

Highly Crosslinked Polyesters Prepared by Ring-Opening Copolymerization of Epoxidized Baru Nut and Macaw Palm Oils with Cyclic Anhydrides

Supporting Information

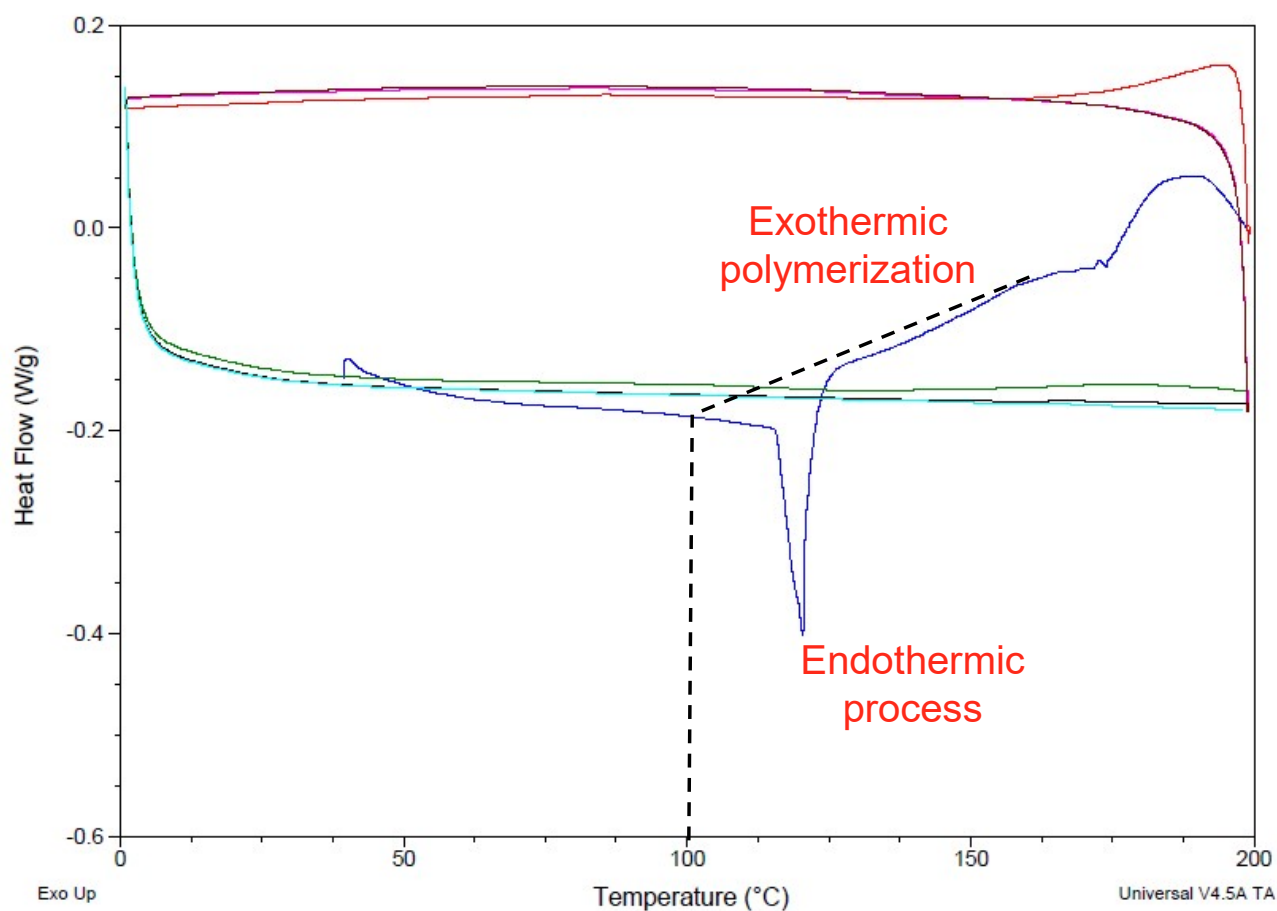
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Figure S1: DSC analysis of polymerisation mixture (2+5 initiated by 3+4)



The onset of exothermic polymerisation is at 100 °C and this temperature avoids complications due to the endothermic process with an onset temperature of 113 °C.

