Supporting Information:

Lewis Acids in situ Modulate Pyridazine-imine Ni catalysed Ethylene (Co)Polymerisation

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1. ^{1}H NMR and ^{13}C NMR of the Ligand.

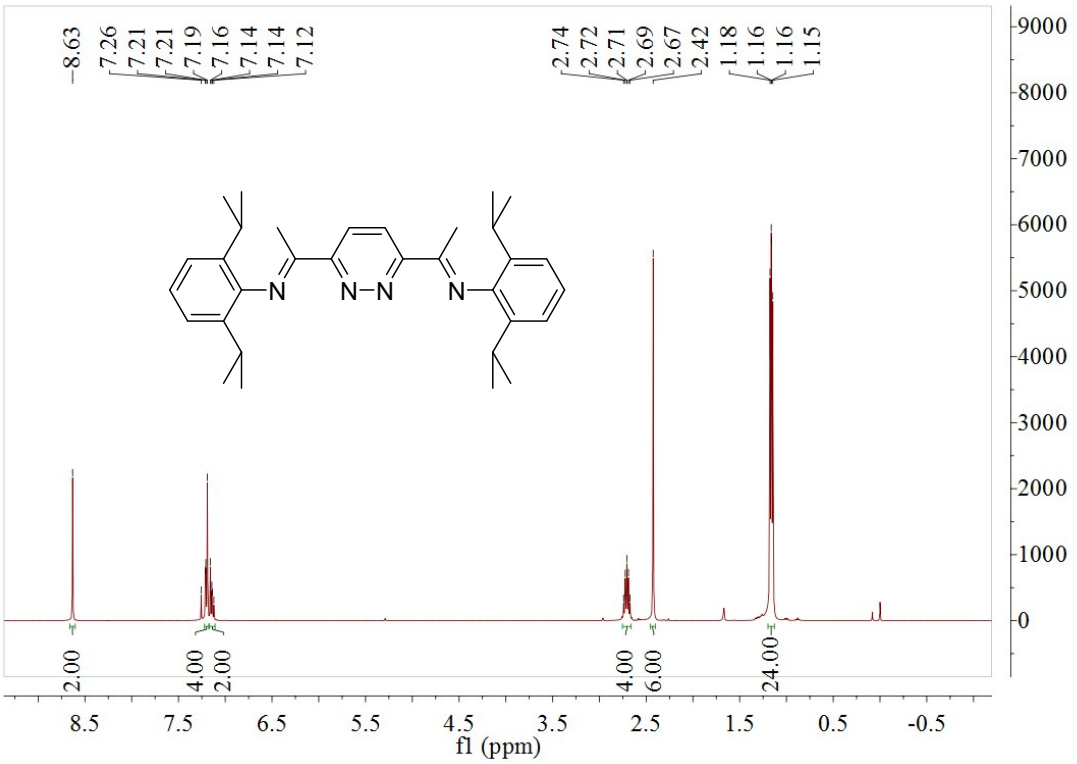


Figure S1. ^{1}H NMR of **L1** ($CDCl_3$).

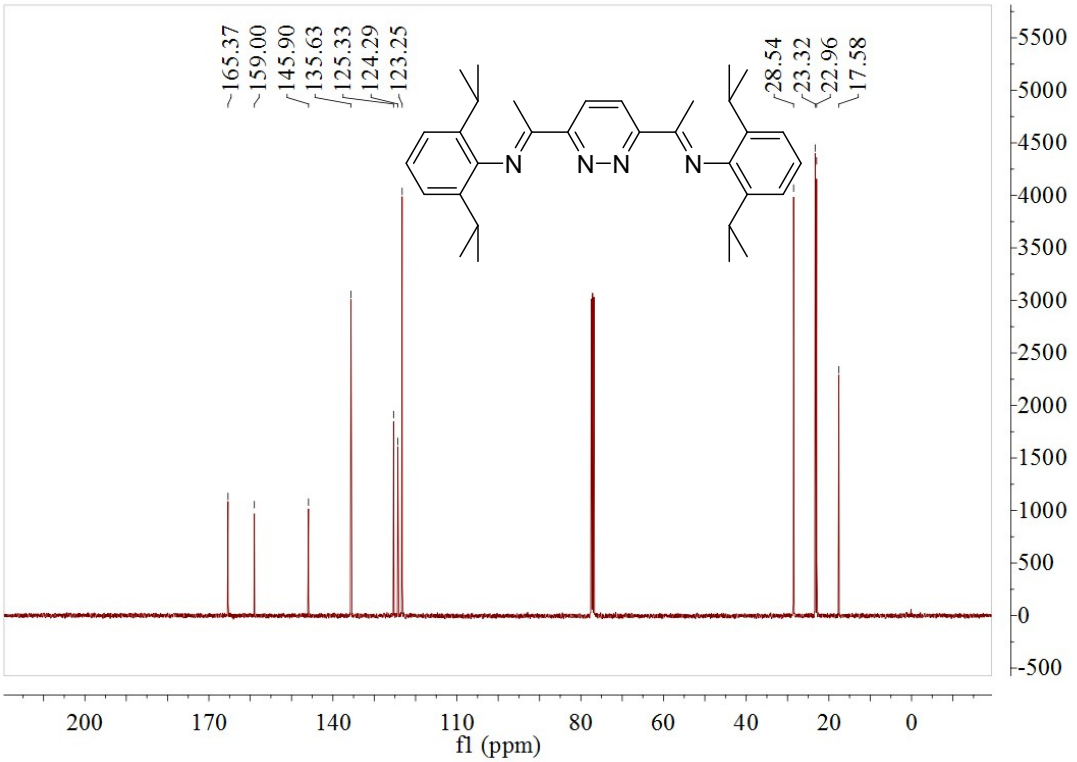


Figure S2. ^{13}C NMR of **L1** ($CDCl_3$).

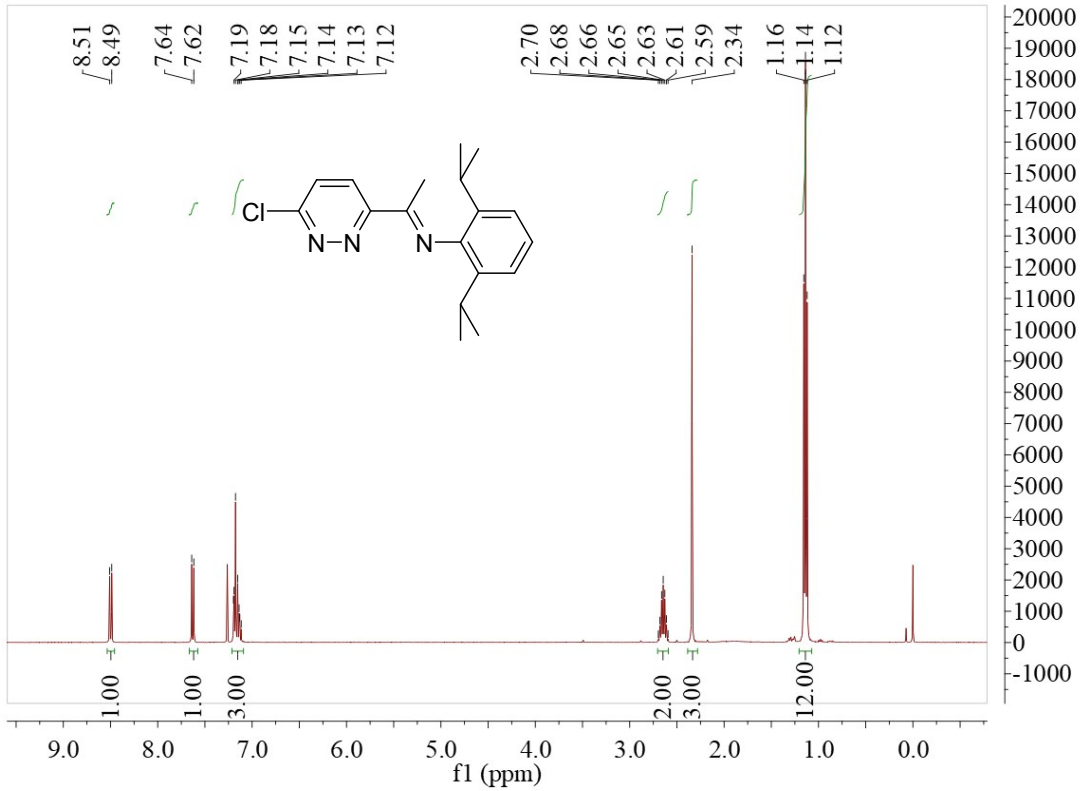


Figure S3. ^{1}H NMR of **L2** ($CDCl_3$).

