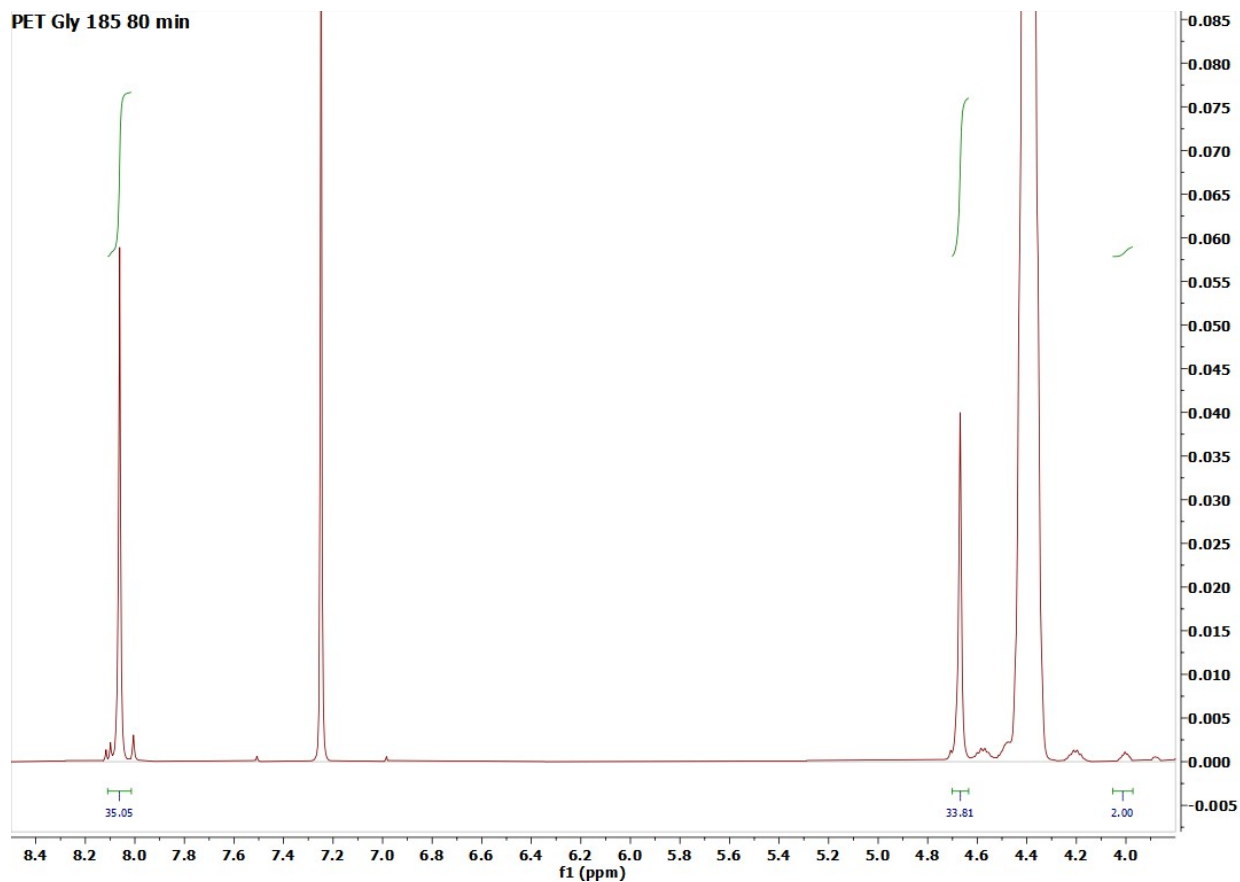


Figure S25-NMR spectra for the depolymerized PET from an 80-minute glycolysis reaction run at 185 °C, PET:Zn(Ac)₂ mole ratio of 100:1.