Figure S2: Thermogravimetric analysis of powdered polymer 9a

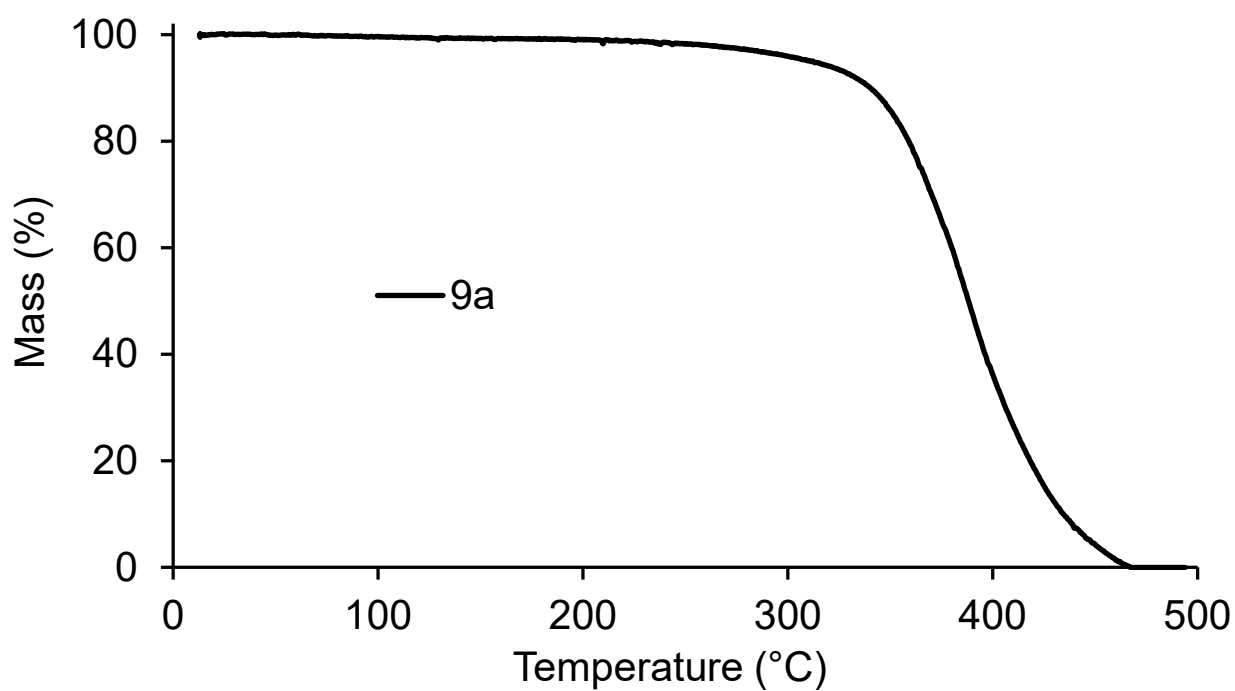


Figure S3: Thermogravimetric analysis of powdered polymer 9b

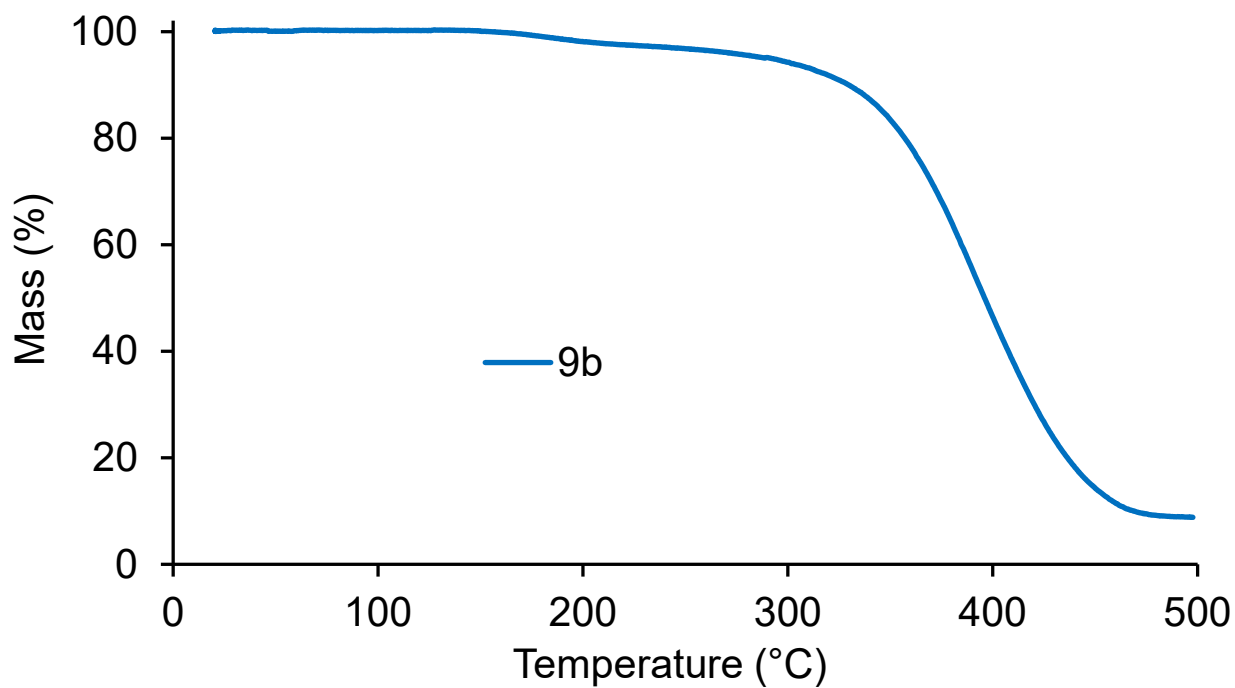


Figure S4: Thermogravimetric analysis of powdered polymer 9c

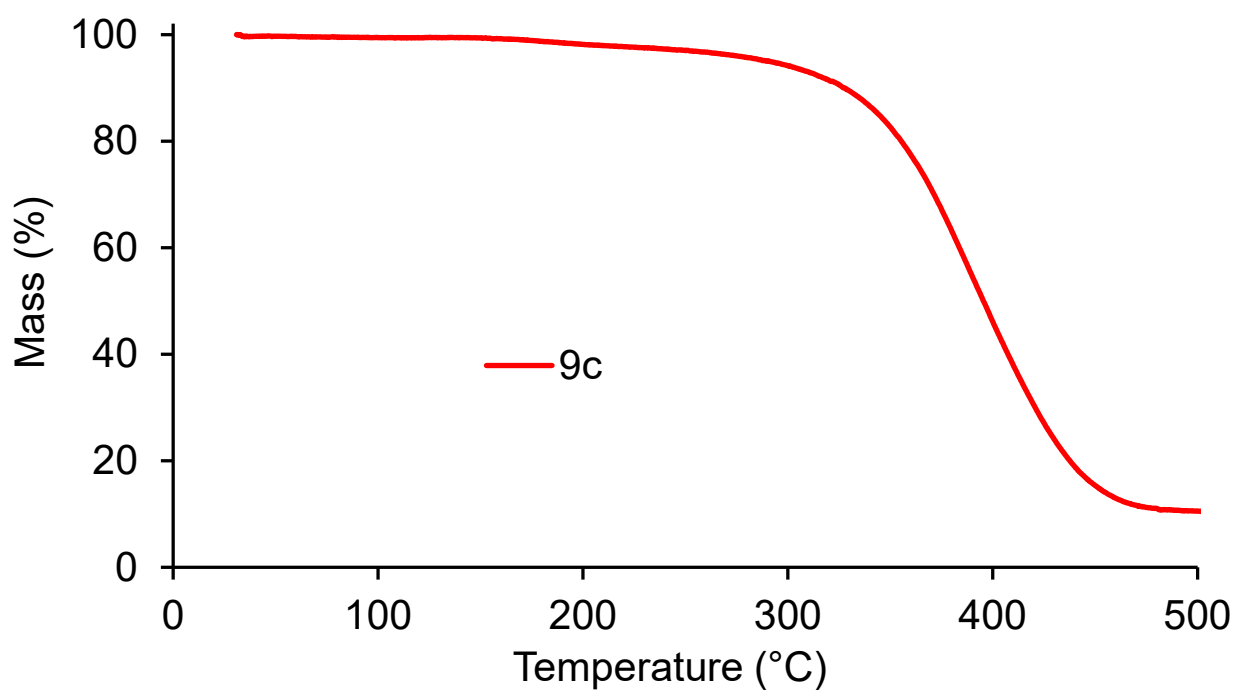


Figure S5: Thermogravimetric analysis of powdered polymer 9d

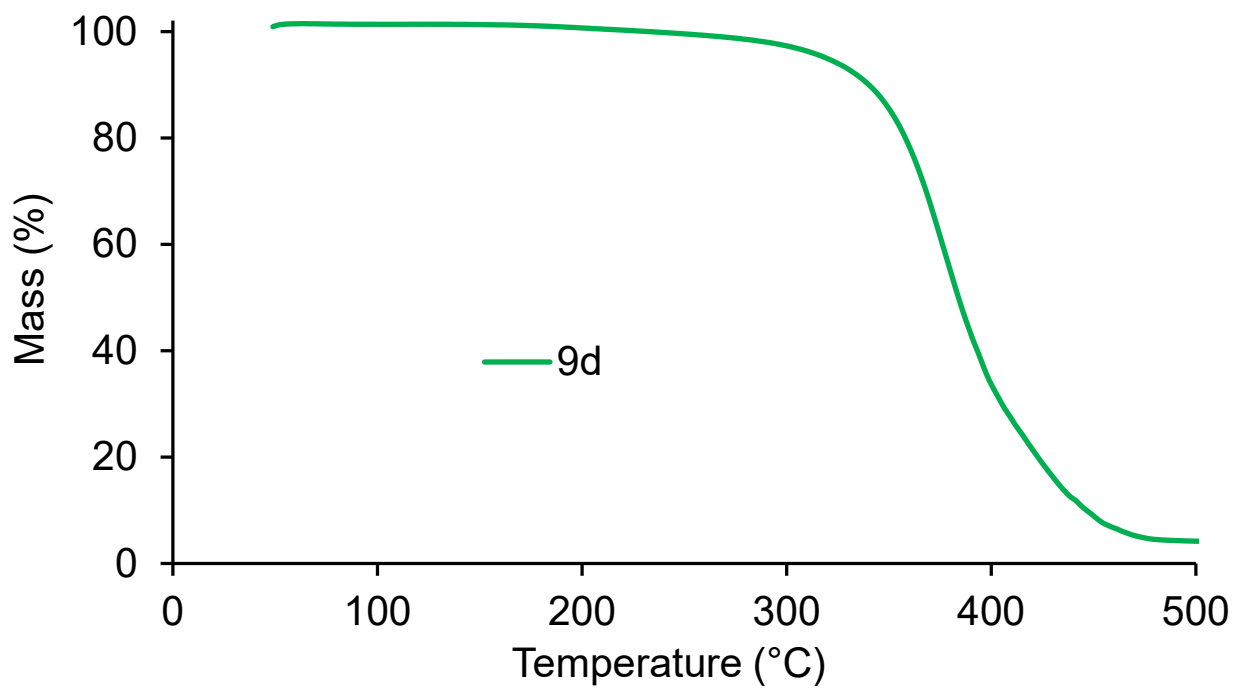


Figure S6: Thermogravimetric analysis of powdered polymer 9e

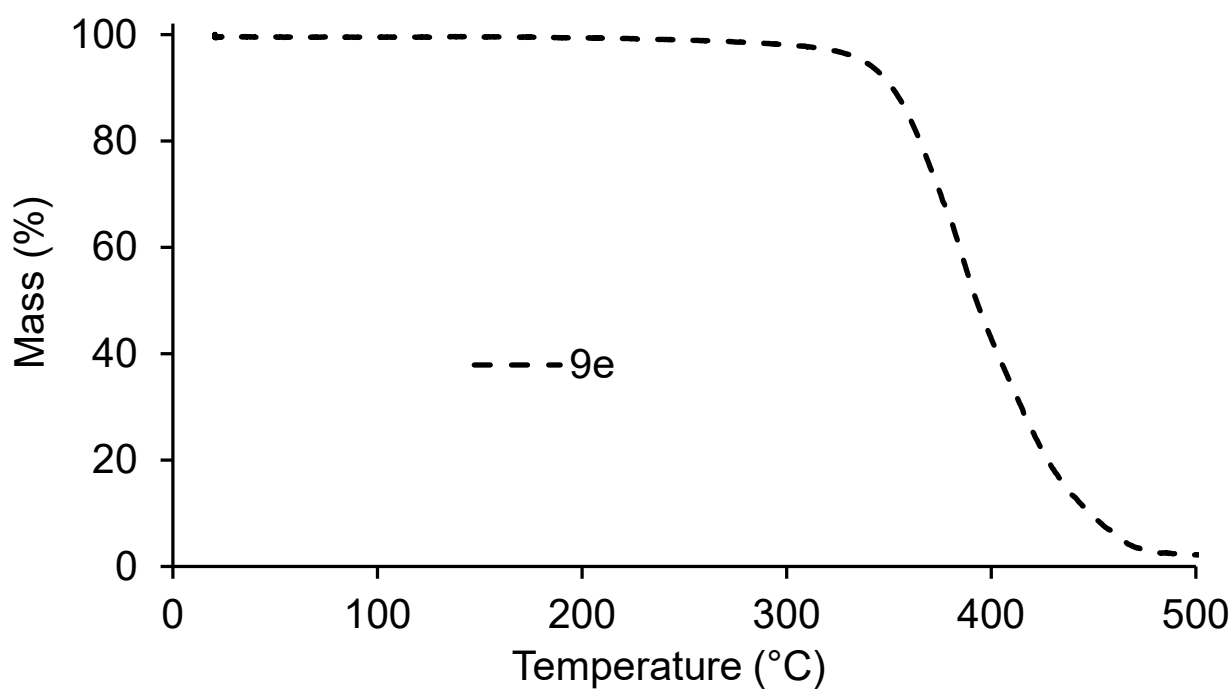


Figure S7: Thermogravimetric analysis of powdered polymer 9f