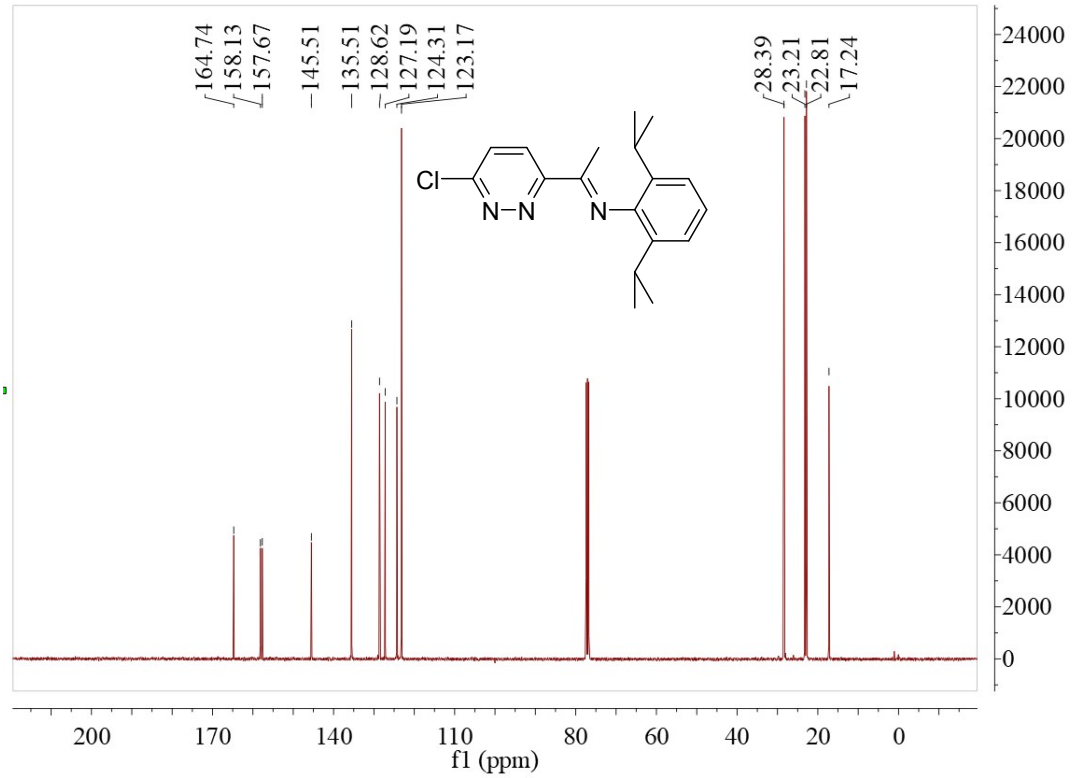


Figure S4. ^{13}C NMR of **L2** ($CDCl_3$).

2. MALDI-TOF analysis of the Nickel Complexes.

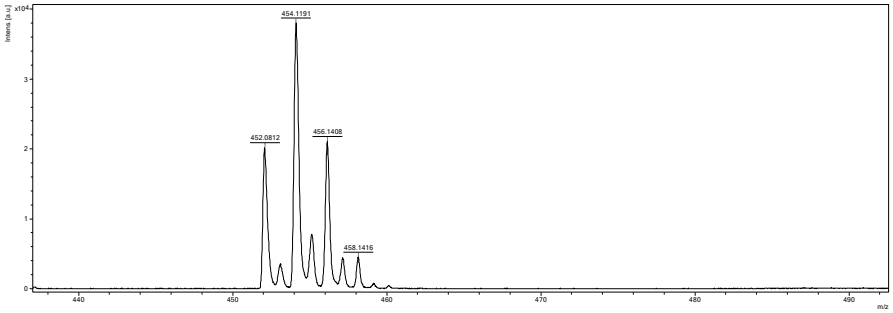


Figure S5. MAlDI-TOF of **Ni1**.

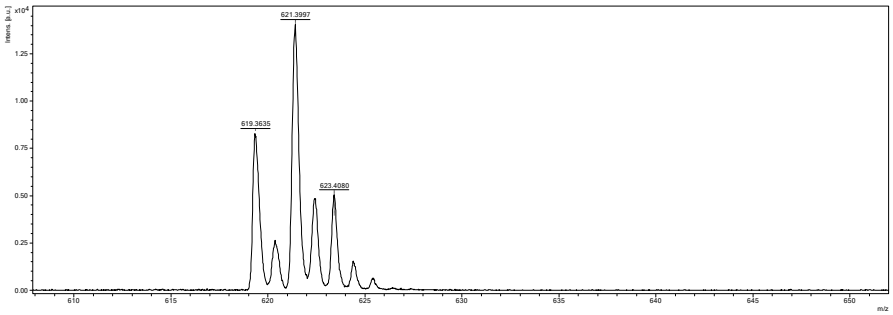


Figure S6. MAlDI-TOF of **Ni2**.

3. NMR Spectrum of the Polymers.

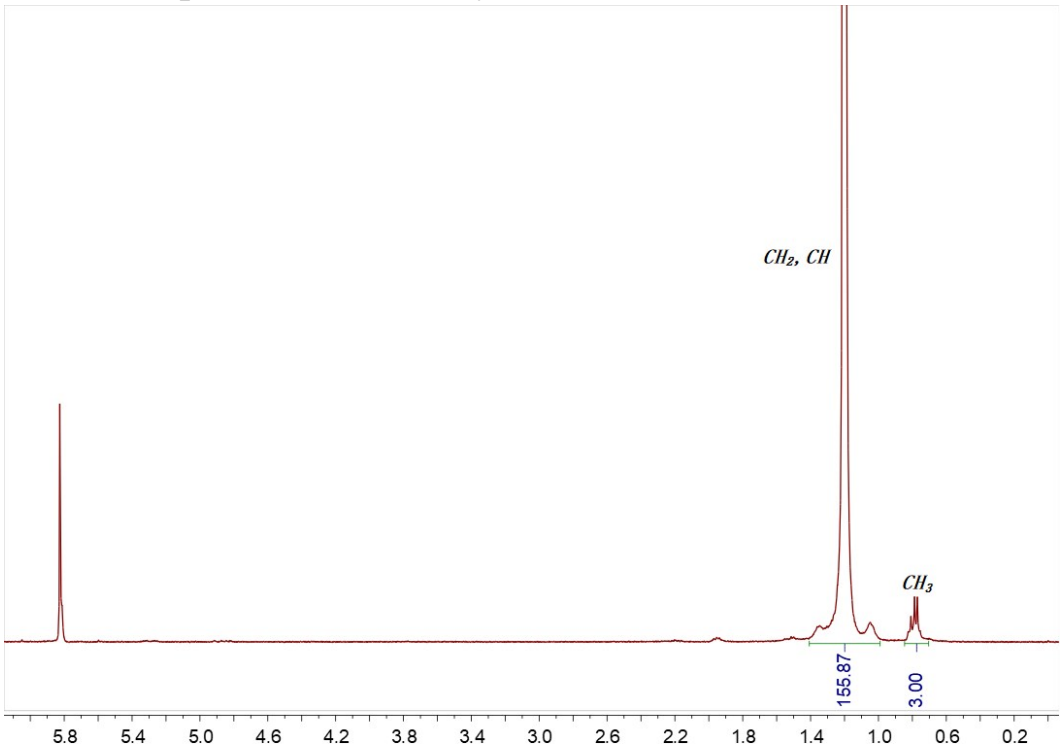


Figure S7. ^{1}H NMR spectrum of the polymer from table 1, entry 1, 120°C ($C_2D_2Cl_4$).

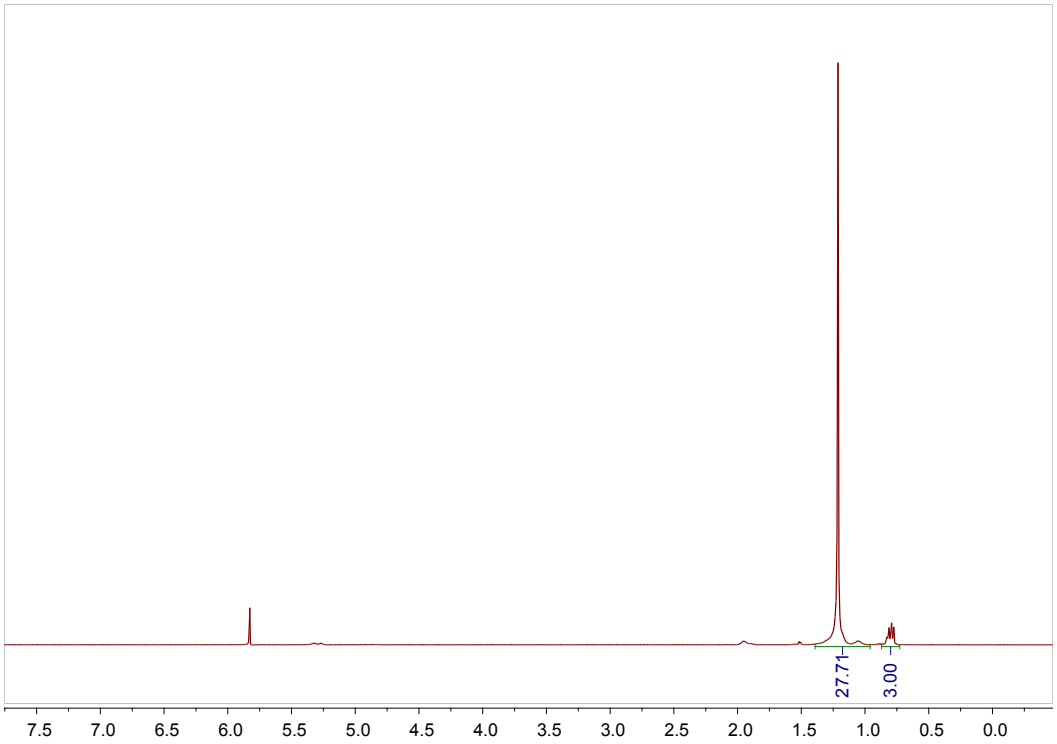


Figure S8. ^{1}H NMR spectrum of the polymer from table 1, entry 3, 120°C ($C_2D_2Cl_4$).