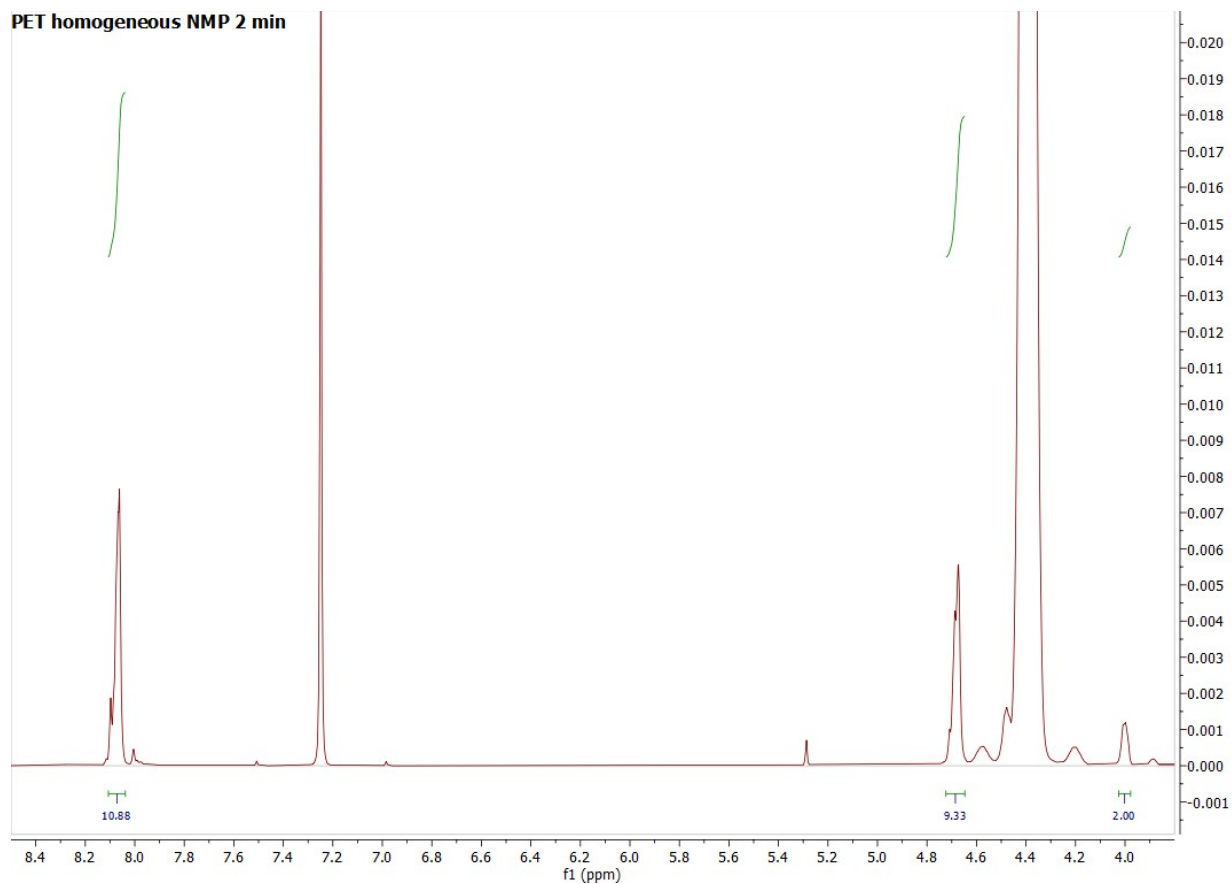


Figure S26- NMR spectra for the depolymerized PET from a 2-minute homogenous glycolysis reaction in N-methyl-2-pyrrolidone.