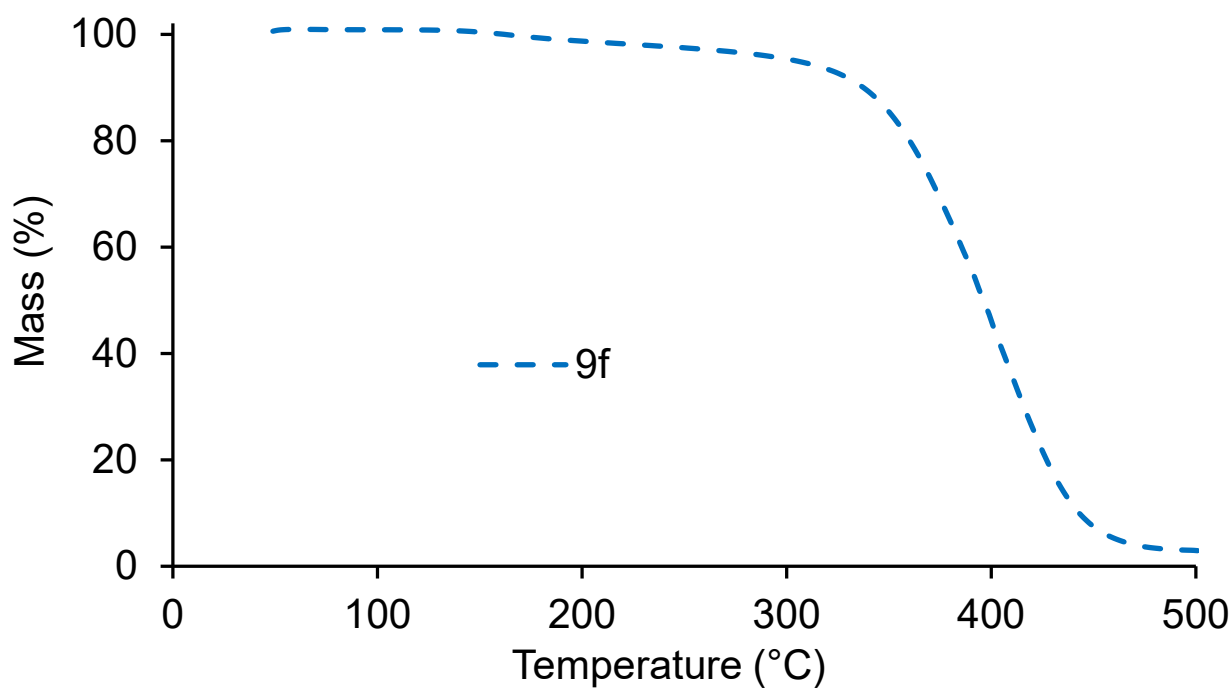


Figure S8: Thermogravimetric analysis of powdered polymer 9g

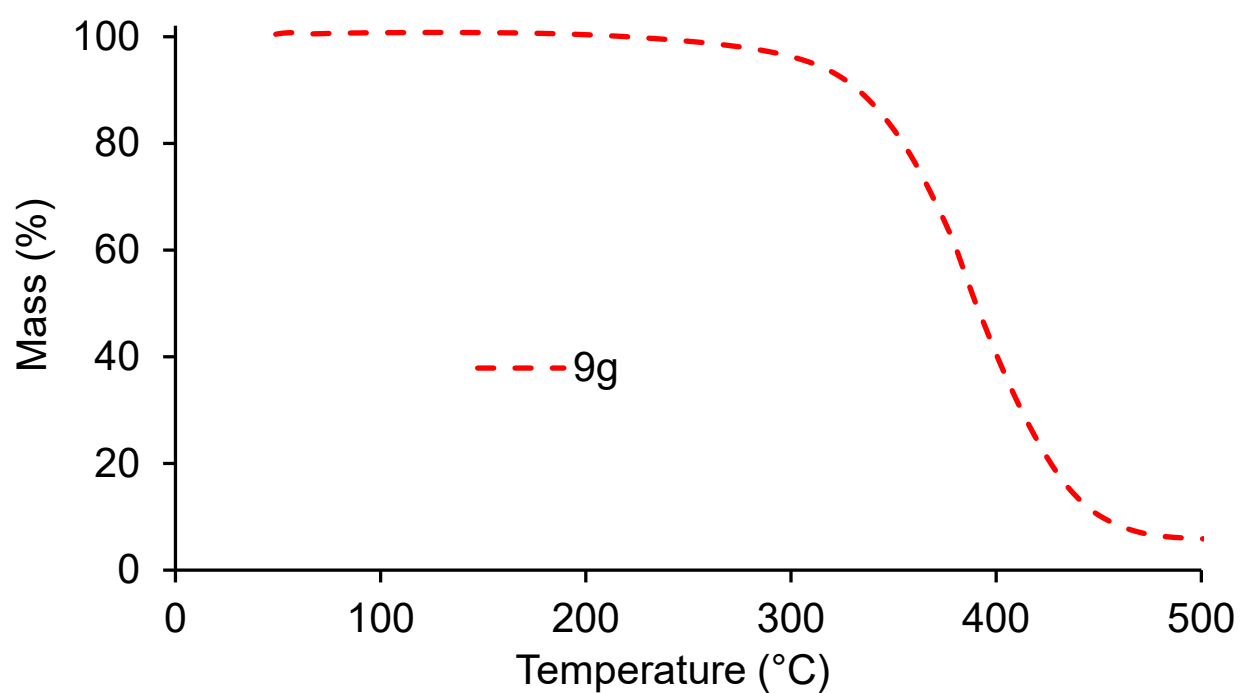


Figure S9: Thermogravimetric analysis of powdered polymer 9h

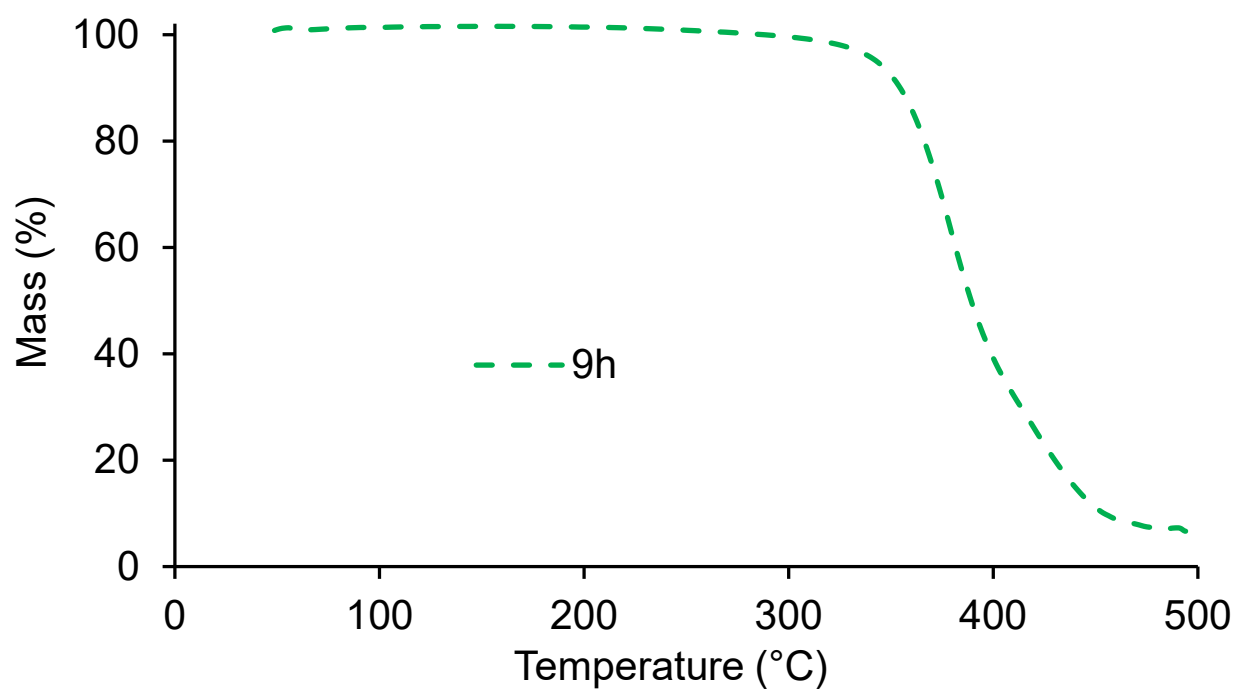


Figure S10: Overlay of thermogravimetric analyses of powdered polymers 9a–g

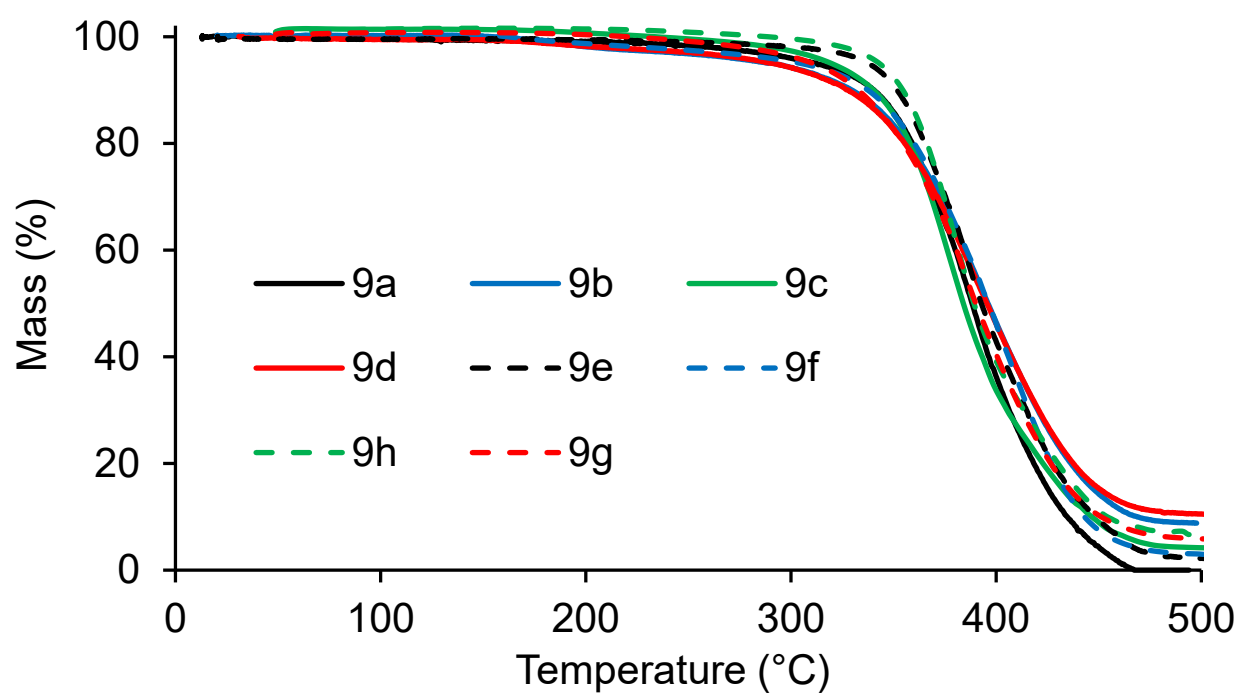


Figure S11: DSC analysis of powdered polymer 9a

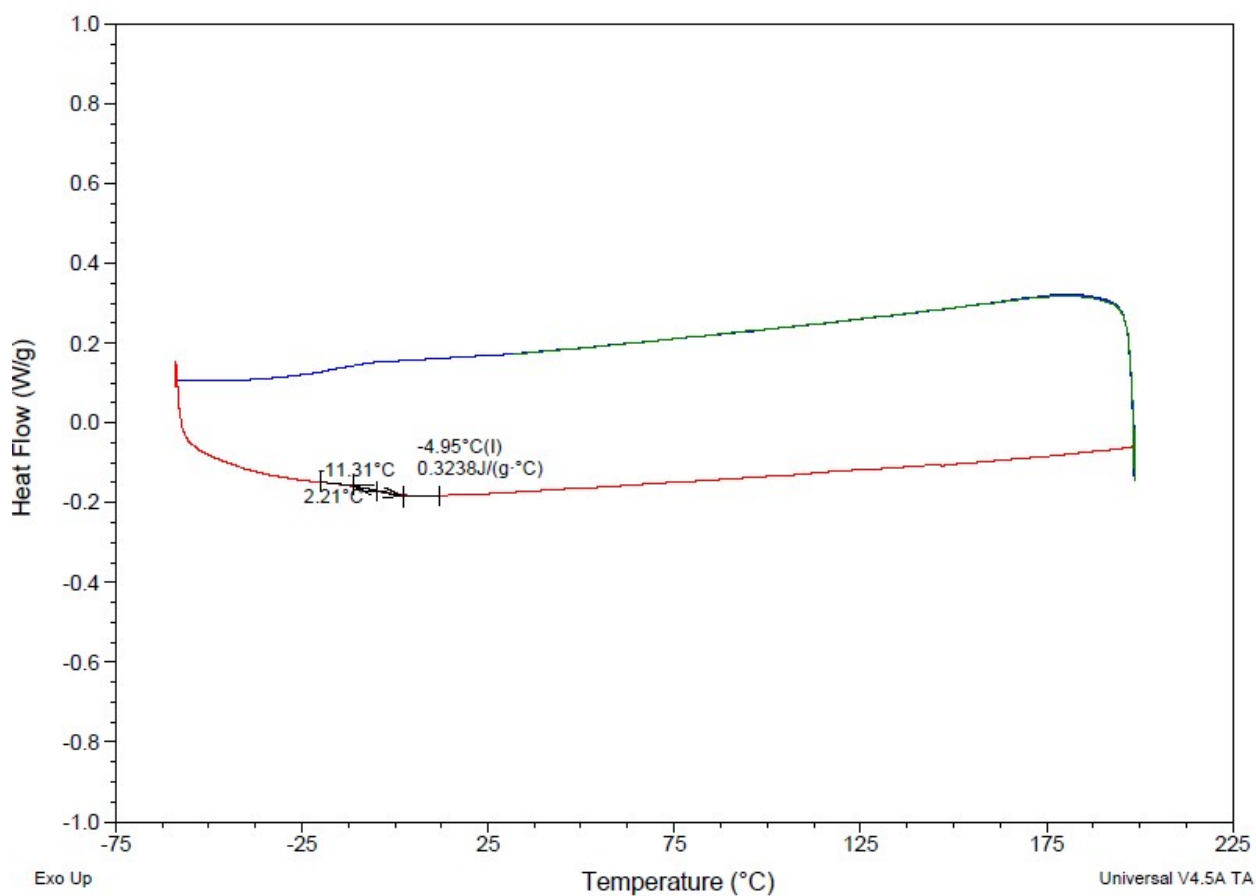


Figure S12: DSC analysis of powdered polymer 9b

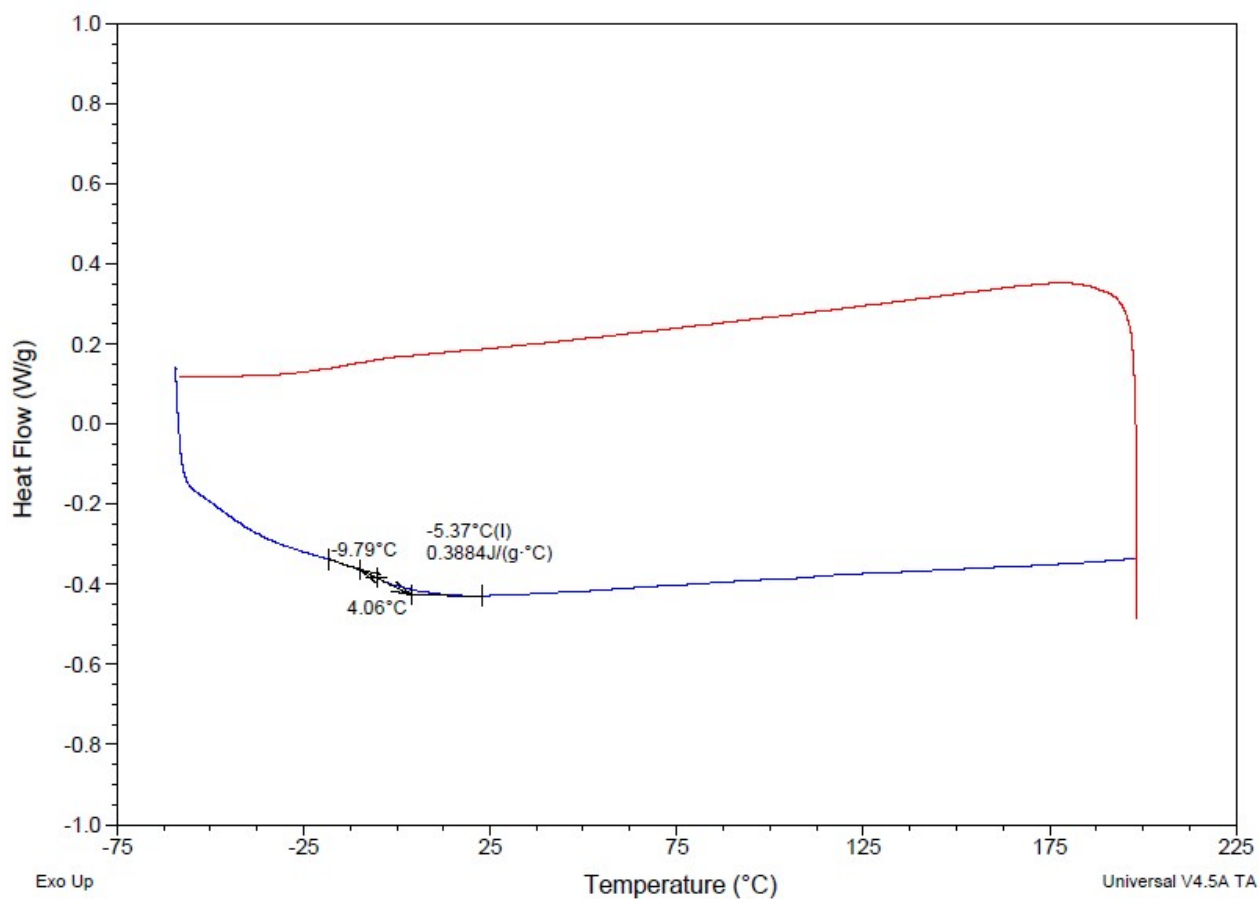


Figure S13: DSC analysis of powdered polymer 9c