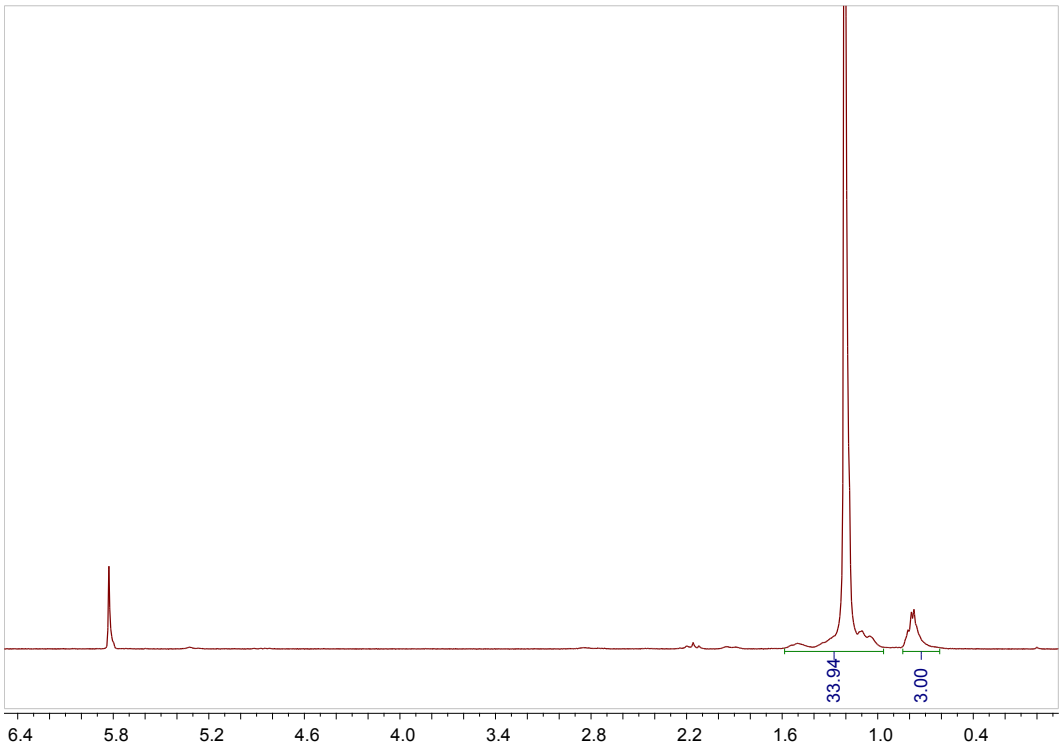


Figure S9. ^{1}H NMR spectrum of the polymer from table 1, entry 4, 120°C ($C_2D_2Cl_4$).

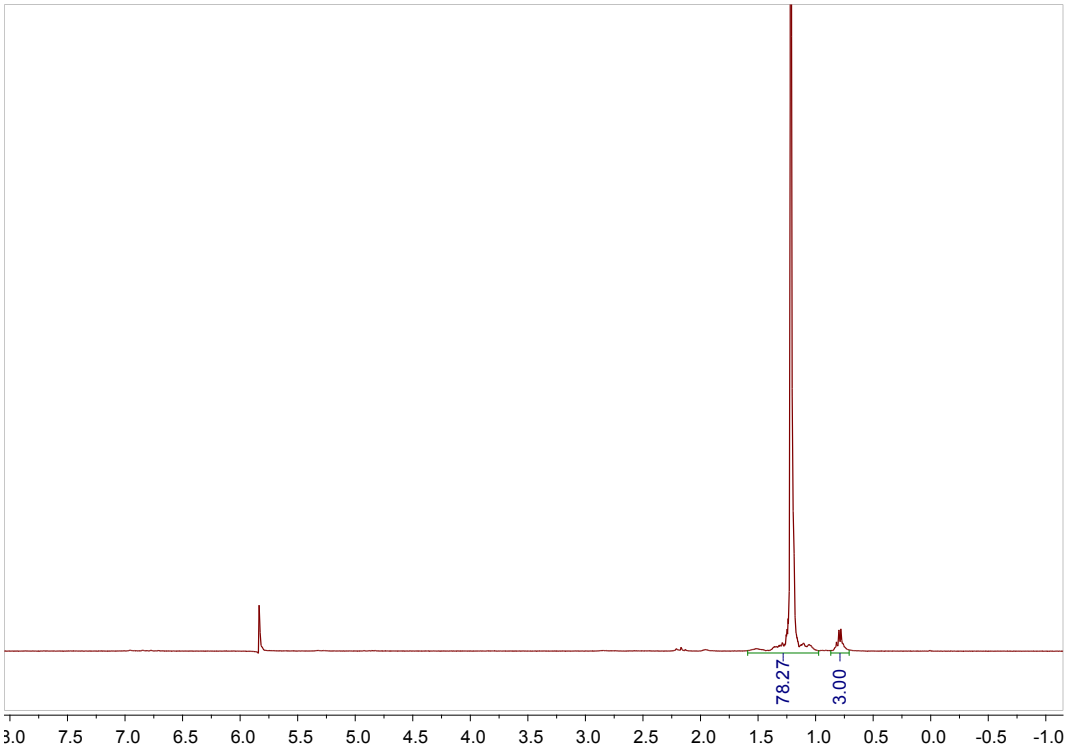


Figure S10. ^{1}H NMR spectrum of the polymer from table 1, entry 5, 120°C ($C_2D_2Cl_4$).

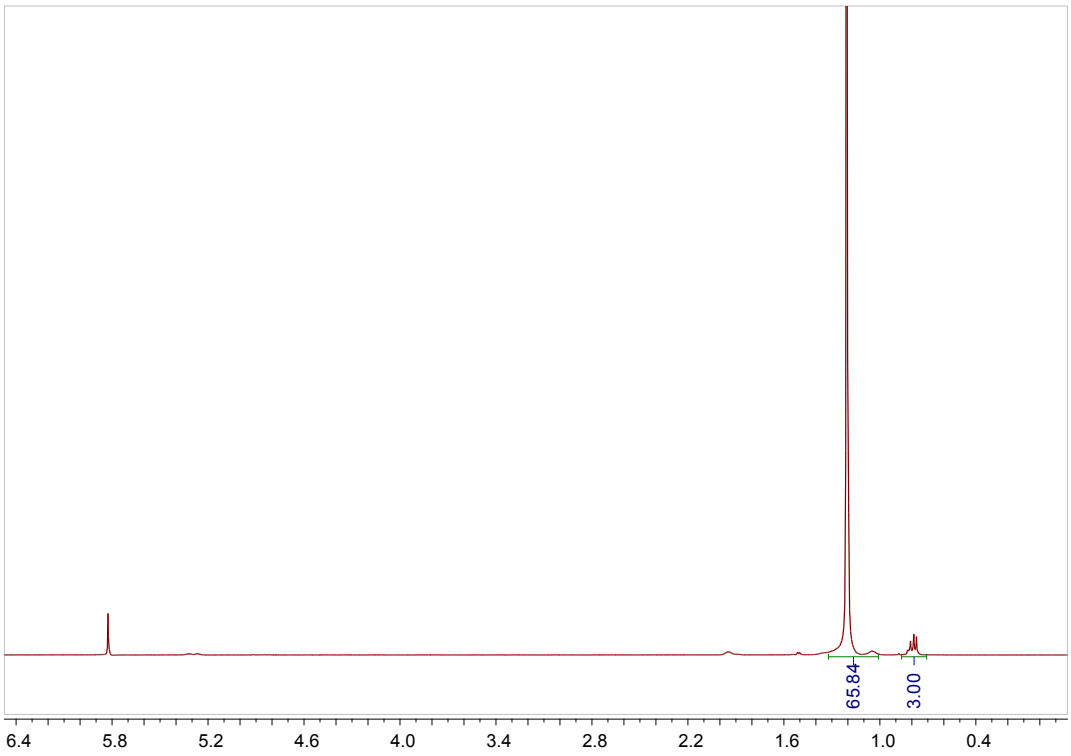


Figure S11. ^{1}H NMR spectrum of the polymer from table 1, entry 6, 120^{o}C ($C_2D_2Cl_4$).

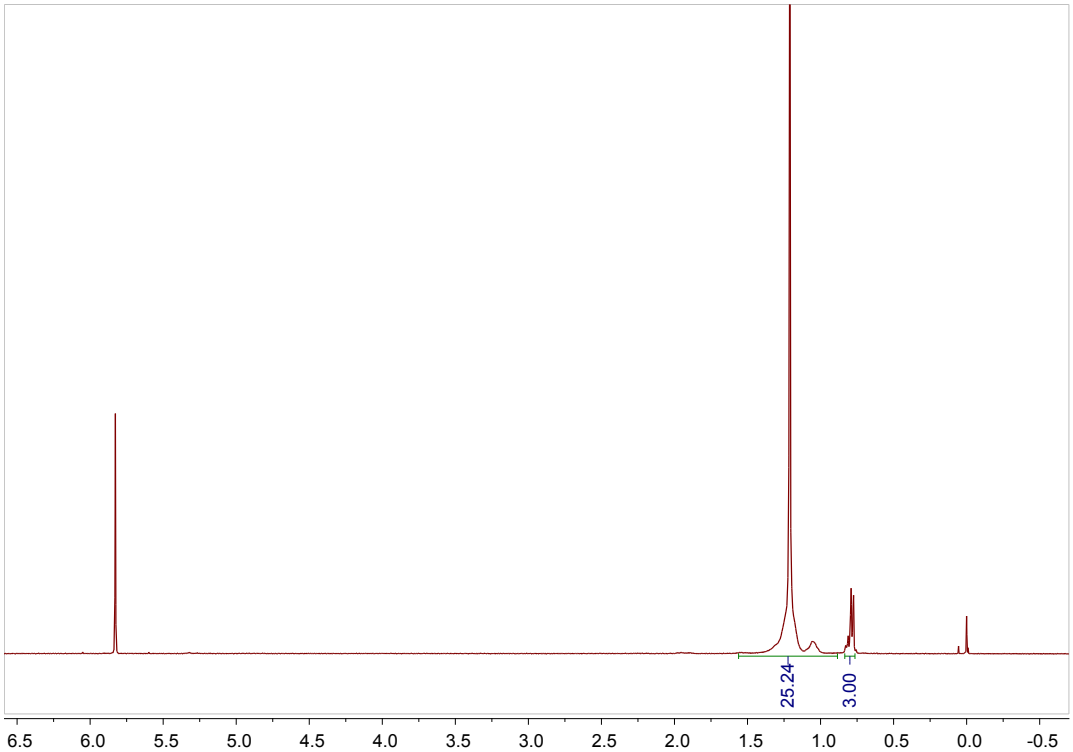


Figure S12. ^{1}H NMR spectrum of the polymer from table 1, entry 7, 120^{o}C ($C_2D_2Cl_4$).