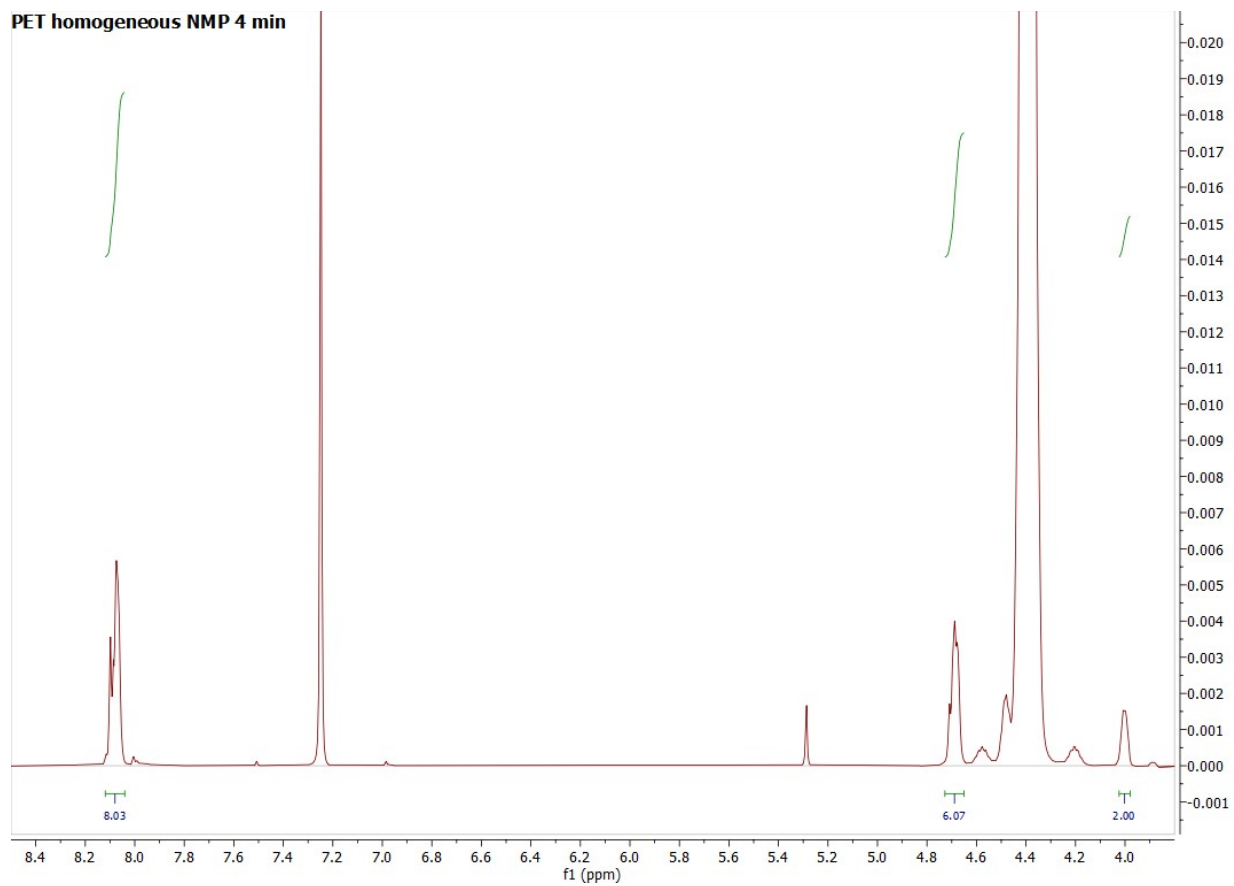


Figure S27-NMR spectra for the depolymerized PET from a 4-minute homogenous glycolysis reaction in N-methyl-2-pyrrolidone.