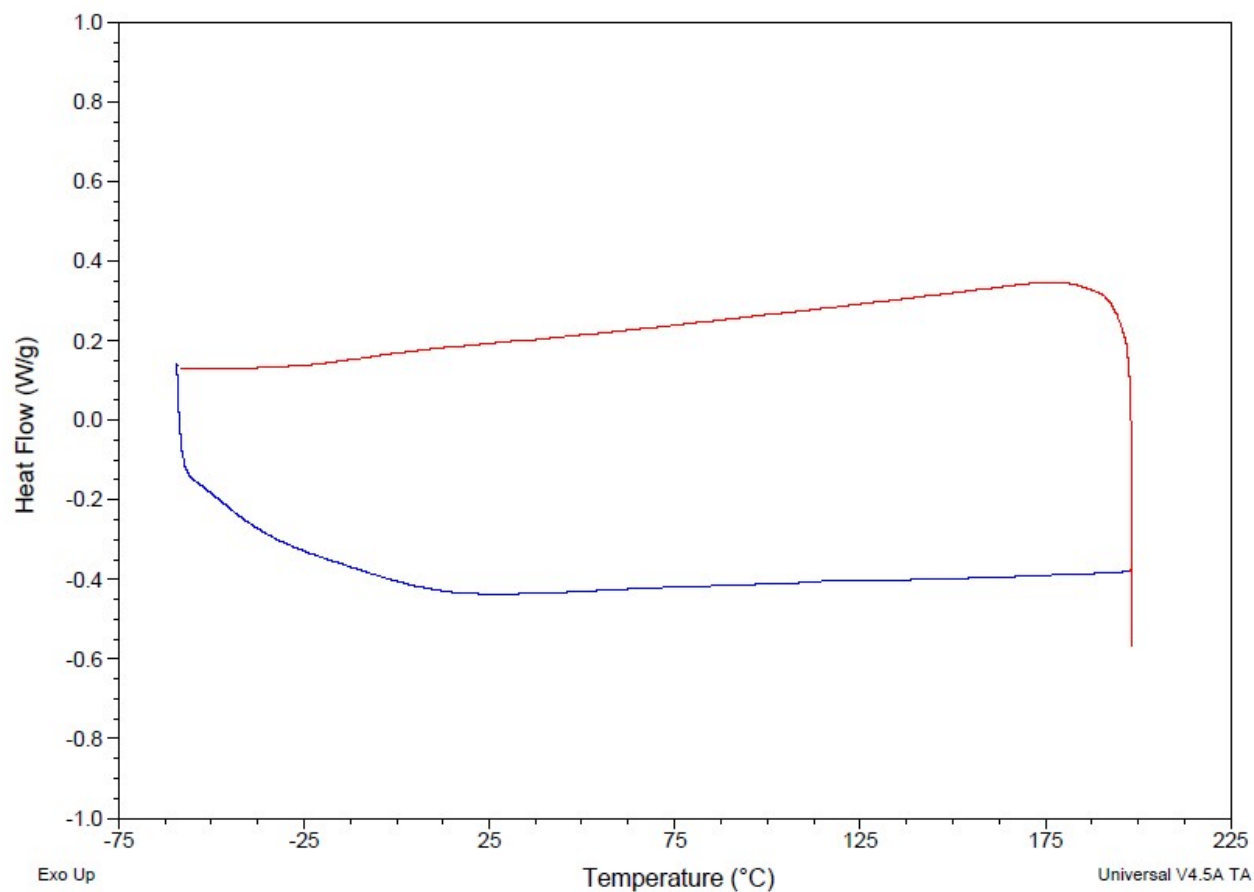


Figure S14: DSC analysis of powdered polymer 9d

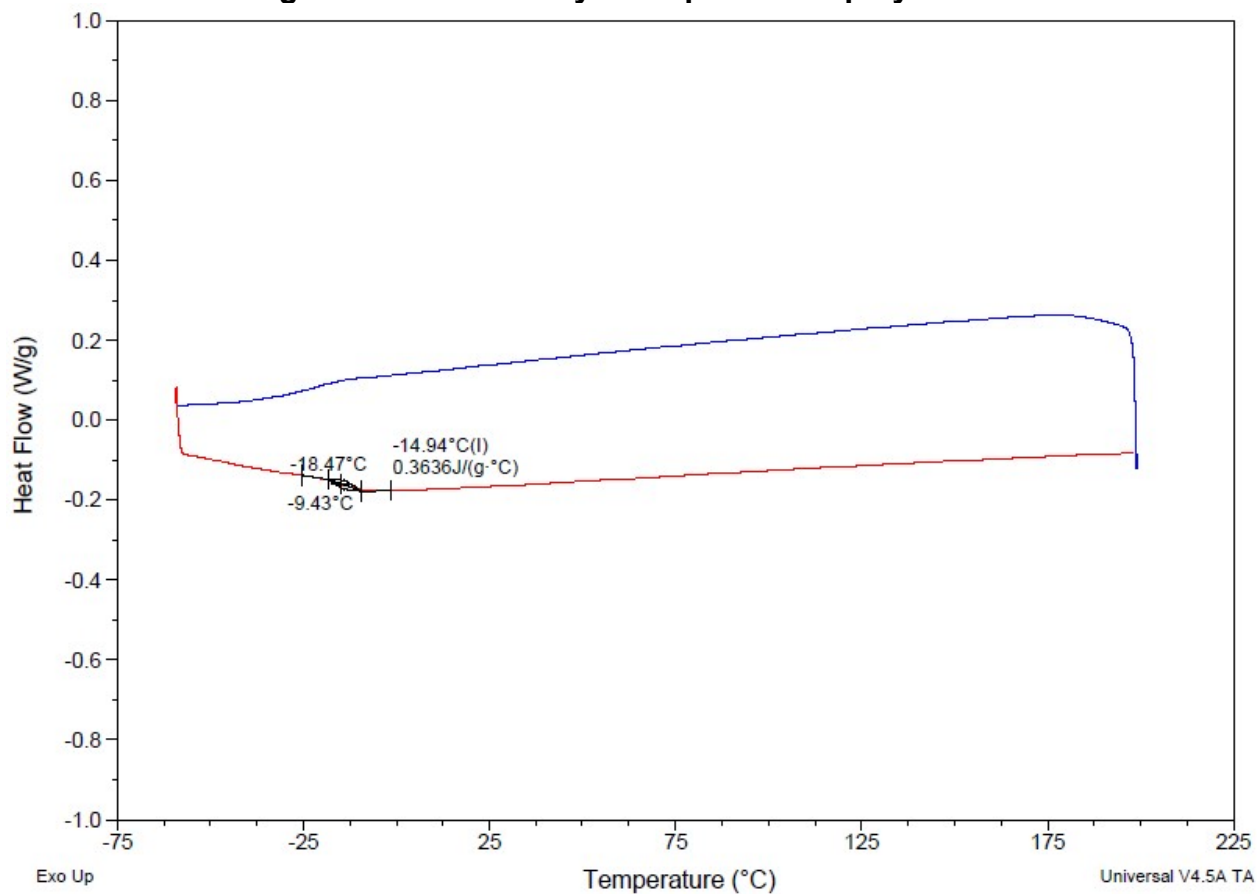


Figure S15: DSC analysis of powdered polymer 9e

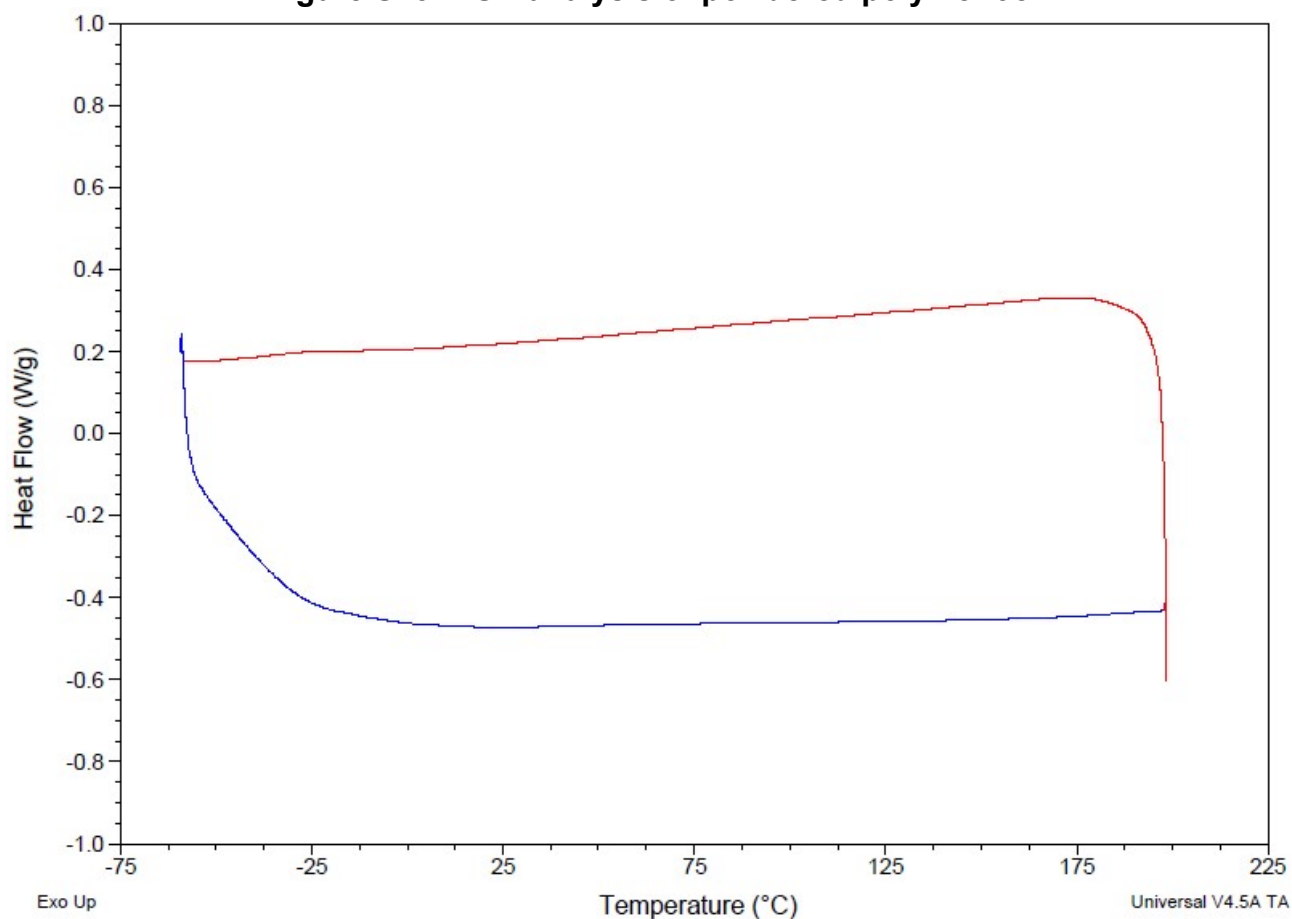


Figure S16: DSC analysis of powdered polymer 9f

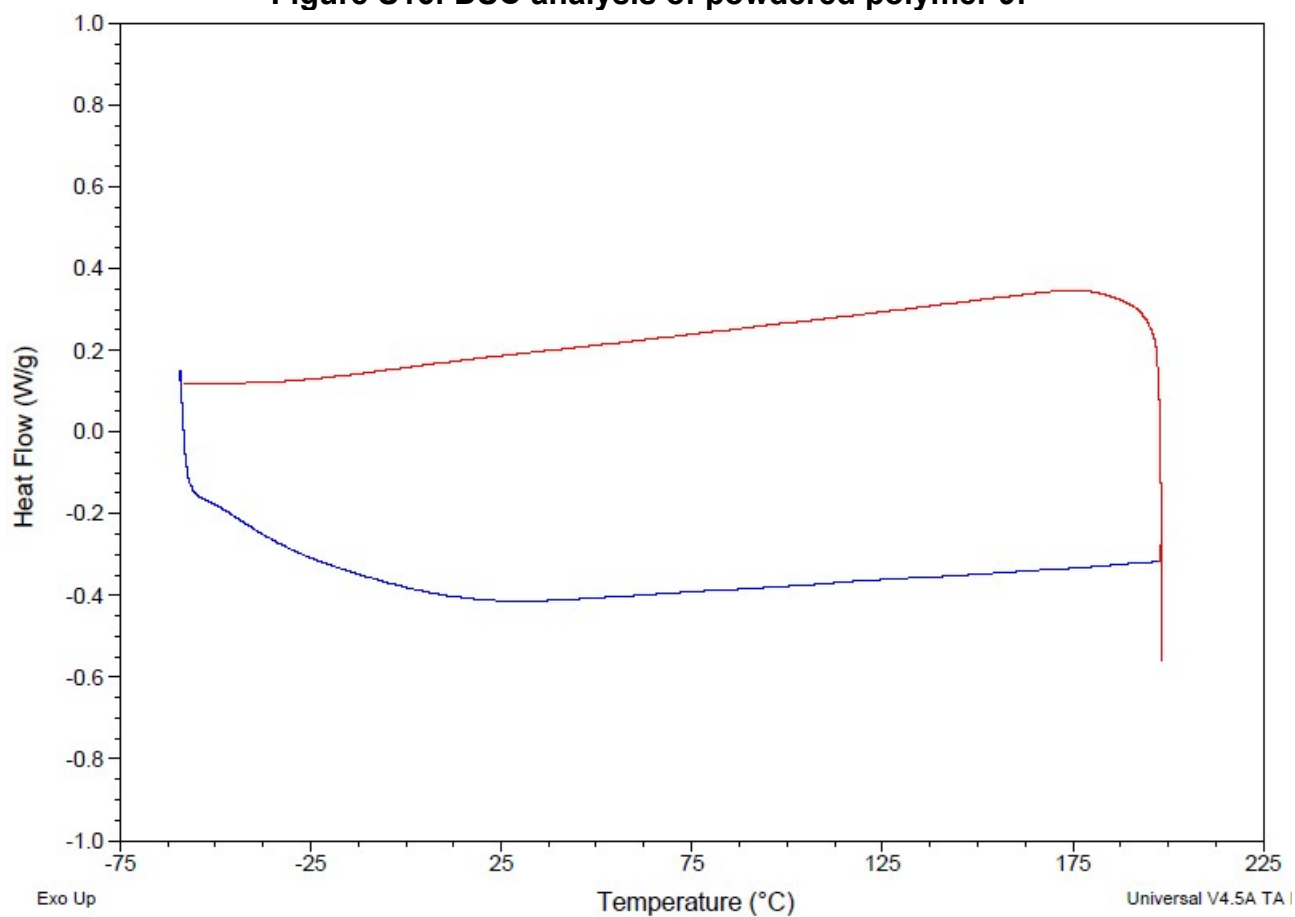


Figure S17: DSC analysis of powdered polymer 9g

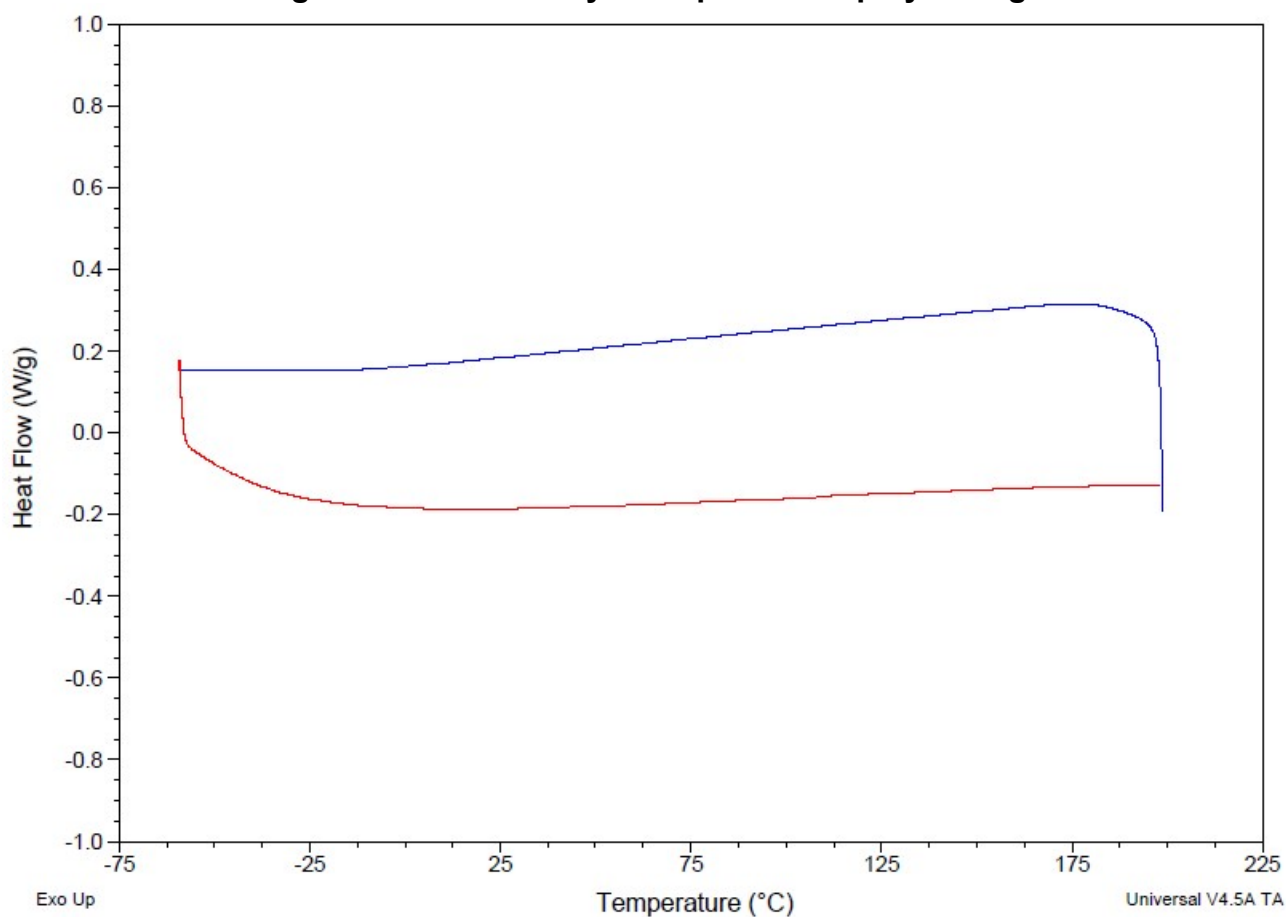


Figure S18: DSC analysis of powdered polymer 9h

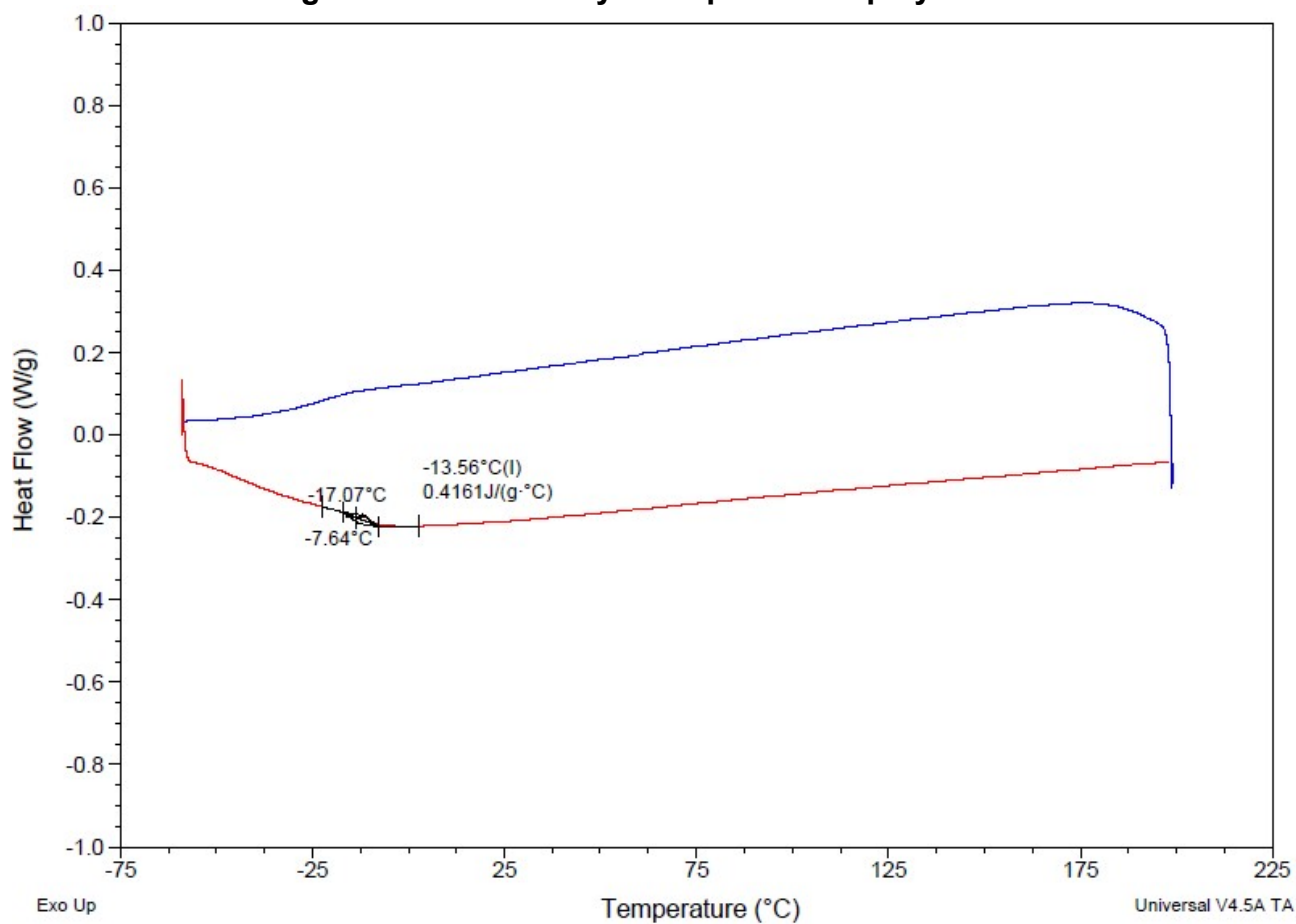


Figure S19: IR spectrum of epoxidised baru nut oil 1

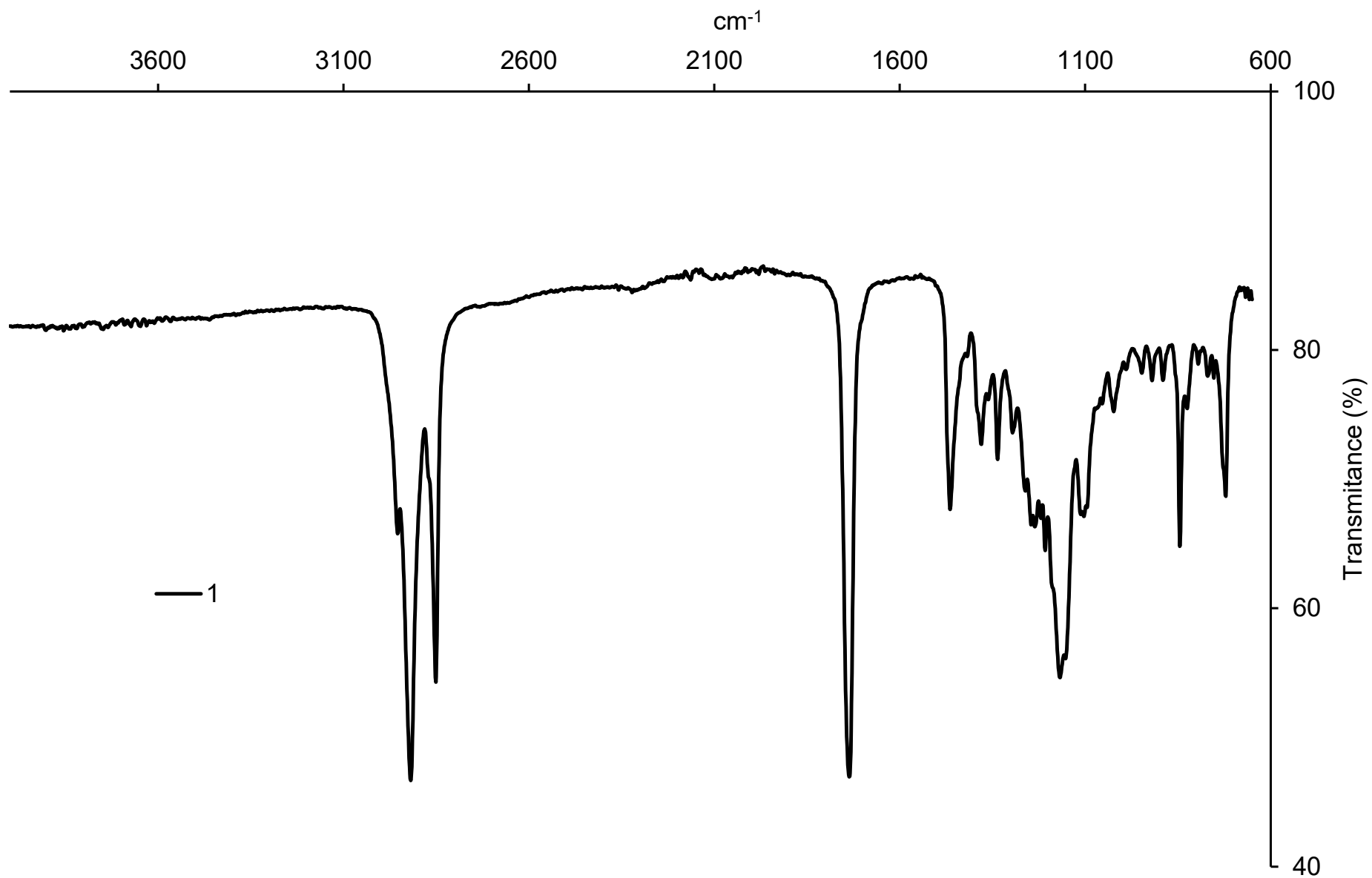