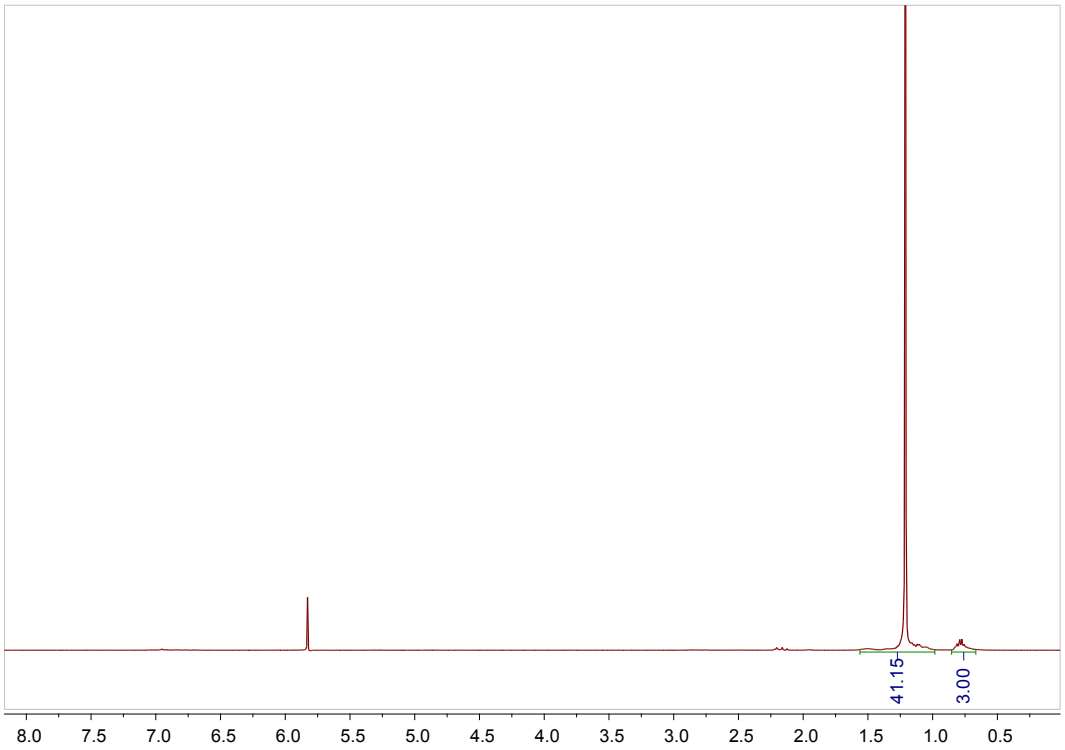


Figure S13. ^{1}H NMR spectrum of the polymer from table 1, entry 8, 120^{o}C ($C_2D_2Cl_4$).

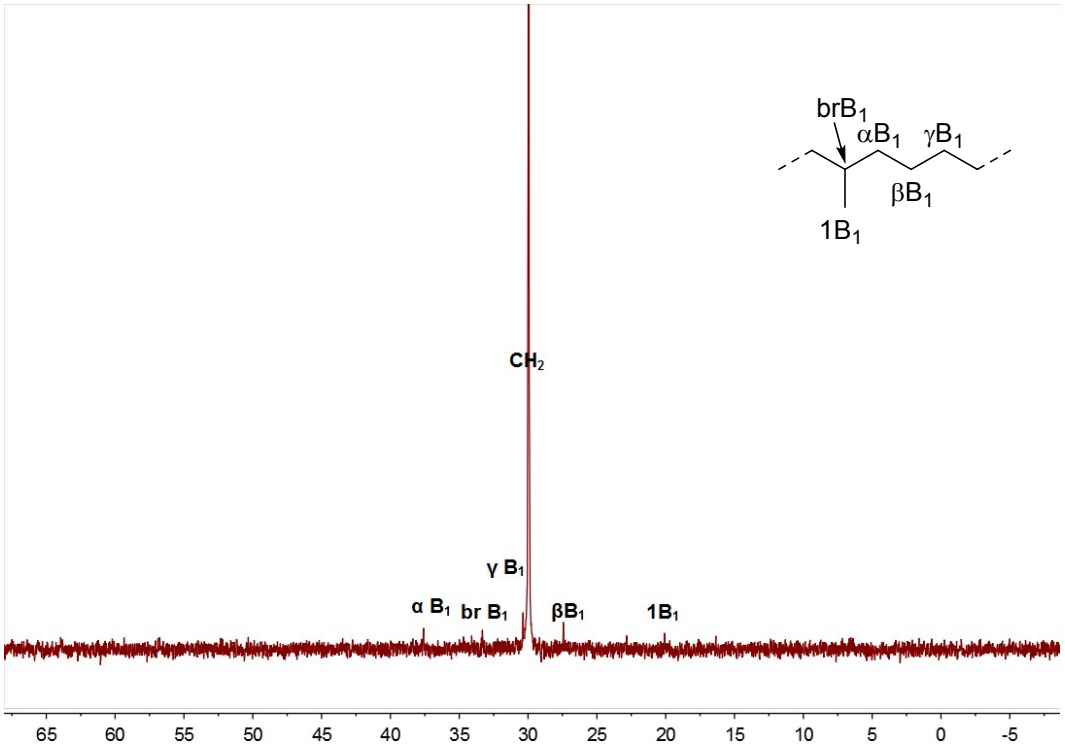


Figure S14. ^{13}C NMR spectrum of the polymer from table 1, entry 1, 120^{o}C ($C_2D_2Cl_4$).

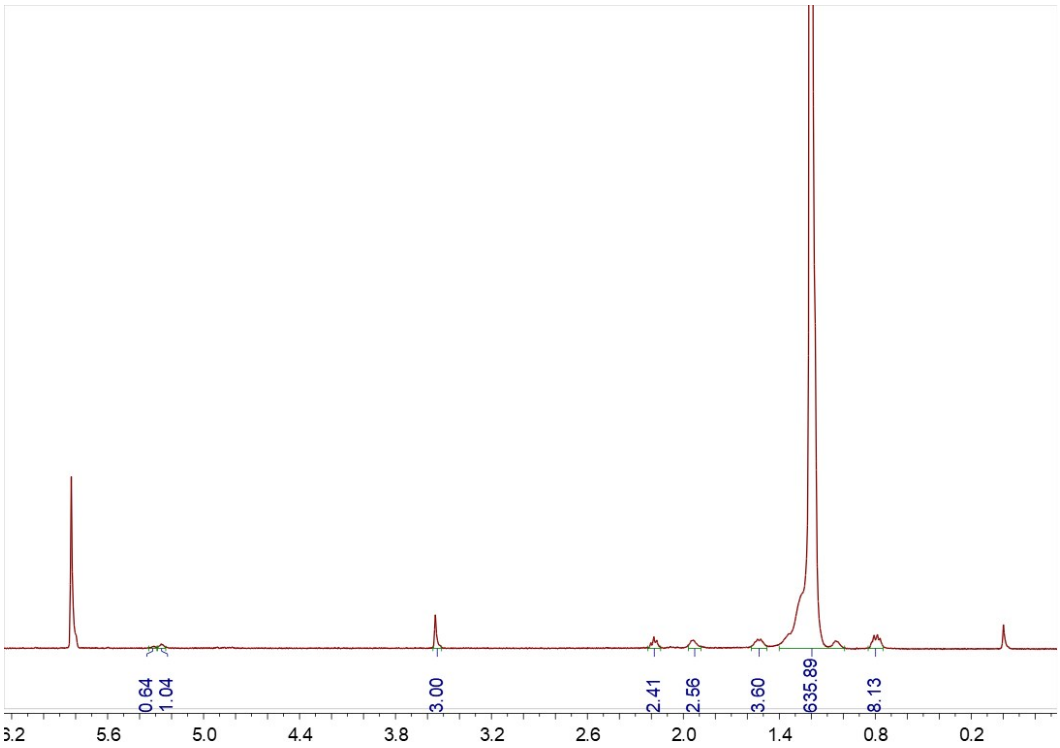


Figure S15. ^{1}H NMR spectrum of the polymer from table 2, entry 1, 120^{o}C ($C_2D_2Cl_4$).