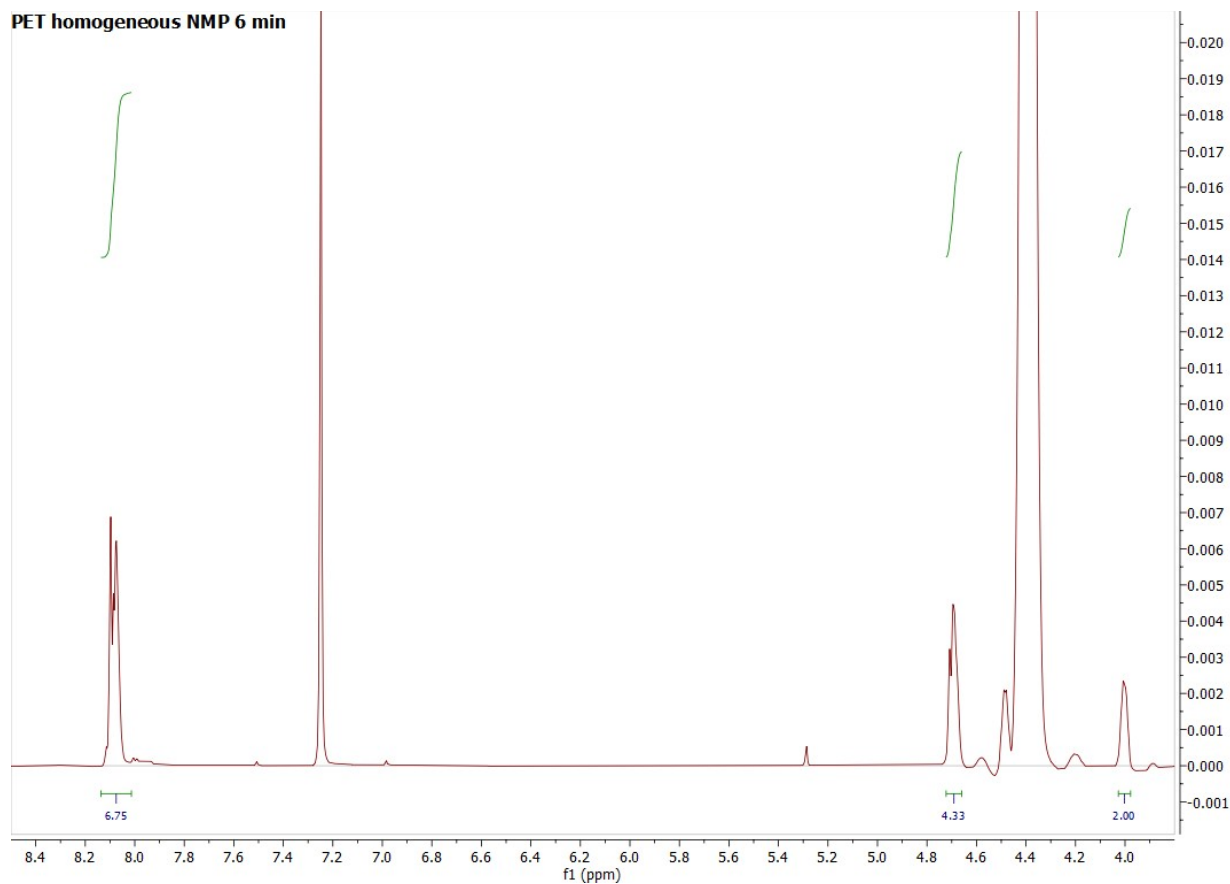


Figure S28-NMR spectra for the depolymerized PET from a 6-minute homogenous glycolysis reaction in N-methyl-2-pyrrolidone.

2.3.3 Calibration Standard Chromatograms

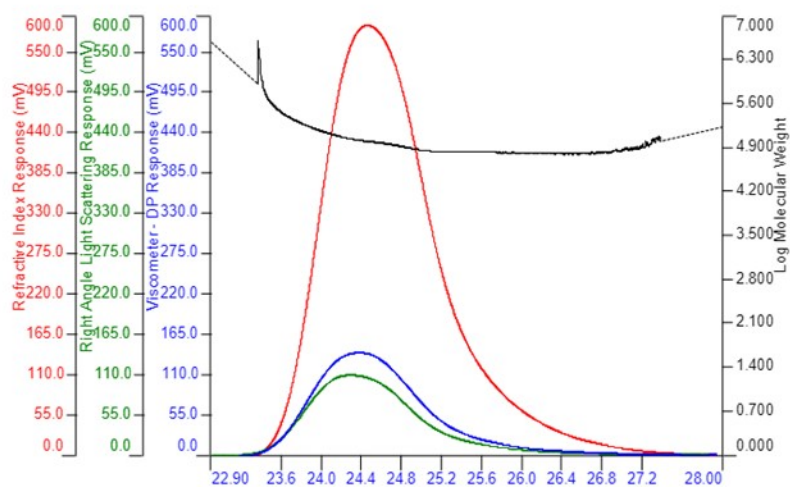


Table 3.1 GPC results of samples analyzed

ID	Injec.	dn/dc ^a (mL/g)	V _D (mL)	M _n (Da)	M _w (Da)	M _z (Da)	M _p (Da)	M _w /M _n (PDI)	[η] (dl/g)	R _n (nm)	M-H α	M-H Log K	Rec. (%)
Polyethylene terephthalate	1	0.240	24.92	29,039	55,201	92,720	51,582	1.90	0.84	8.57	0.75	-3.59	98.9

^a dn/dc value of 0.240 mL/g for PET in HFIP.

Figure S29- Data for PET starting materials from soft drink bottle analyzed via size exclusion chromatography analysis by PolyAnalytik.