Figure S20: IR spectrum of epoxidised macaw oil 2

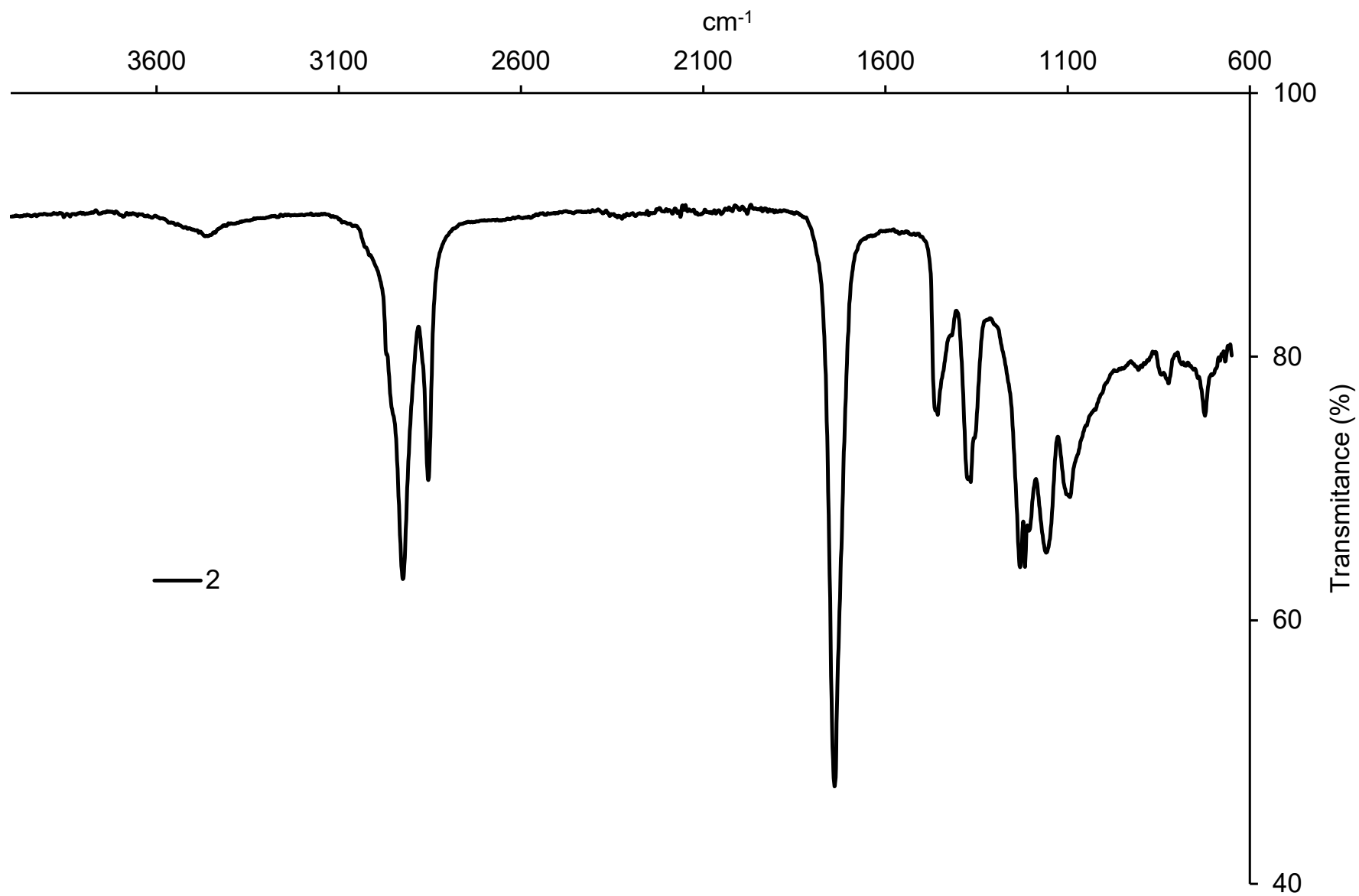


Figure S21: IR spectrum of powdered polymer 9a

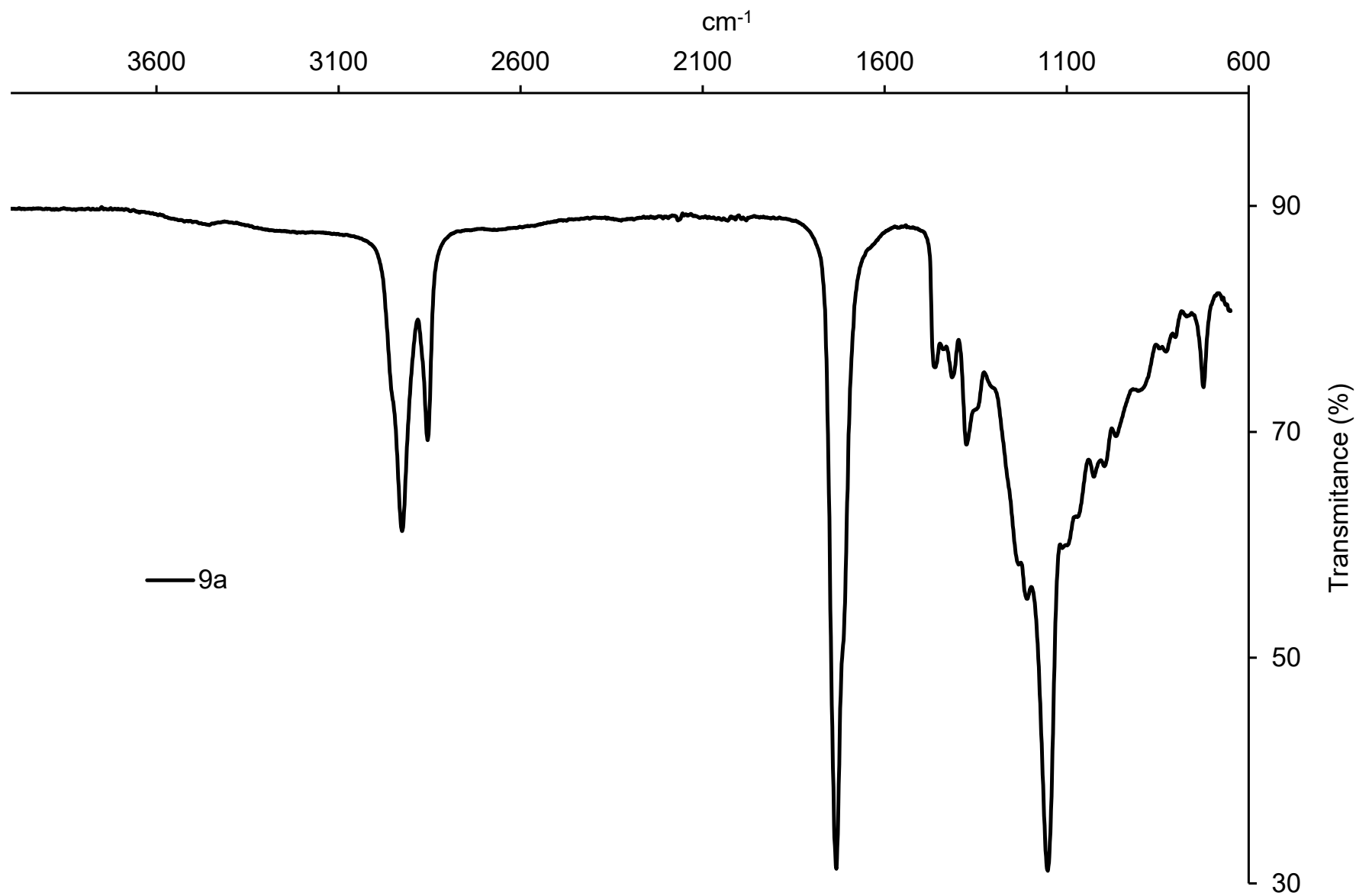


Figure S22: IR spectrum of powdered polymer 9b

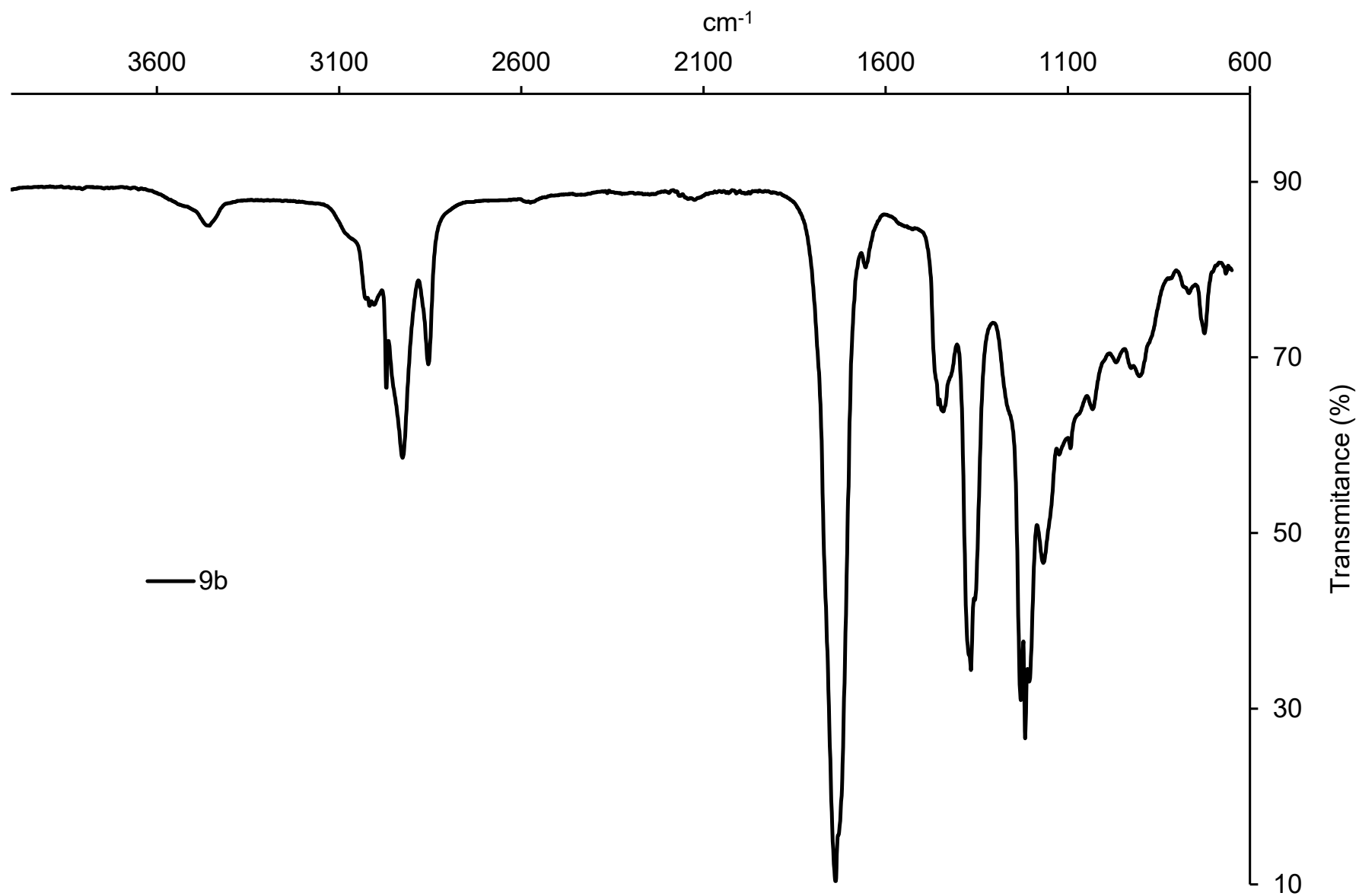


Figure S23: IR spectrum of powdered polymer 9c

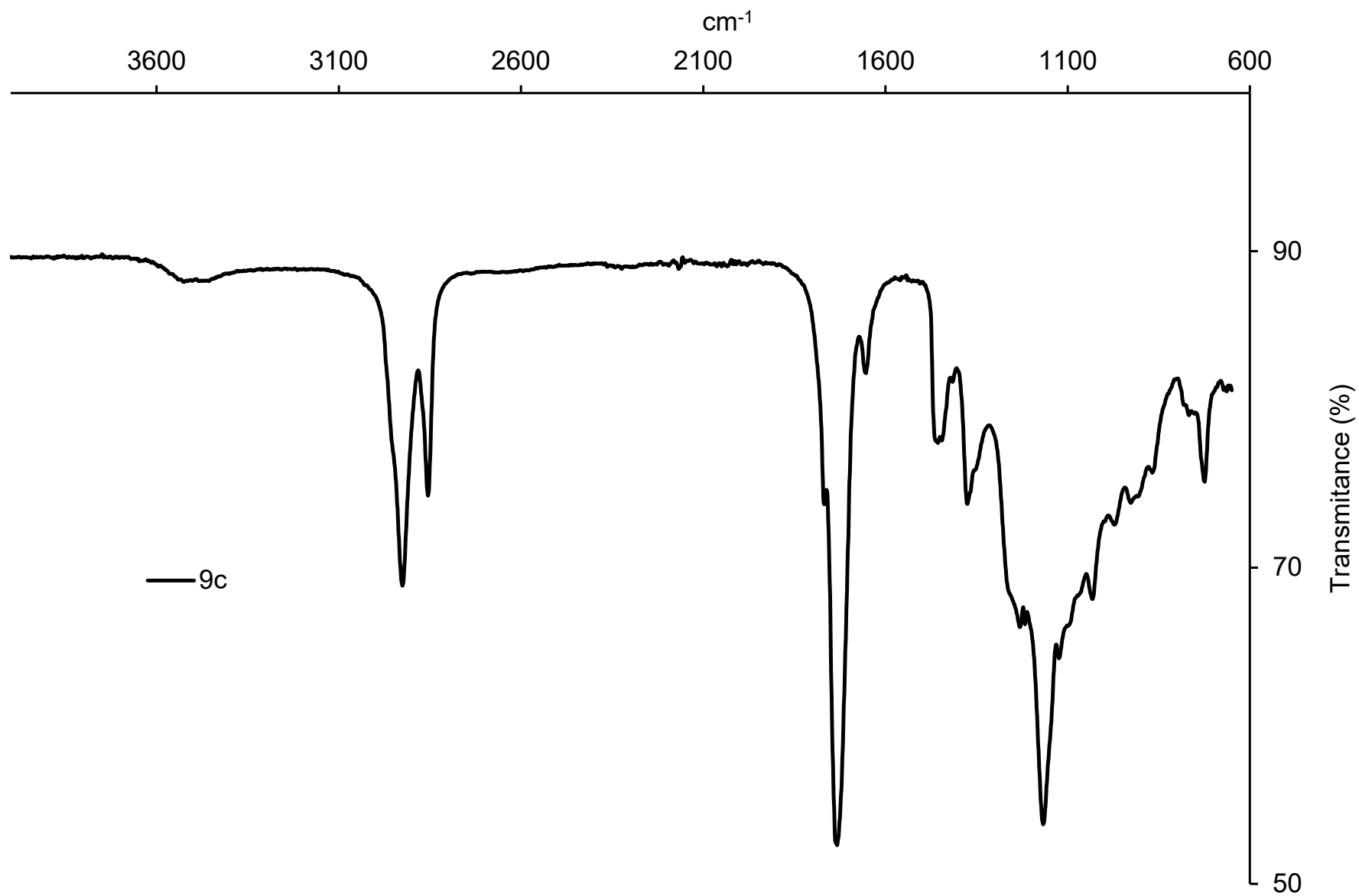


Figure S24: IR spectrum of powdered polymer 9d

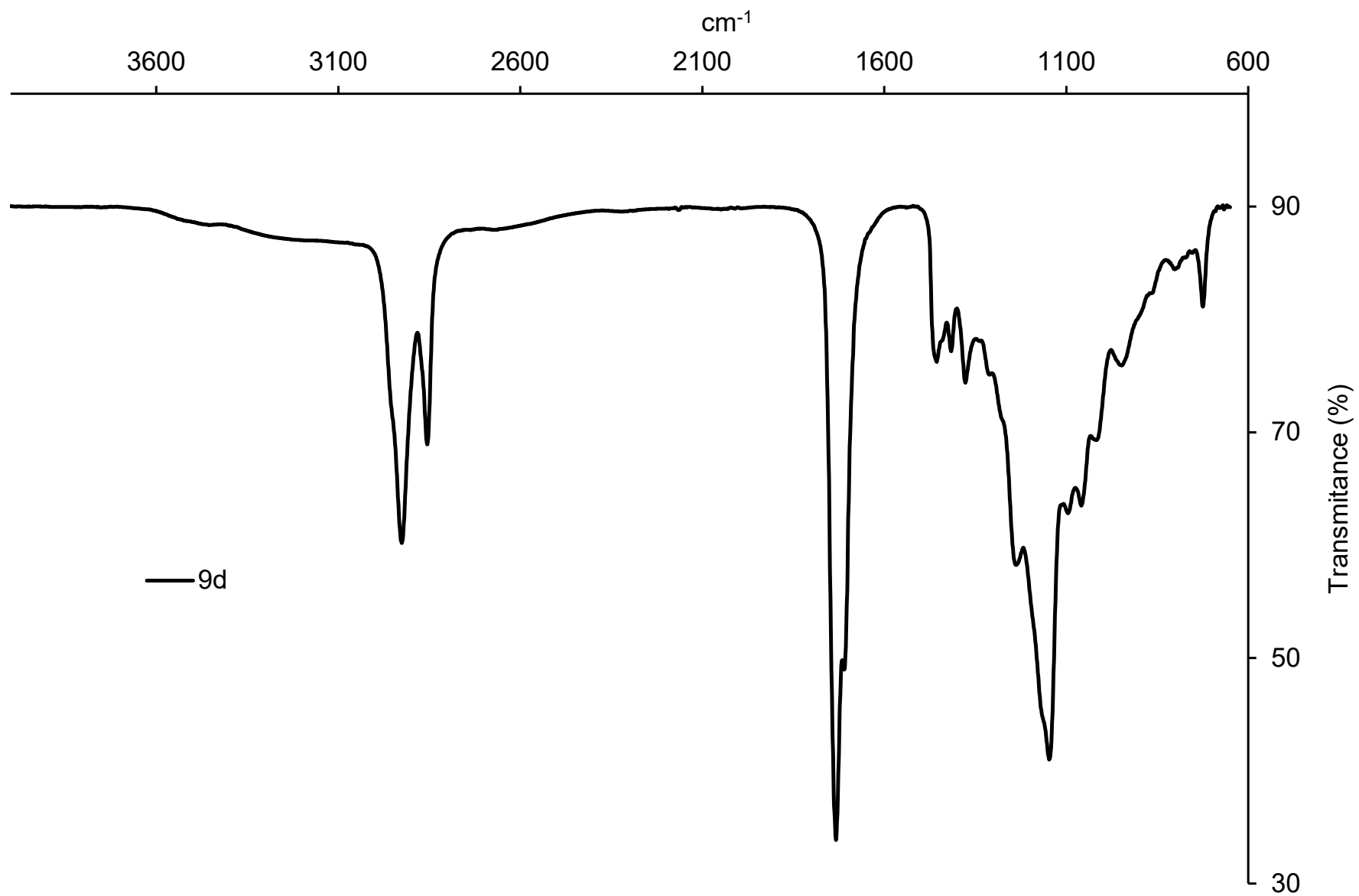


Figure S25: IR spectrum of powdered polymer 9e

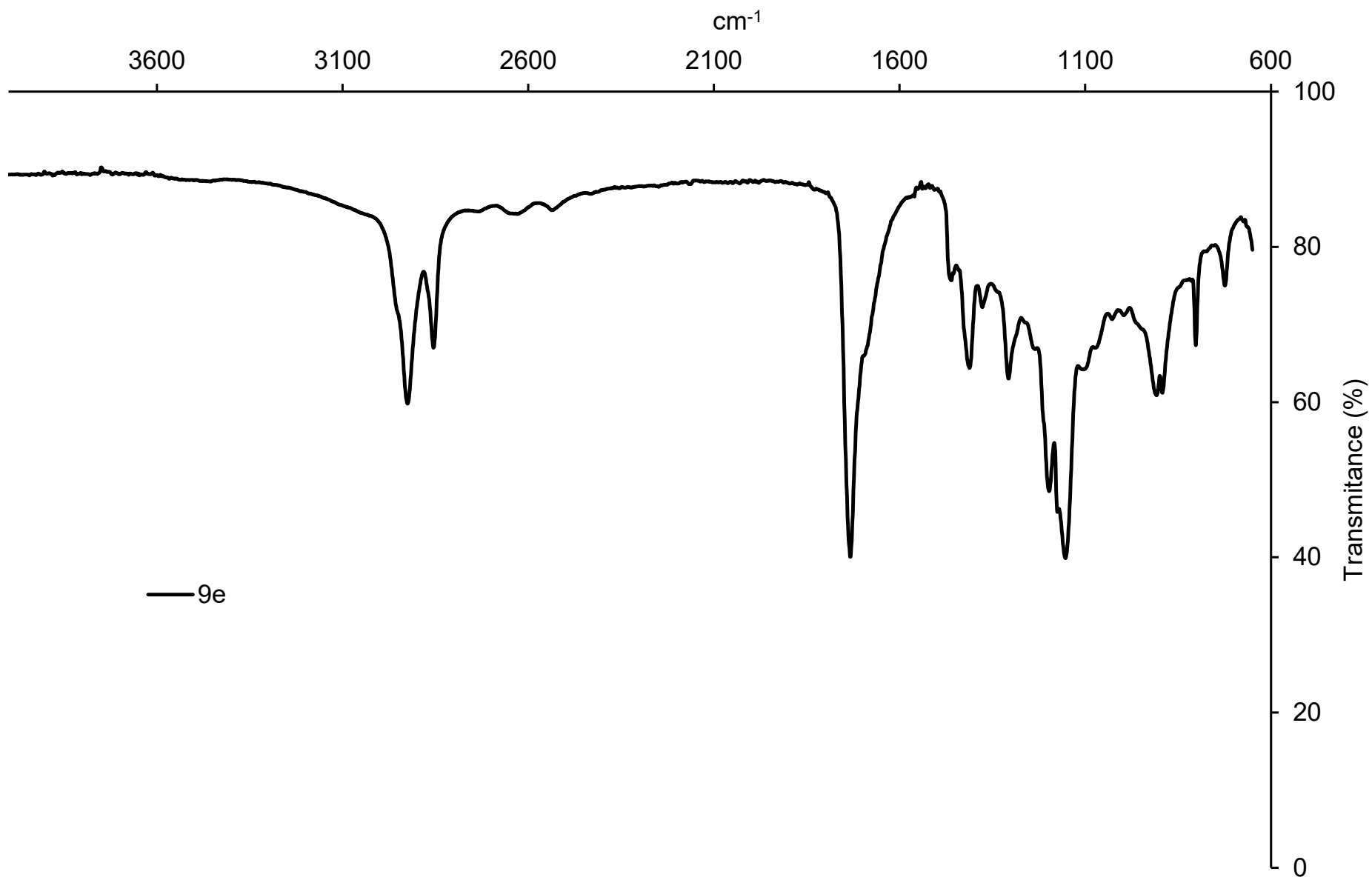


Figure S26: IR spectrum of powdered polymer 9f

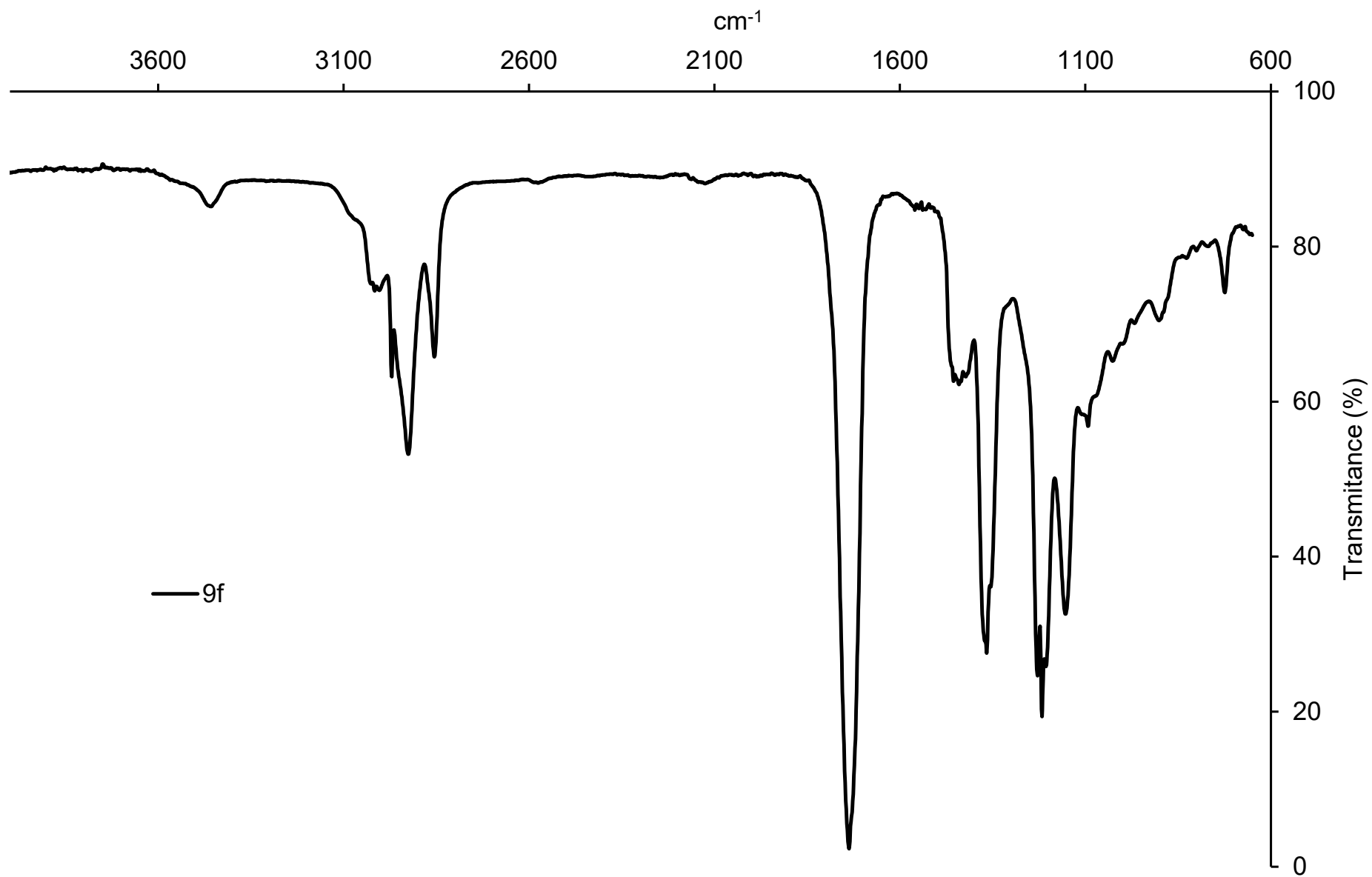