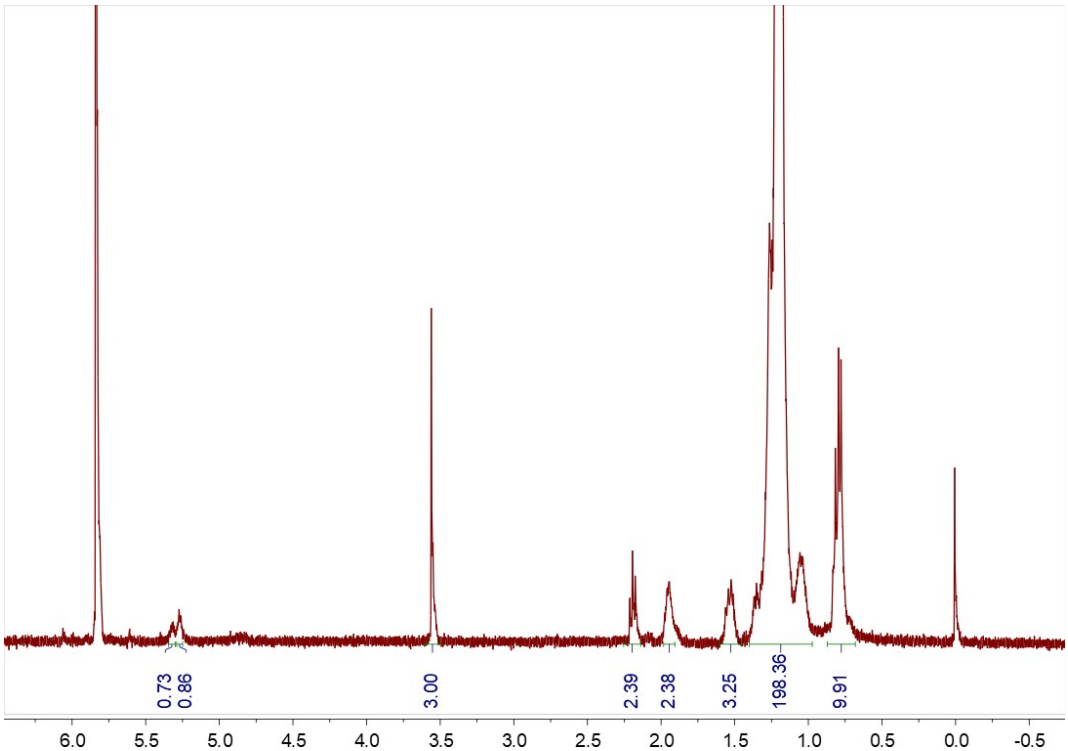


Figure S16. ^{1}H NMR spectrum of the polymer from table 2, entry 2, 120^{o}C ($C_2D_2Cl_4$).

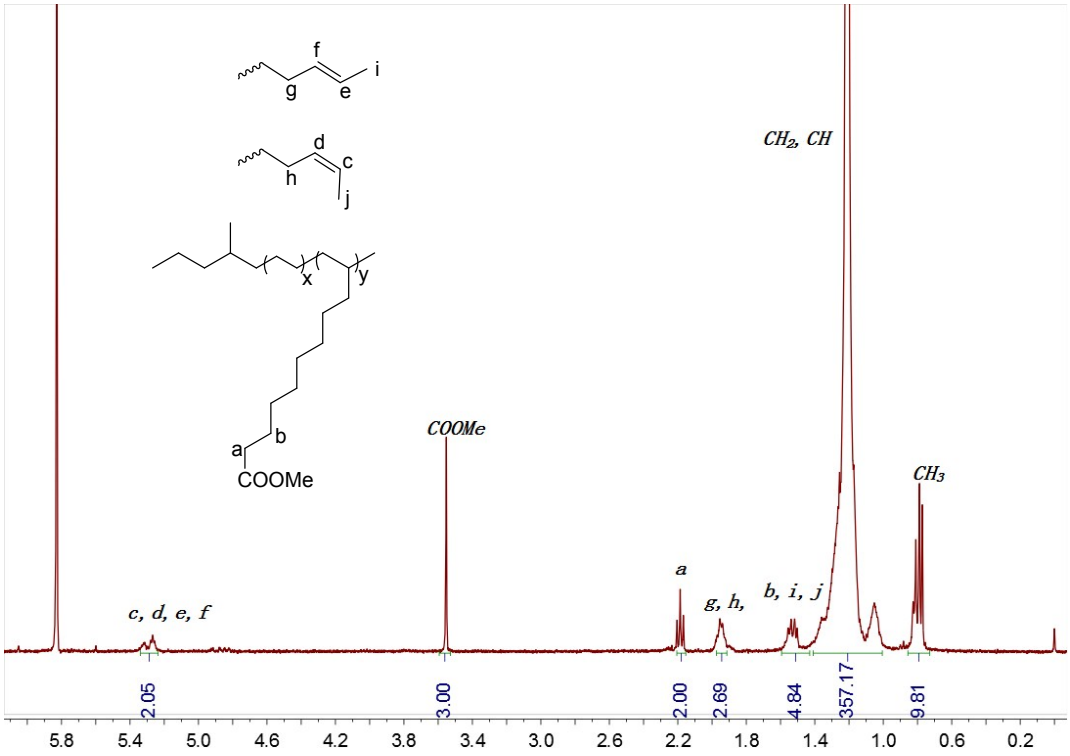


Figure S17. ^{1}H NMR spectrum of the polymer from table 2, entry 3, 120^{o}C ($C_2D_2Cl_4$).

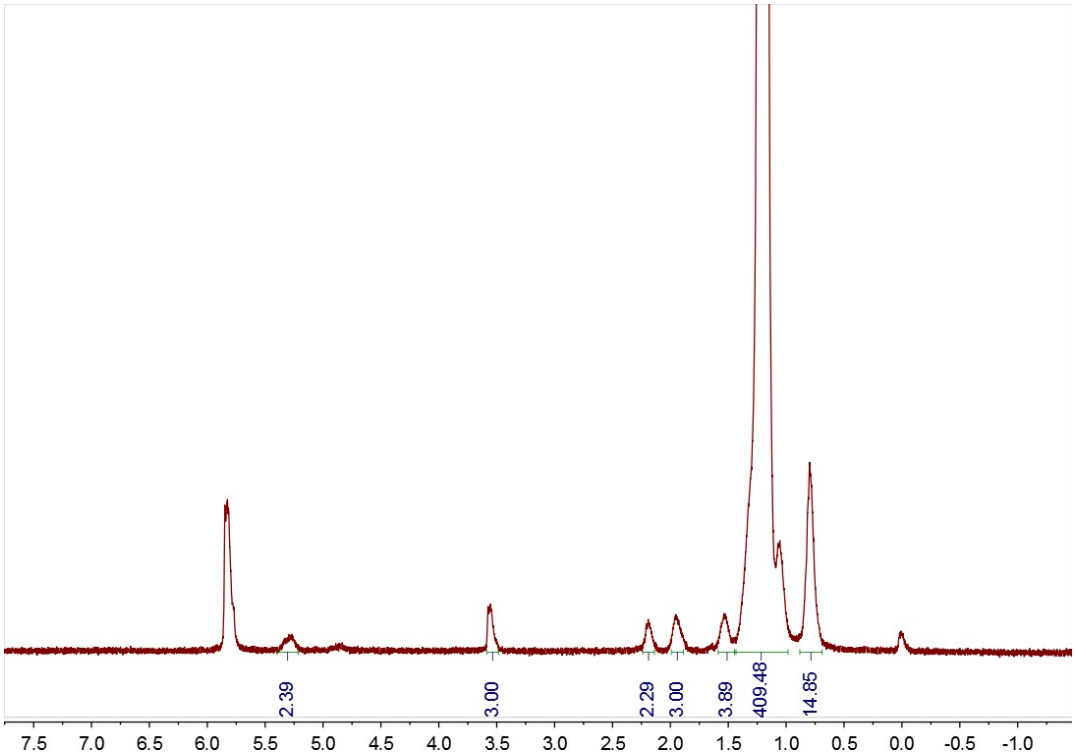


Figure S18. ^{1}H NMR spectrum of the polymer from table 2, entry 6, 120^{o}C ($C_2D_2Cl_4$).

4. DSC of the Polymers.

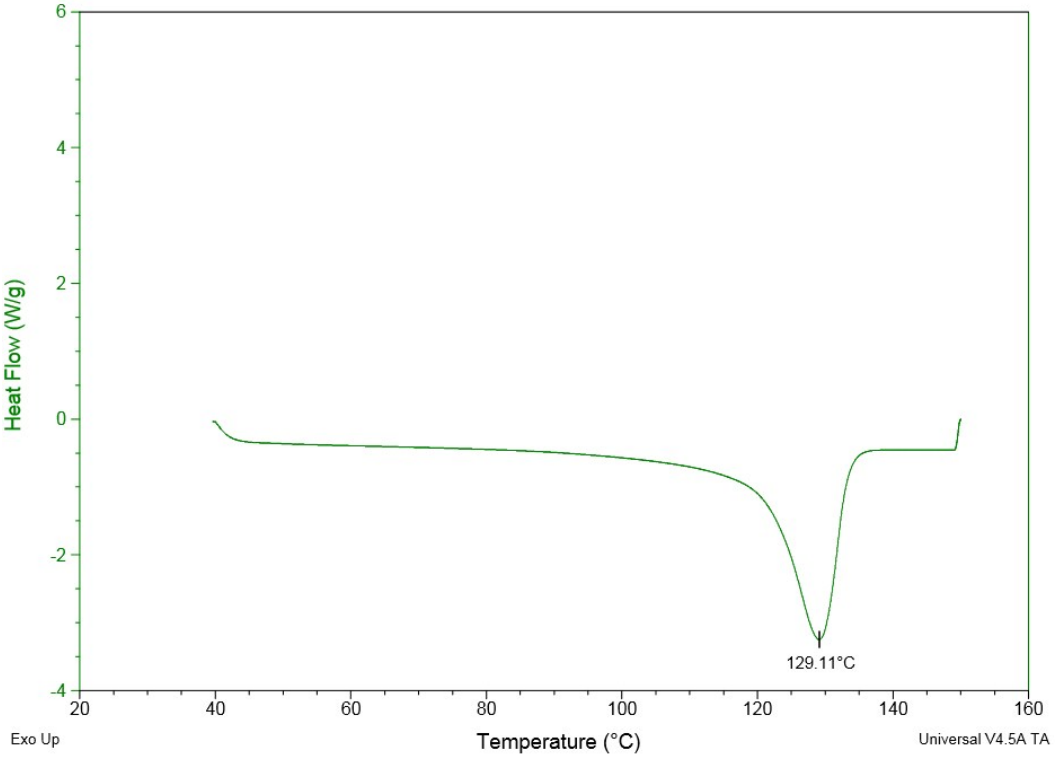


Figure S19. DSC of the polymer from table 1, entry1.

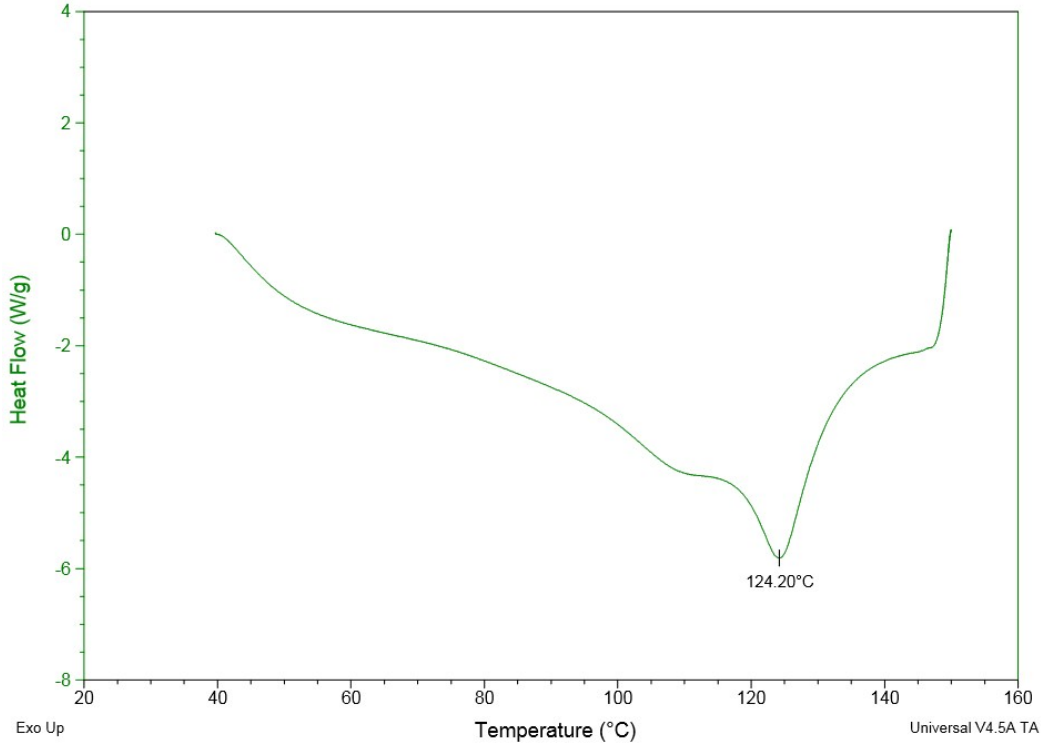


Figure S20. DSC of the polymer from table 1, entry2.

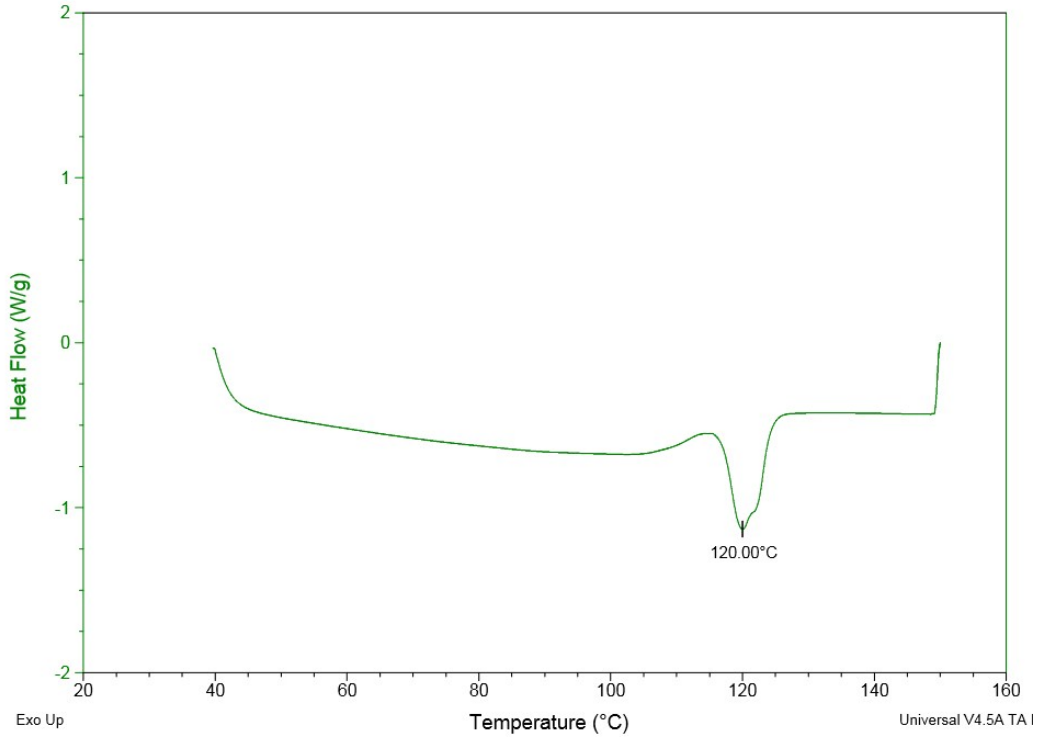


Figure S21. DSC of the polymer from table 1, entry 4.

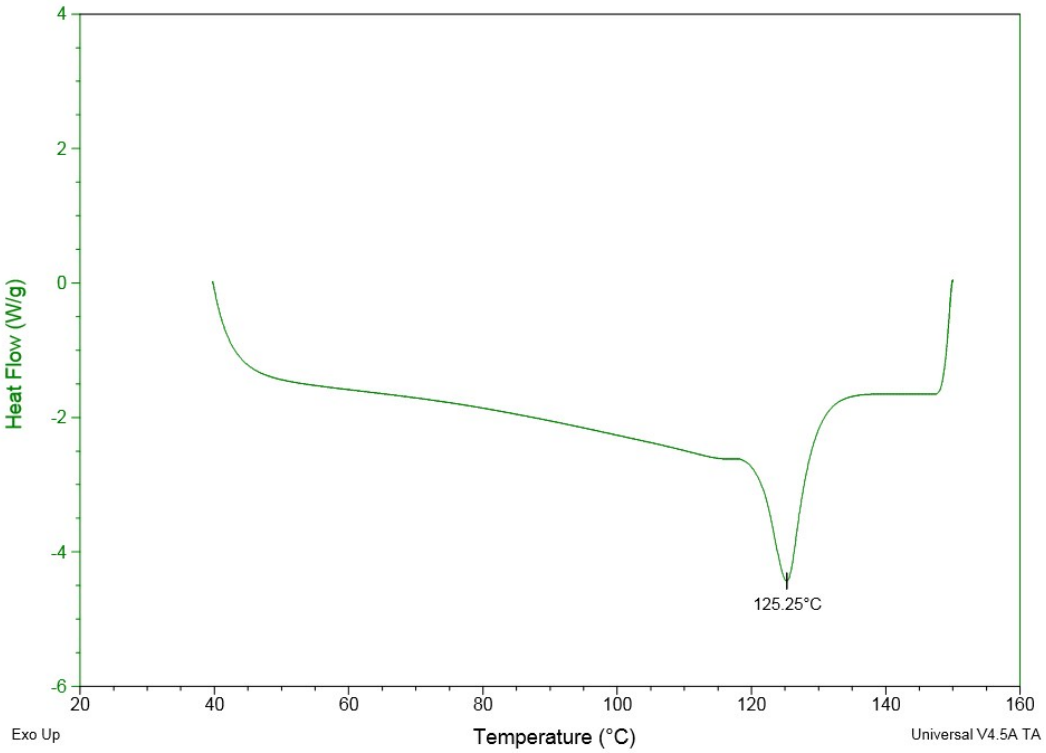


Figure S22. DSC of the polymer from table 1, entry 5.

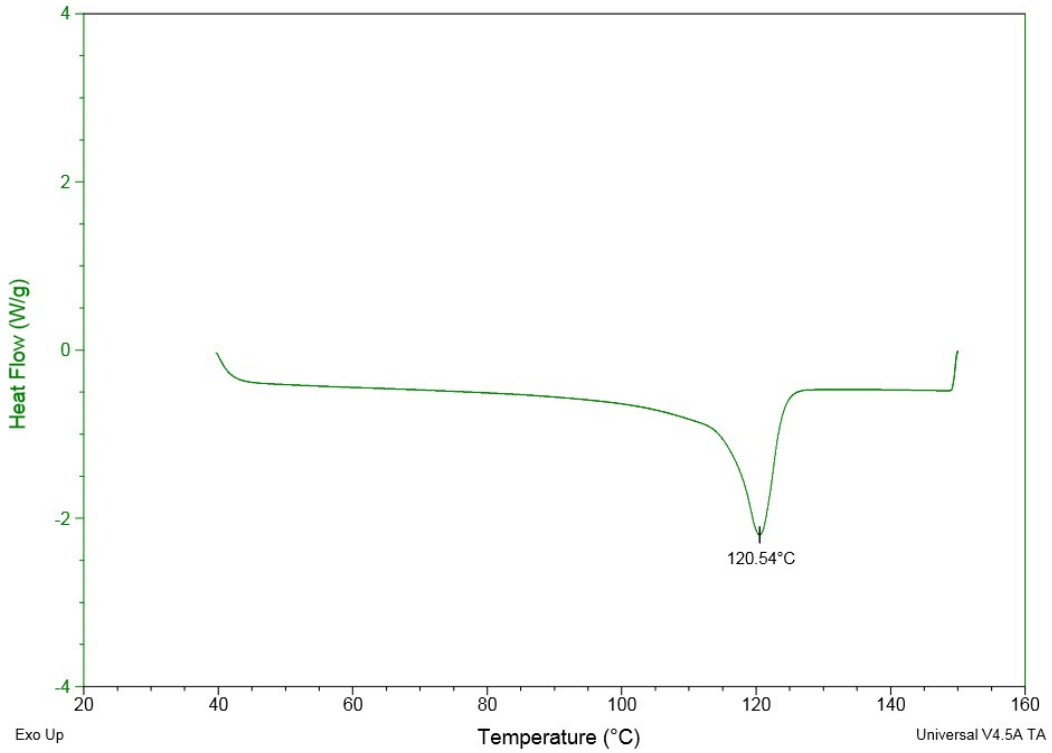


Figure S23. DSC of the polymer from table 1, entry 6.