Figure S27: IR spectrum of powdered polymer 9g

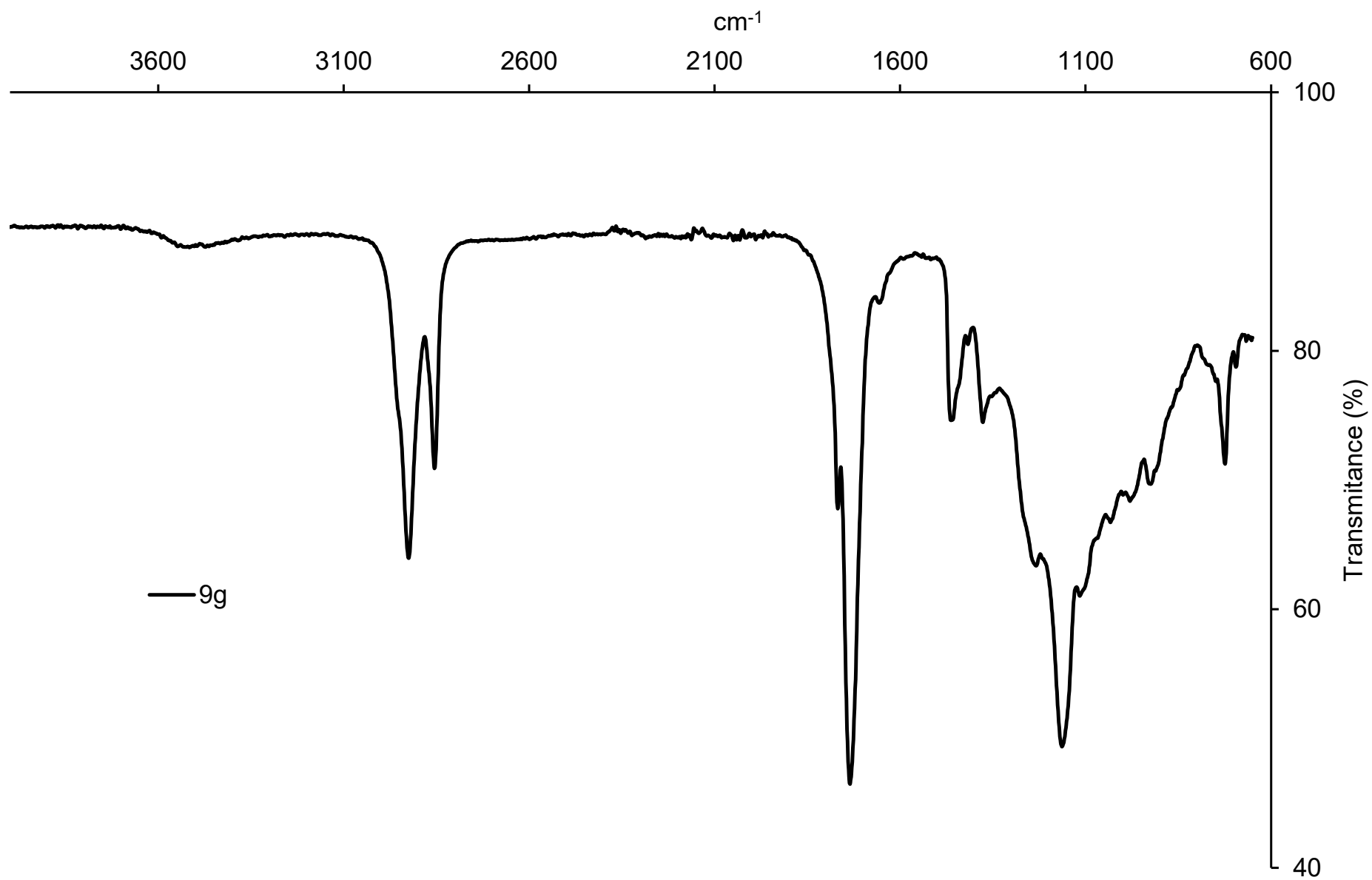


Figure S28: IR spectrum of powdered polymer 9h

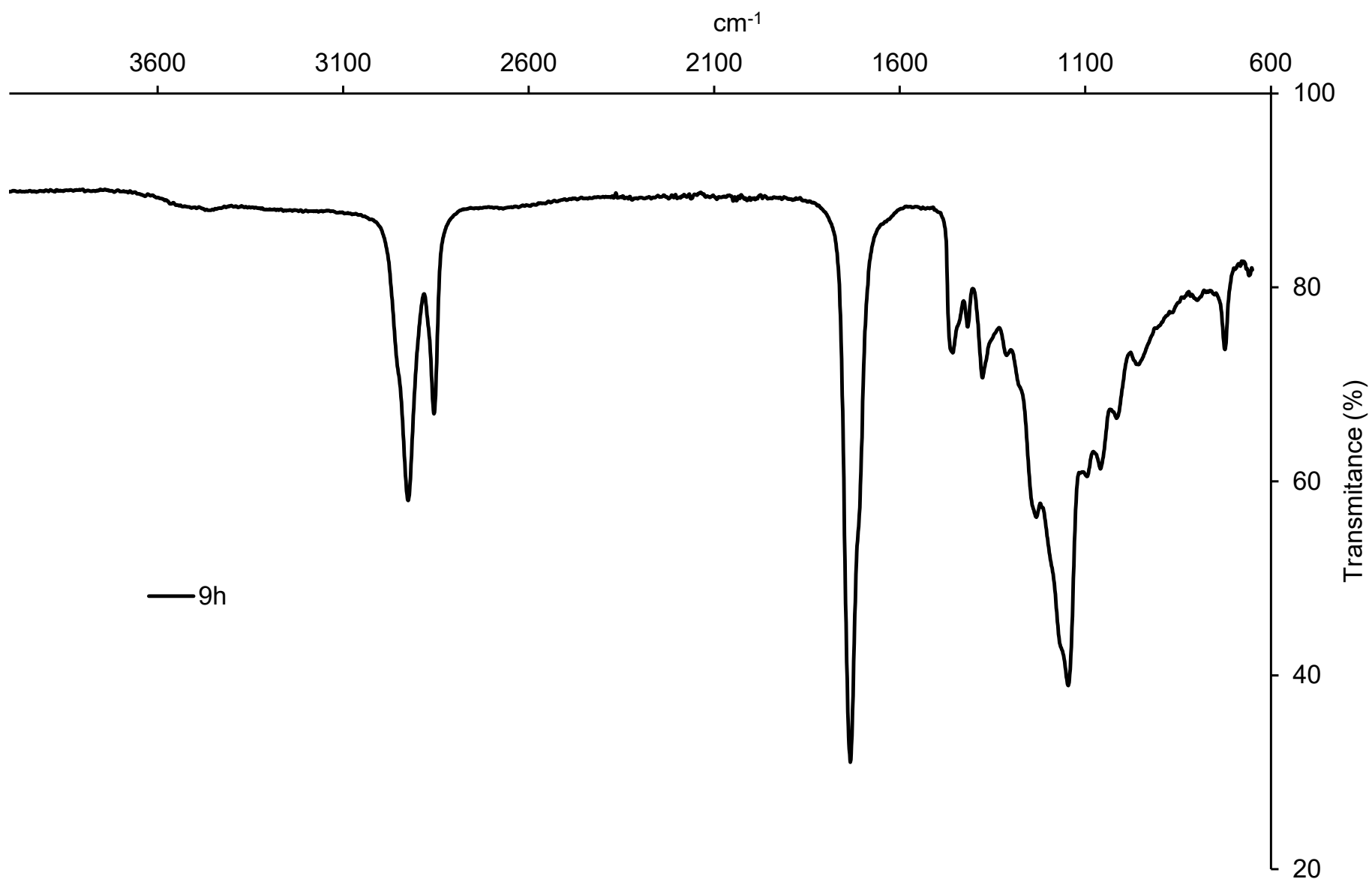


Figure S29: Solid-state ^{13}C NMR spectra of powdered polymer 9a

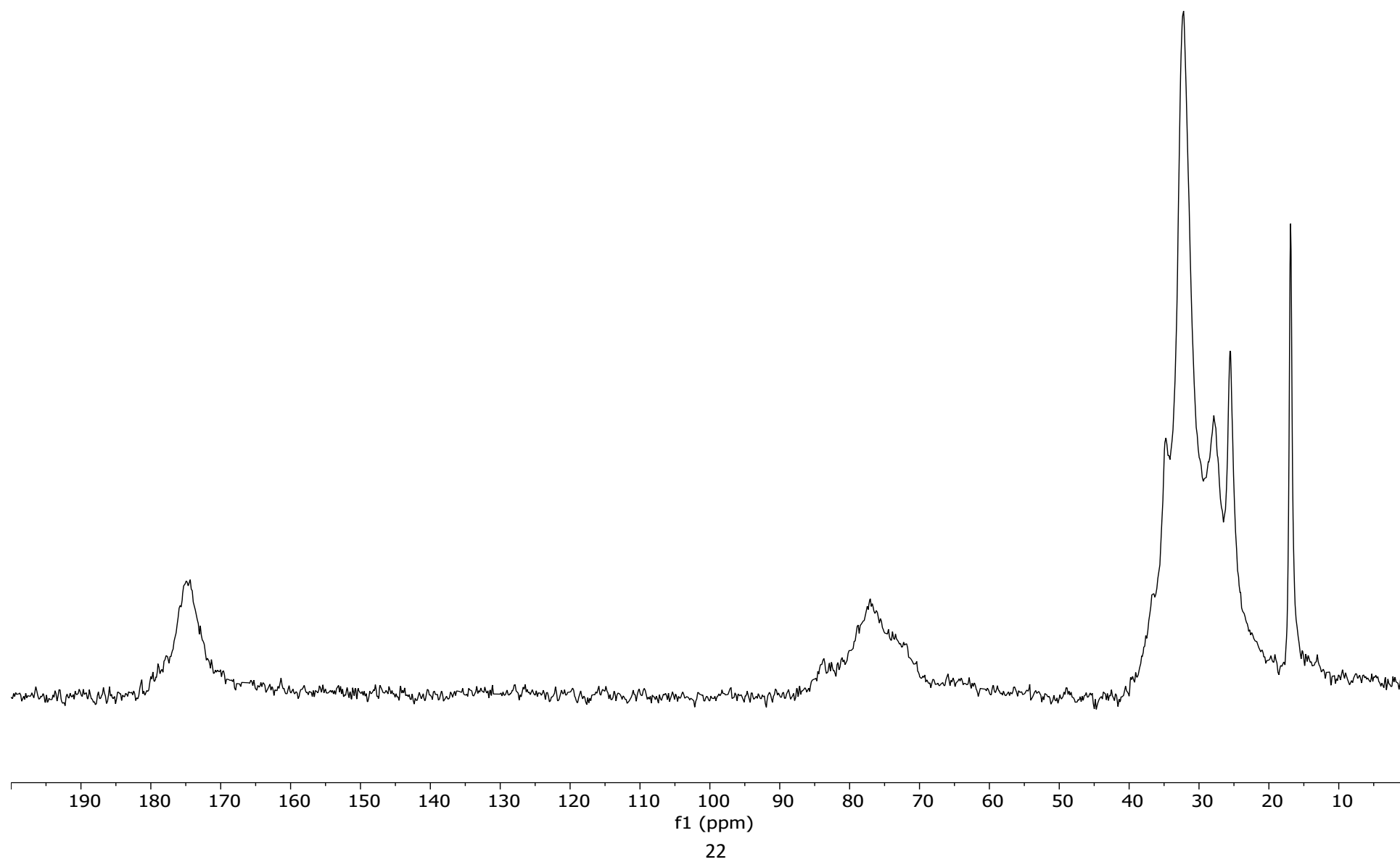


Figure S30: Solid-state ^{13}C NMR spectra of powdered polymer 9b

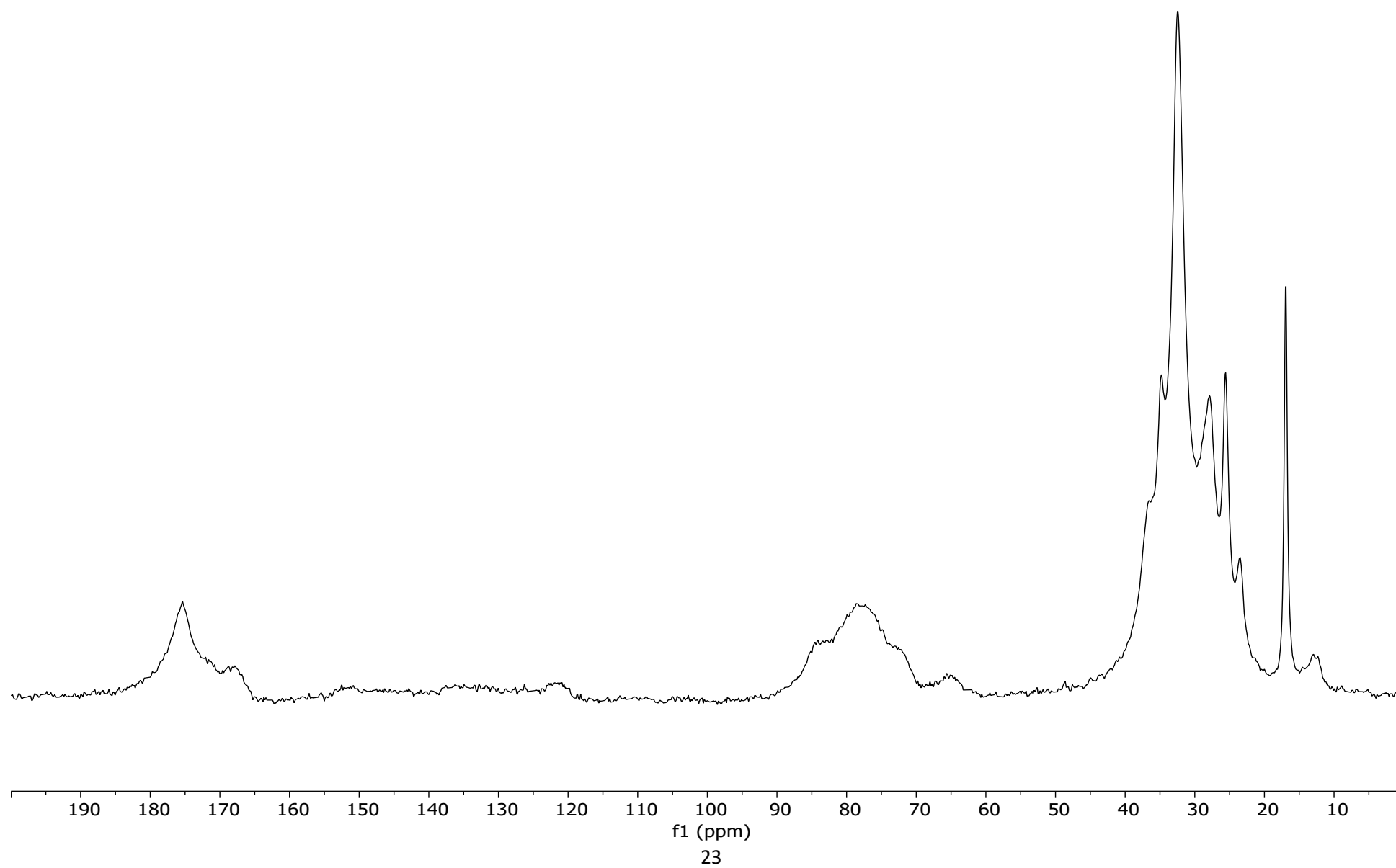


Figure S31: Solid-state ^{13}C NMR spectra of powdered polymer 9c

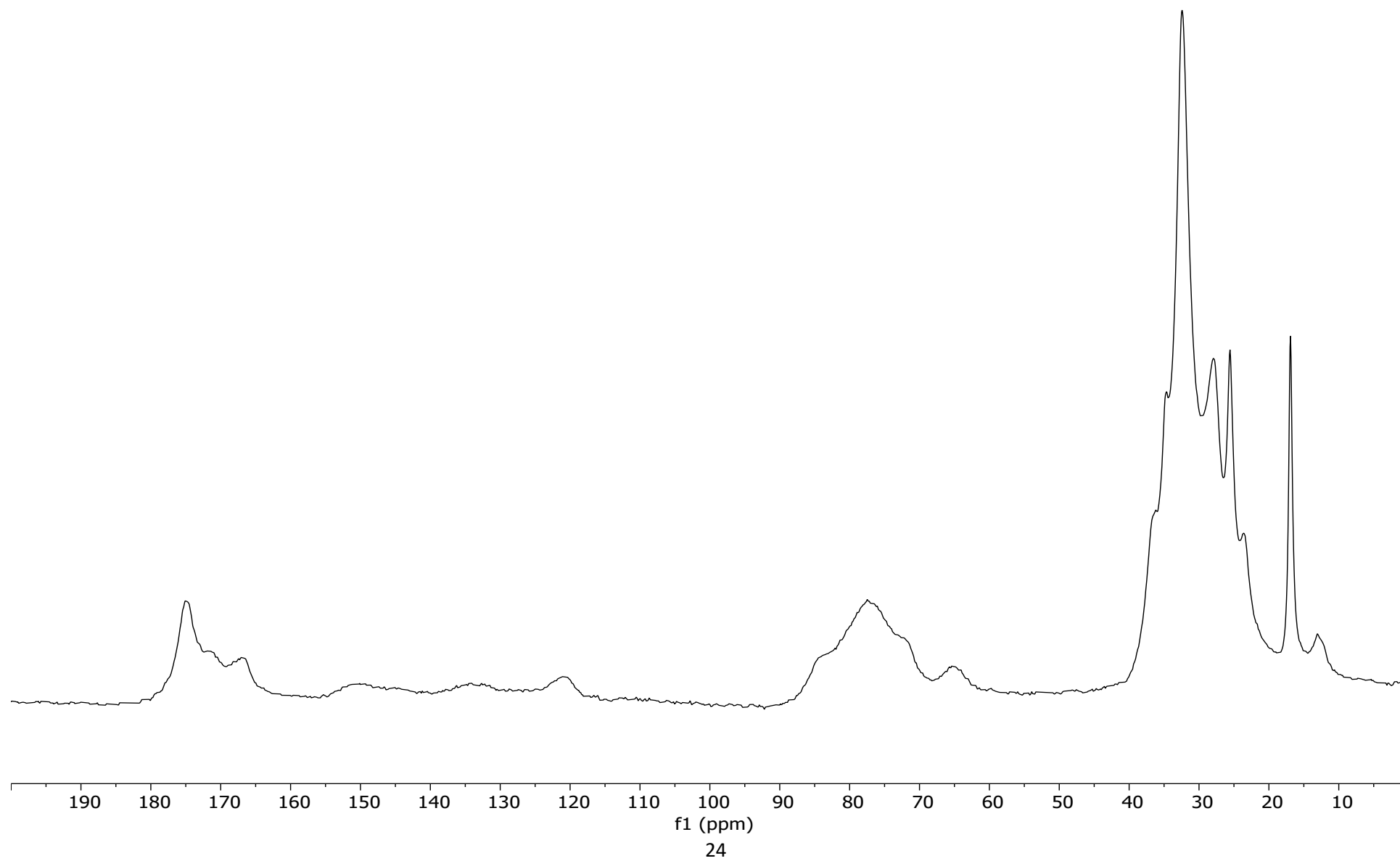


Figure S32: Solid-state ^{13}C NMR spectra of powdered polymer 9d