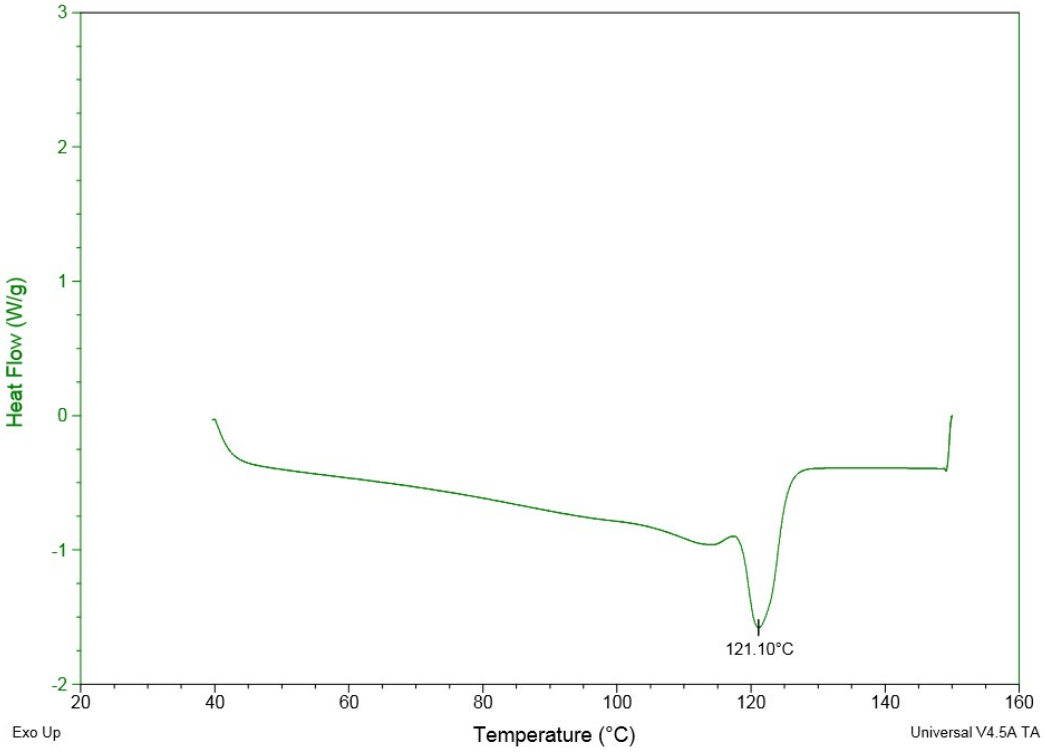


Figure S24. DSC of the polymer from table 1, entry 7.

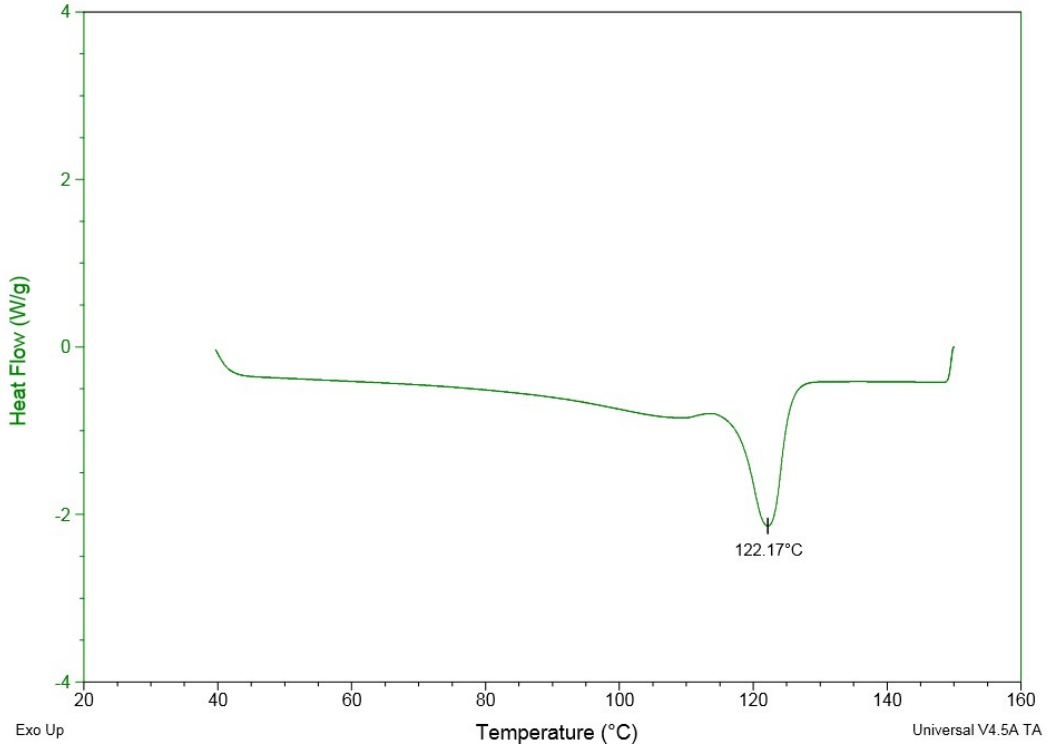


Figure S25. DSC of the polymer from table 1, entry 8.

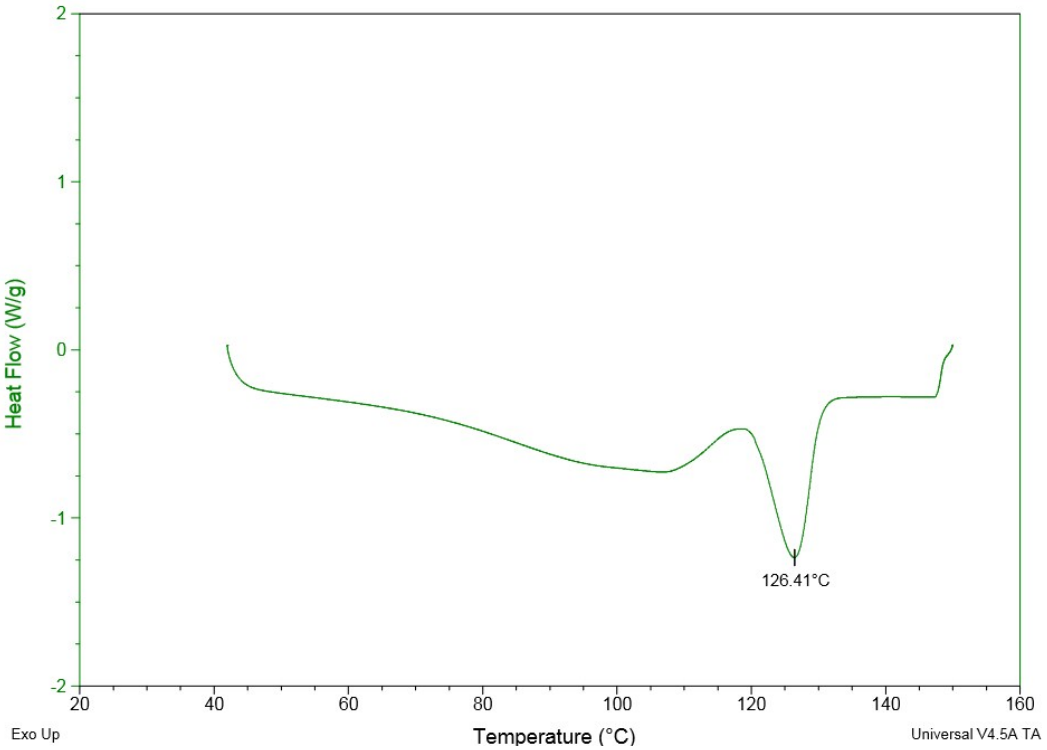


Figure S26. DSC of the polymer from table 2, entry 1.

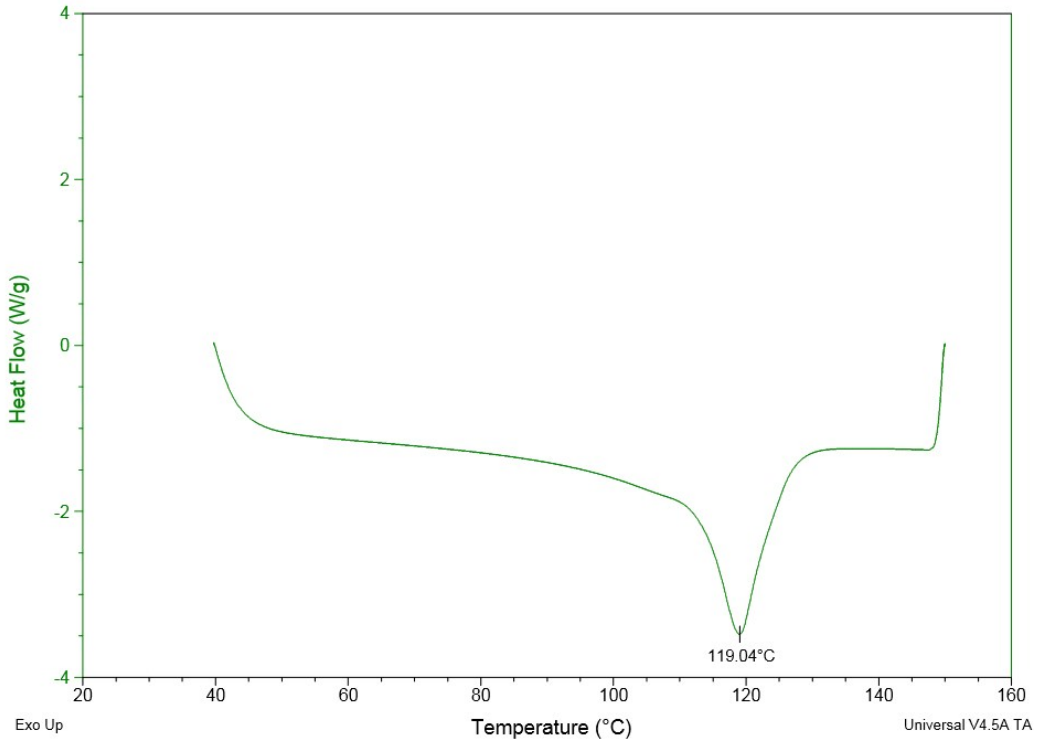


Figure S27. DSC of the polymer from table 2, entry 3.