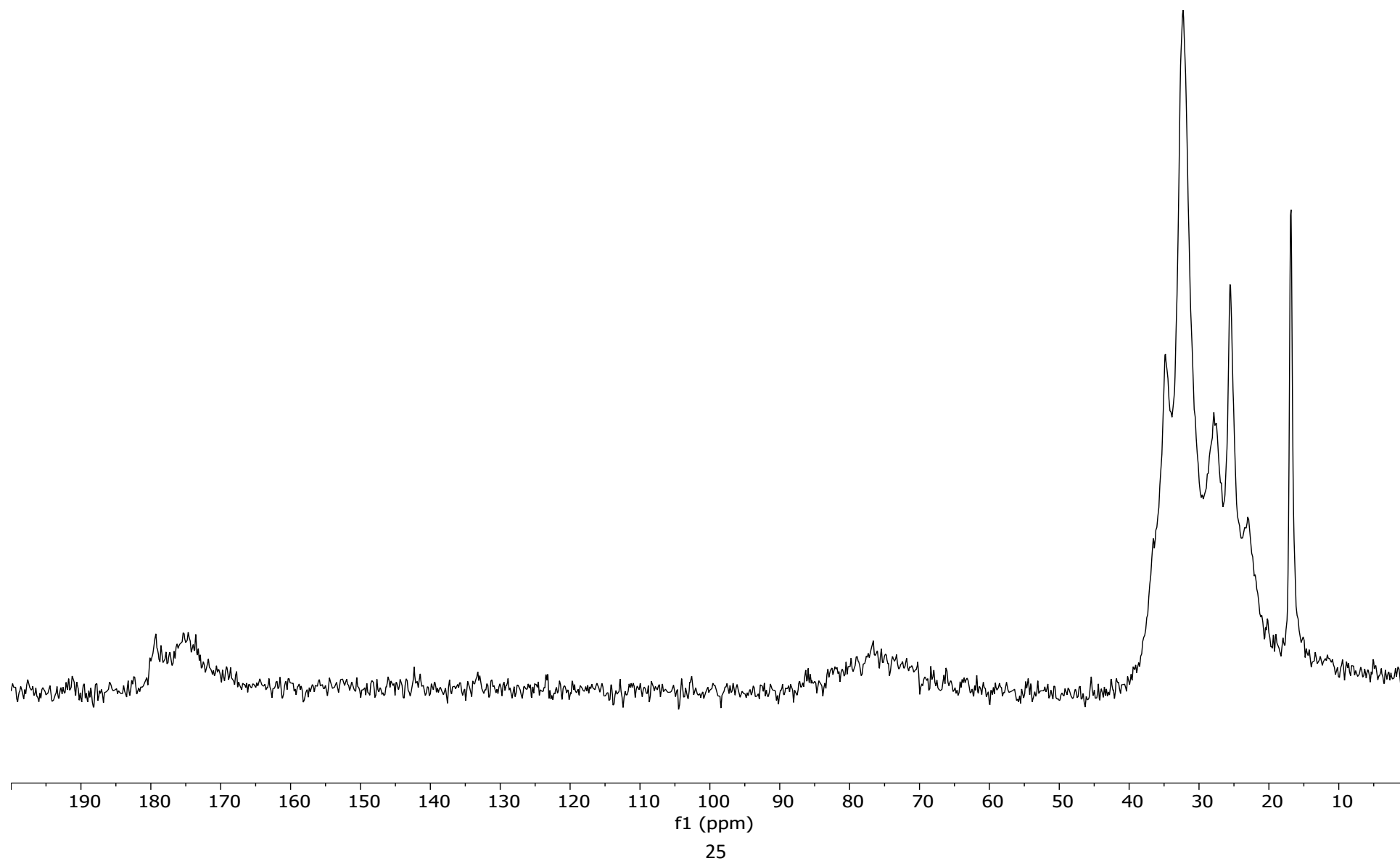


Figure S33: Solid-state ^{13}C NMR spectra of powdered polymer 9e

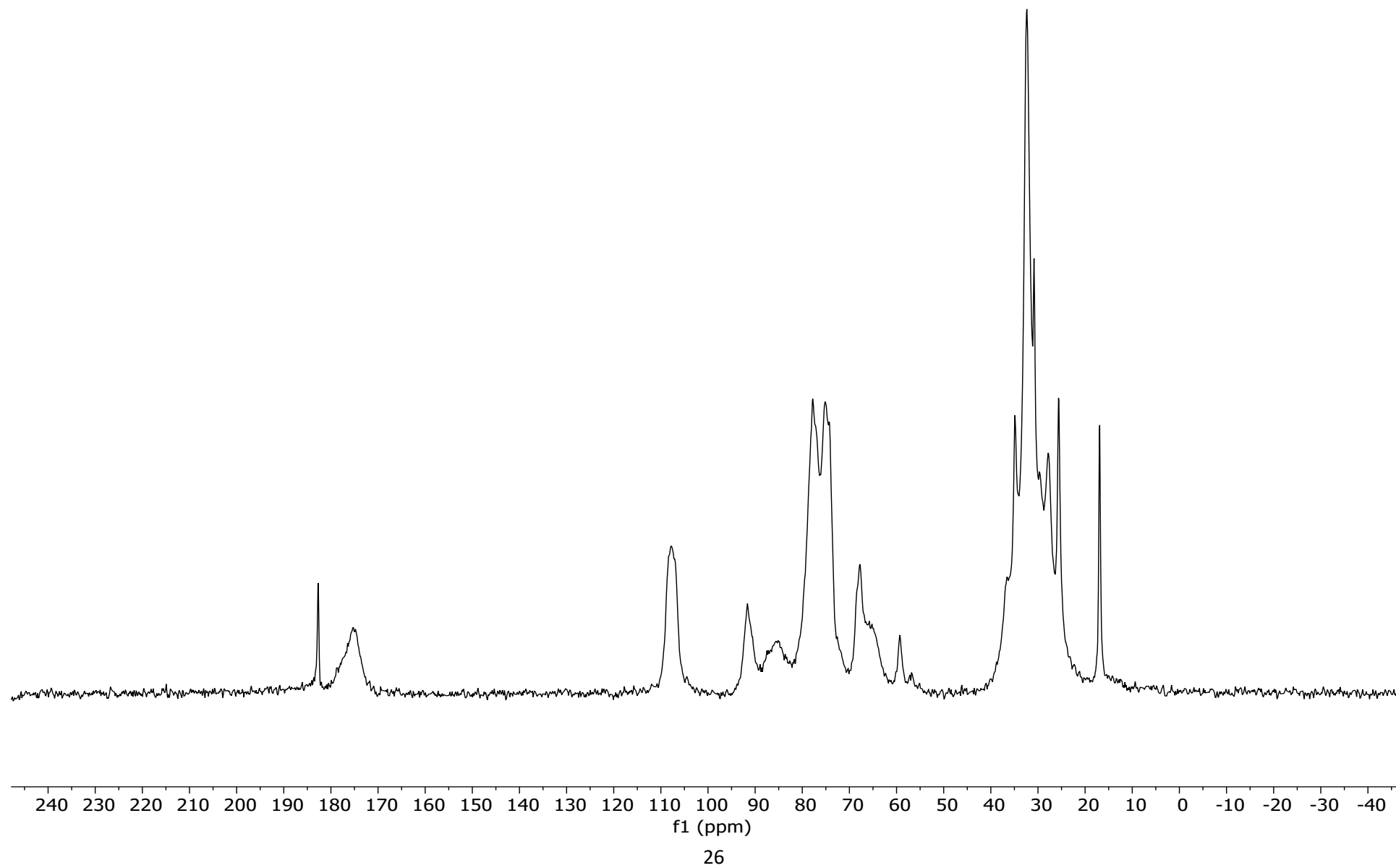


Figure S34: Solid-state ^{13}C NMR spectra of powdered polymer 9f

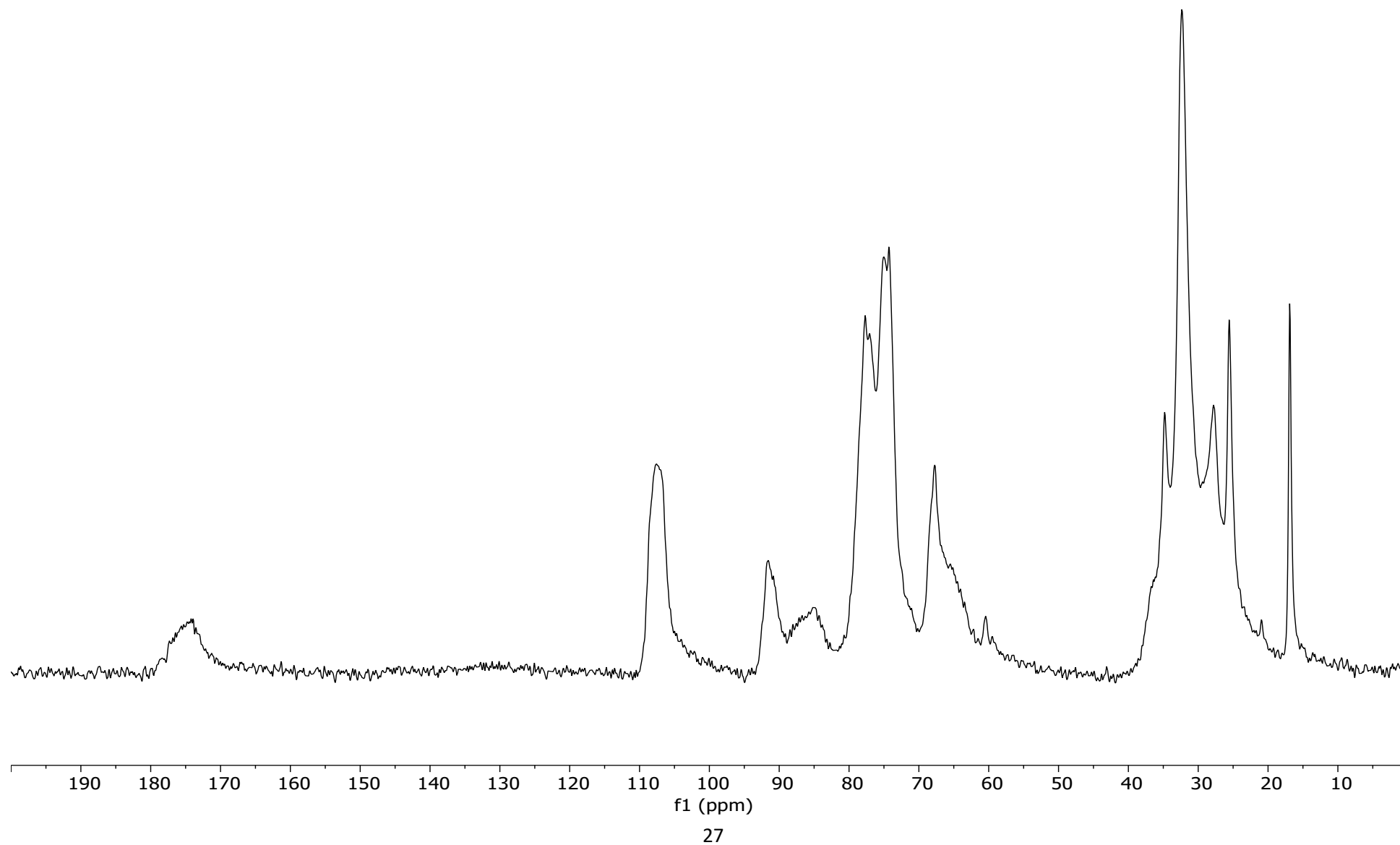


Figure S35: Solid-state ^{13}C NMR spectra of powdered polymer 9g

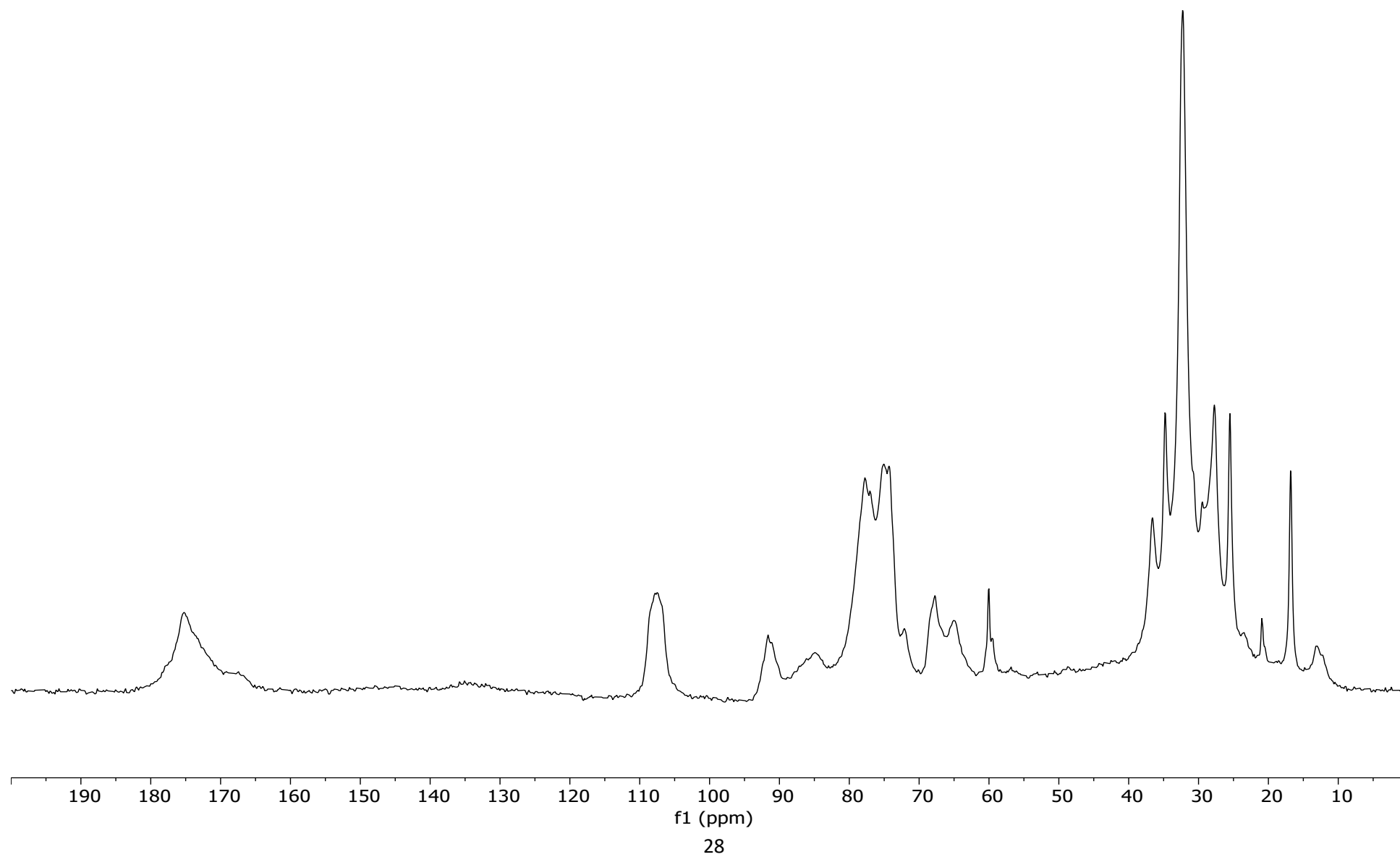


Figure S36: Solid-state ^{13}C NMR spectra of powdered polymer 9h

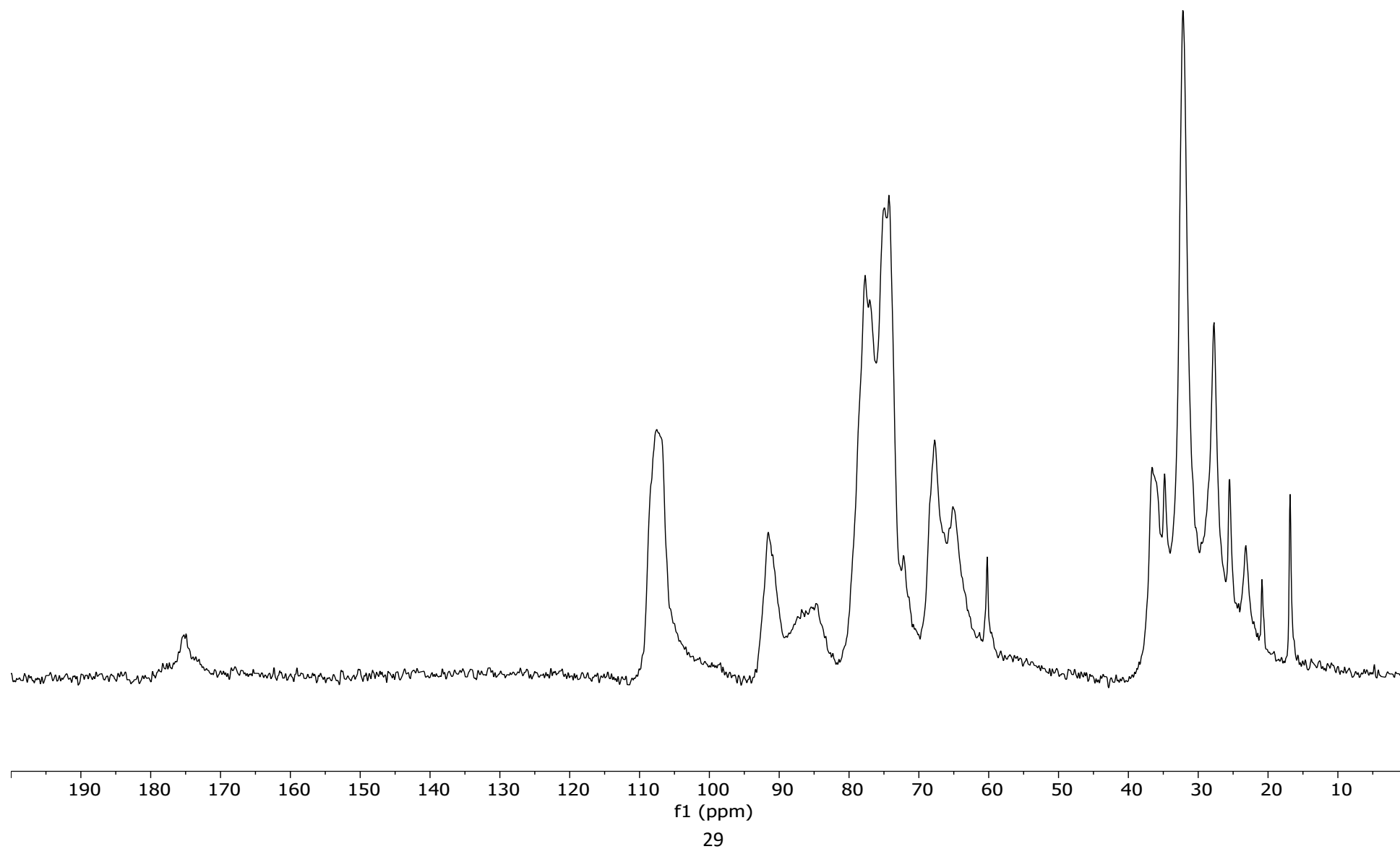


Figure S37: Overlay of the solution-state ^{13}C NMR spectrum of baru nut oil and the solid-state NMR spectrum of polymer 9e

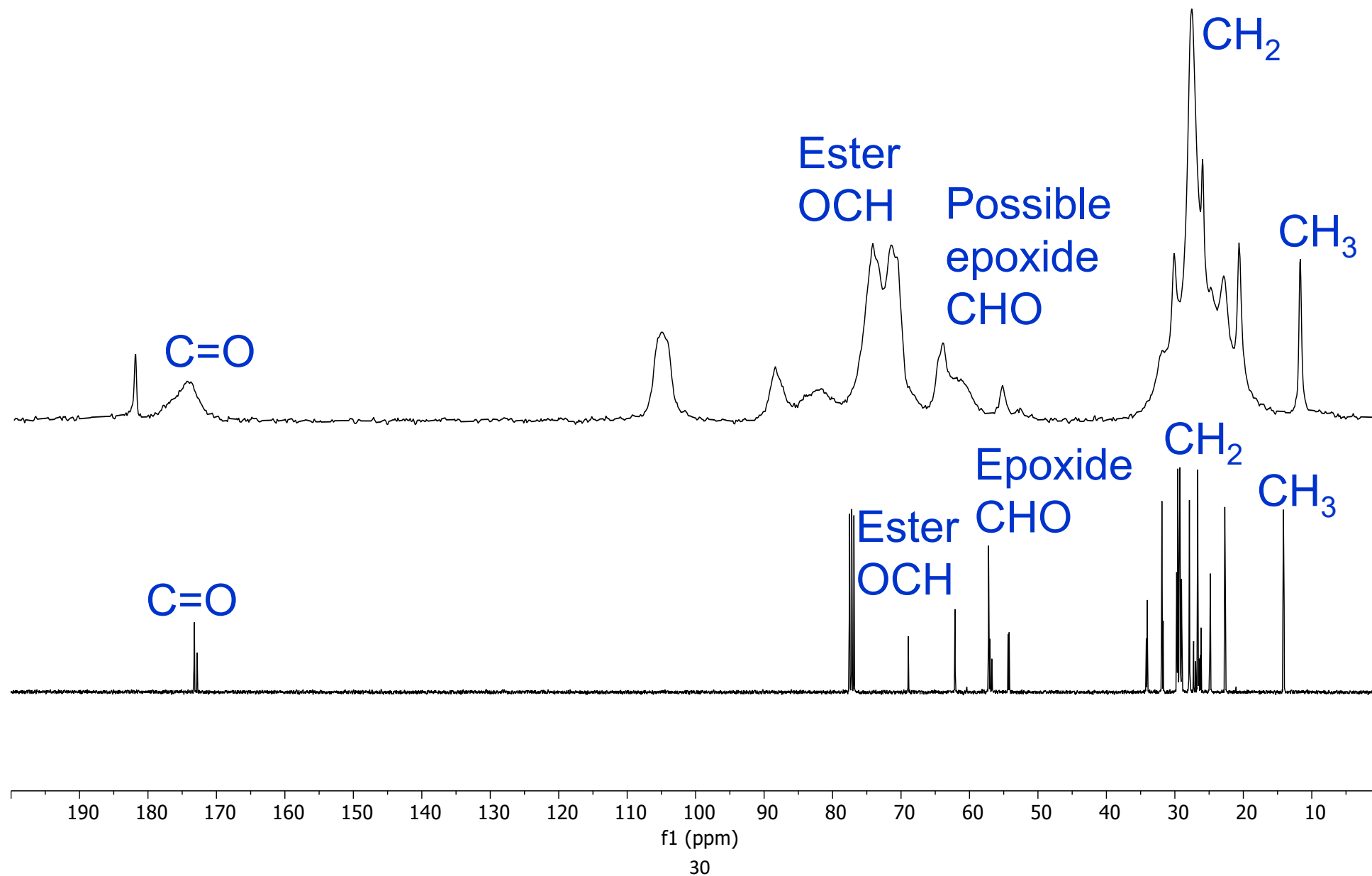


Figure S38: DSC analysis of polymer disk 9a

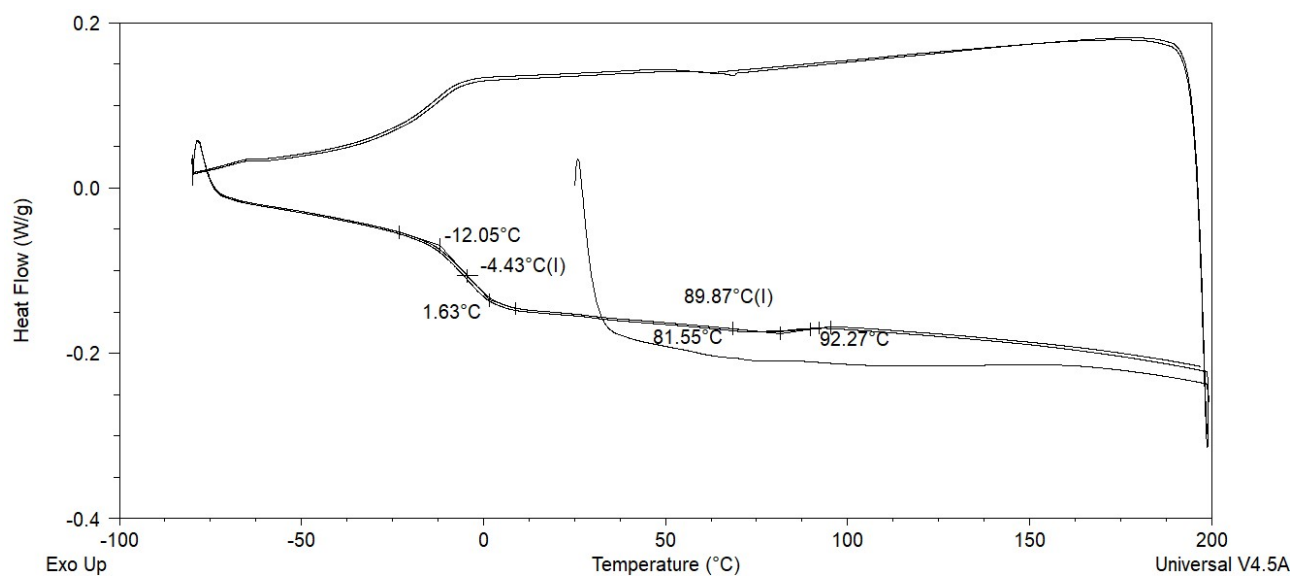


Figure S39: DSC analysis of polymer disk 9b

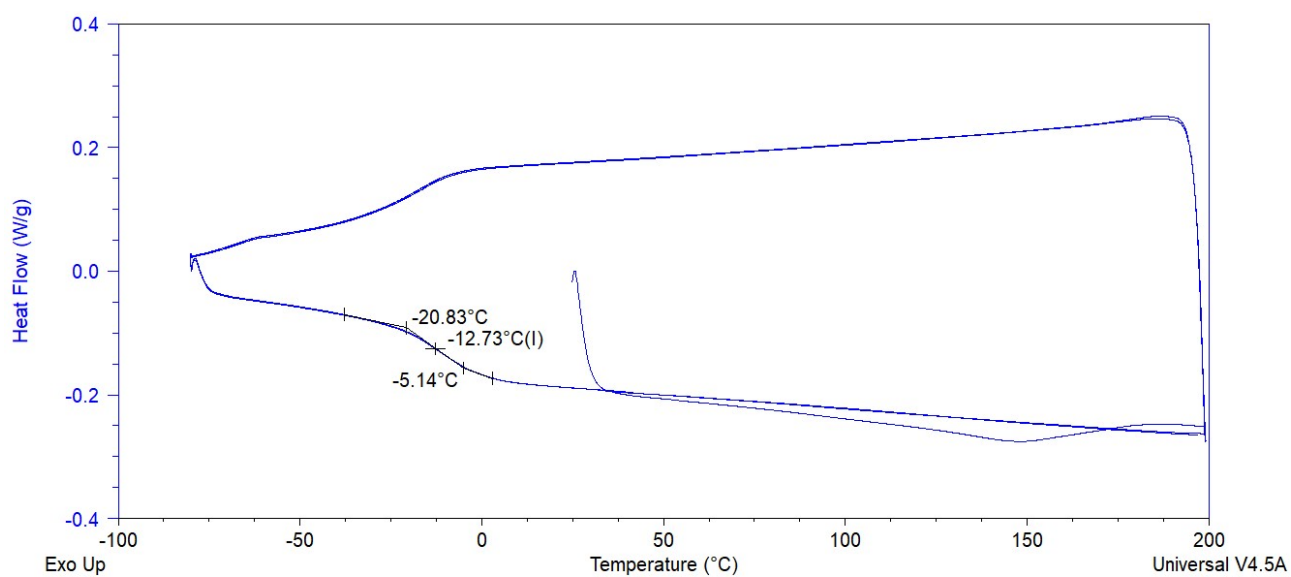


Figure S40: DSC analysis of polymer disk 9c

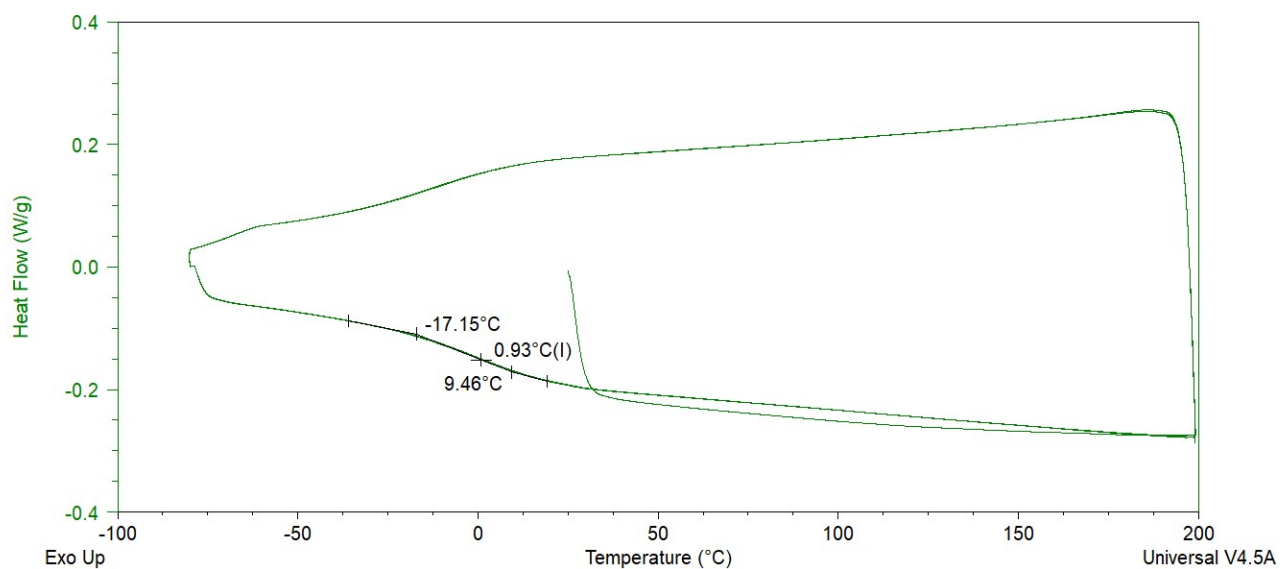


Figure S41: DSC analysis of polymer disk 9d

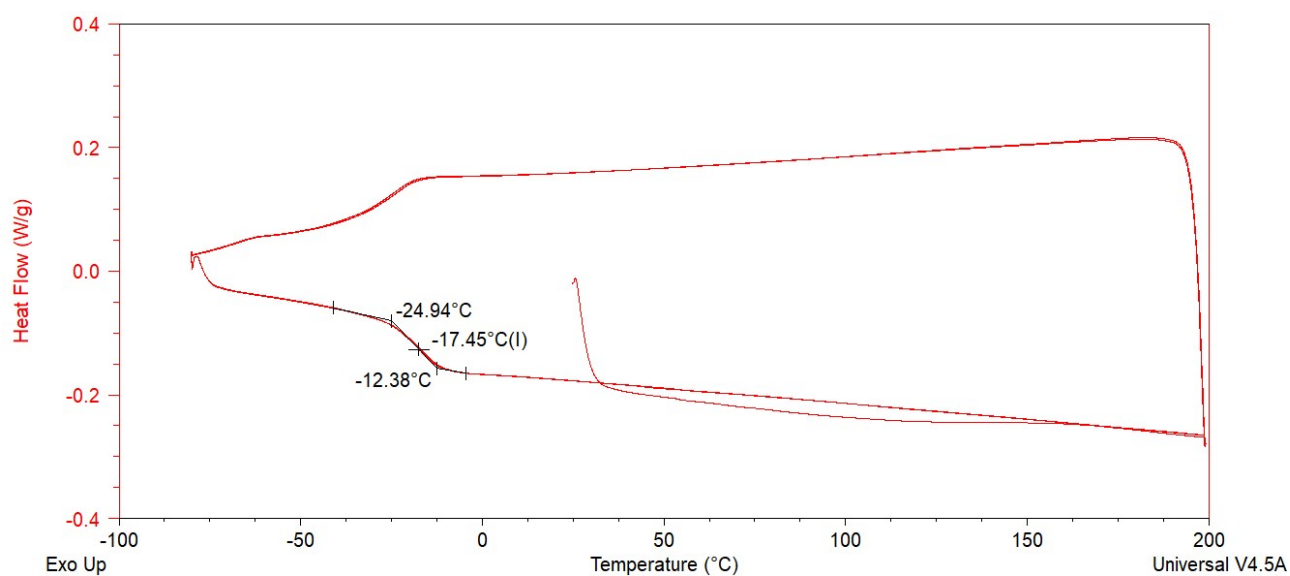


Figure S42: Relaxation measurement for each polymer determined by DMA

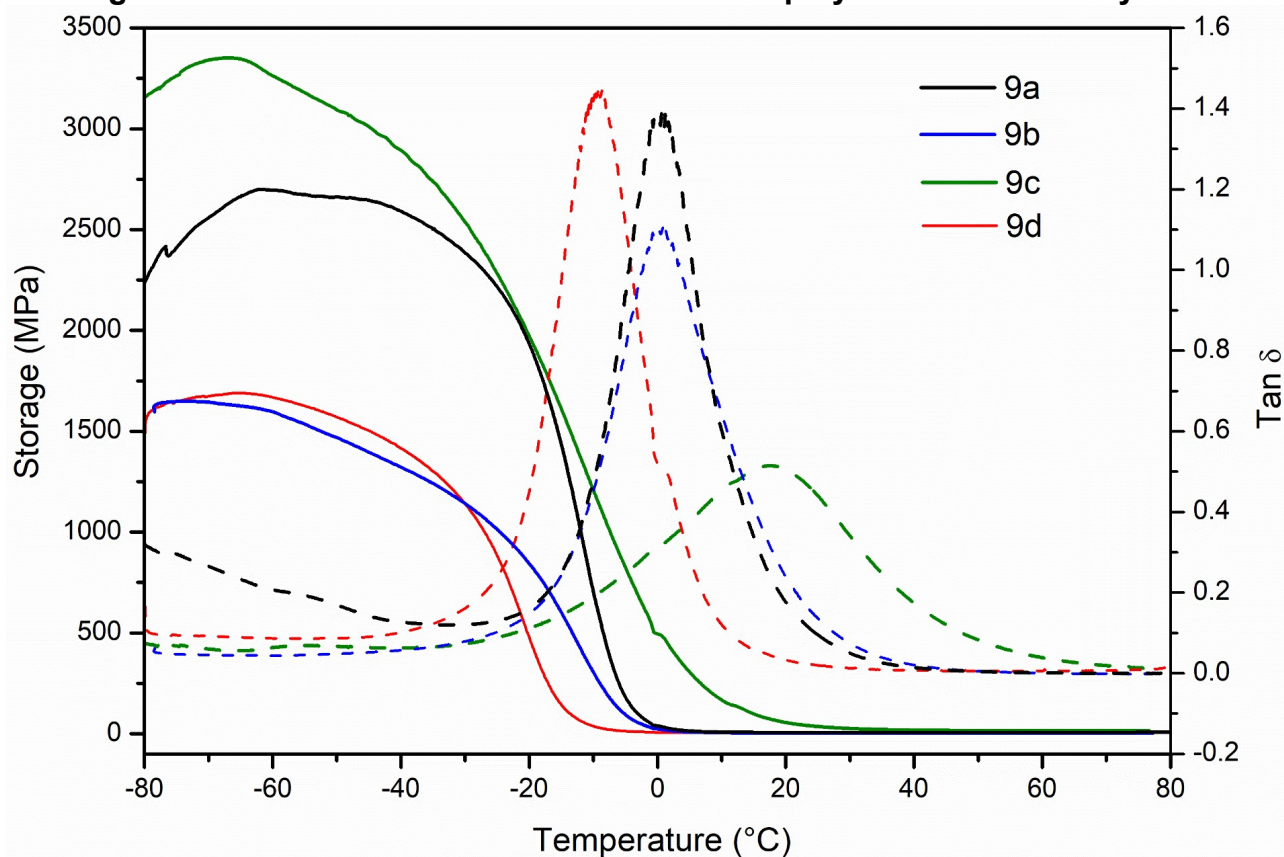


Figure S43: Stress x Strain curves for each polymer determined by DMA

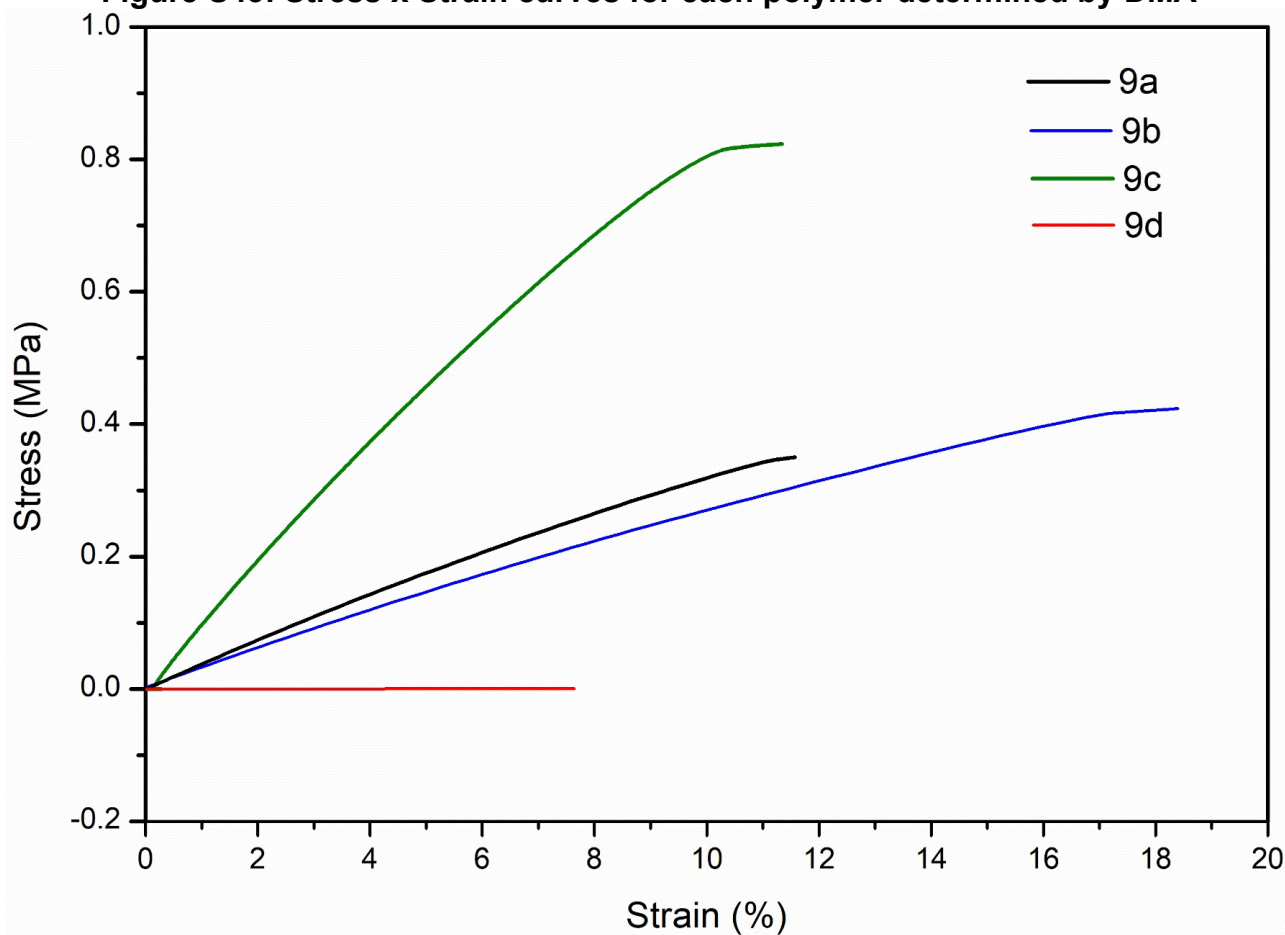
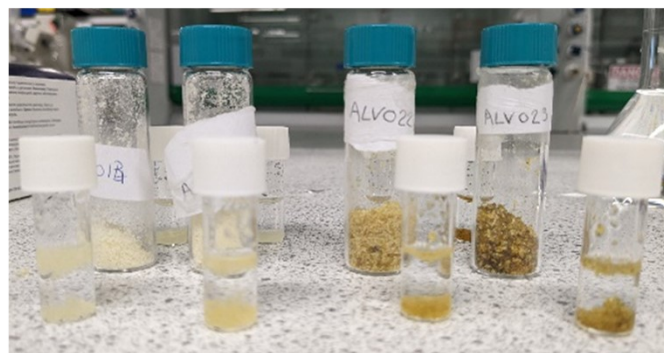


Figure S44: Aqueous sodium hydroxide hydrolysis of polymers 9a–d

$t = 0$



SA GA | IA CA

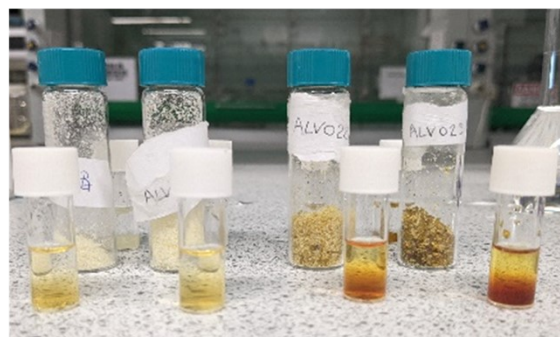
macaw-SA
macaw-IA
macaw-CA
macaw-GA
100 mg

1M NaOH
(1 ml)

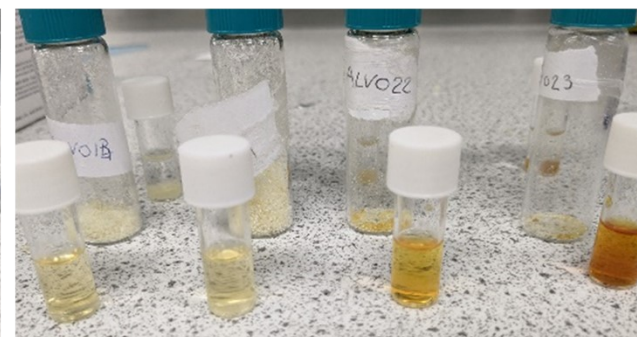
complete
degradation
in 8-24 hours



$t = 8$ hours
(only macaw-CA
not fully dissolved)



$t = 16$ hours
(macaw-CA still
not fully dissolved)



$t = 24$ hours
(all fully dissolved)

macaw-SA = **9a**; macaw-IA = **9b**; macaw-CA = **9c**; macaw-GA = **9d**.