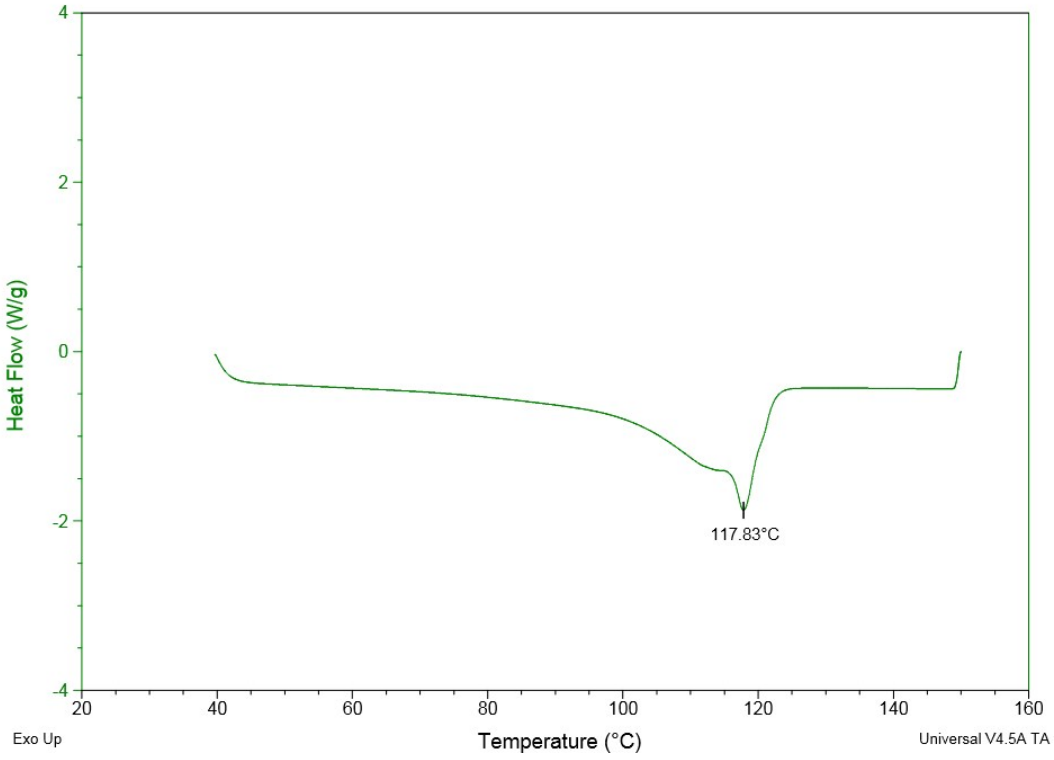
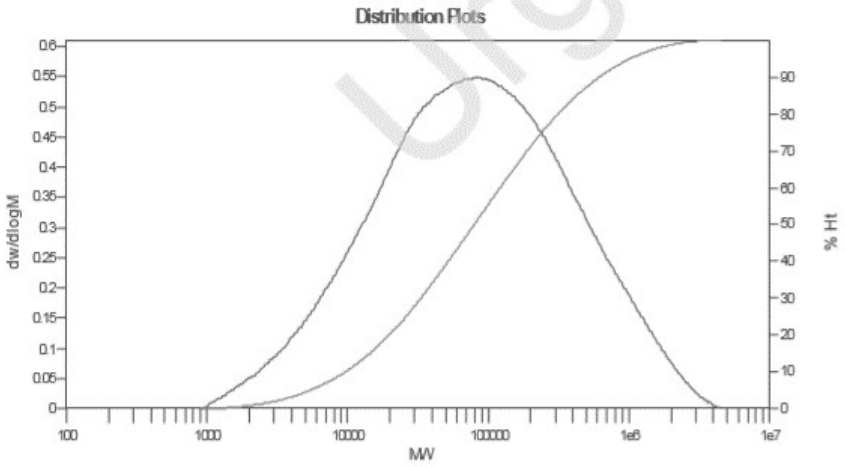


Figure S28. DSC of the polymer from table 2, entry 5.

5. GPC Spectrum of the Polymers.



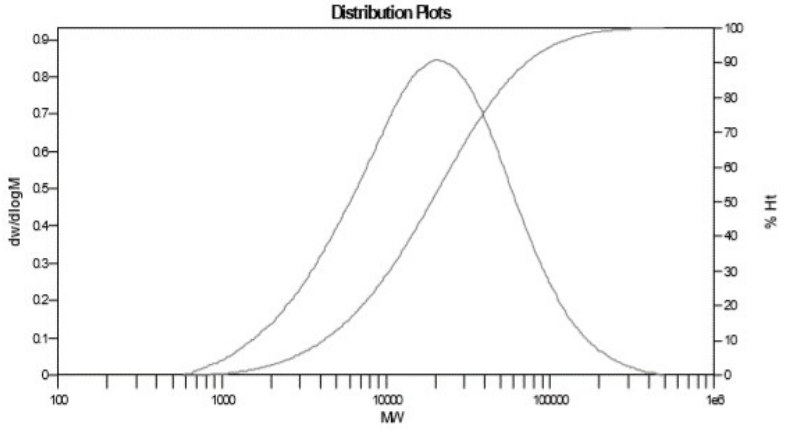
MW Averages

Peak No	Mp	Mn	Mw	Mz	Mz+1	Mv	PD
1	86903	23750	227717	927124	1685917	170953	9.58808

Processed Peaks

Peak No	Name	Start RT (mins)	Max RT (mins)	End RT (mins)	Pk Height (mV)	% Height	Area (mV.secs)	% Area
1		11.10	13.97	17.22	8.85113	0	1601.25	100

Figure S29. GPC of the polymer from table 1, entry 1.



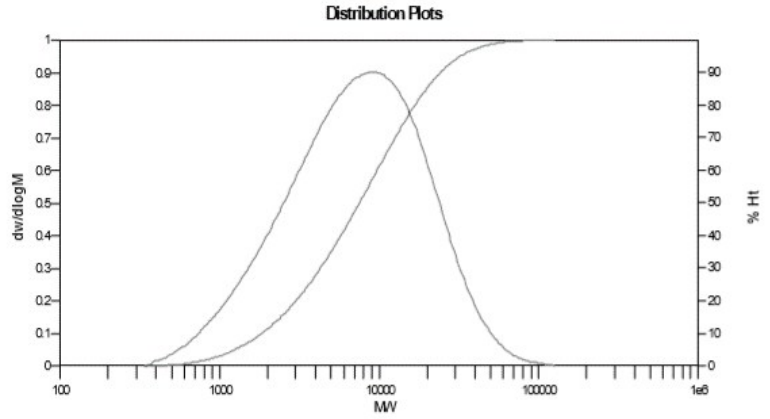
MW Averages

Peak No	Mp	Mn	Mw	Mz	Mz+1	Mv	PD
1	20894	9570	31217	79765	152074	26629	3.26196

Processed Peaks

Peak No	Name	Start RT (mins)	Max RT (mins)	End RT (mins)	Pk Height (mV)	% Height	Area (mV.secs)	% Area
1		11.78	13.92	16.33	13.1866	0	1454.76	100

Figure S30. GPC of the polymer from table 1, entry 2.



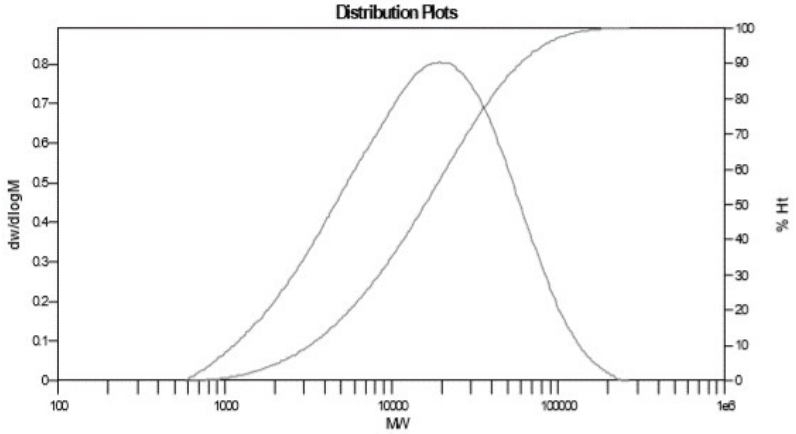
MW Averages

Peak No	Mp	Mn	Mw	Mz	Mz+1	Mv	PD
1	9254	4218	10834	21903	36212	9589	2.56852

Processed Peaks

Peak No	Name	Start RT (mins)	Max RT (mins)	End RT (mins)	Pk Height (mV)	% Height	Area (mV.secs)	% Area
1		12.70	14.47	16.70	19.1519	0	1979.1	100

Figure S31. GPC of the polymer from table 1, entry 3.



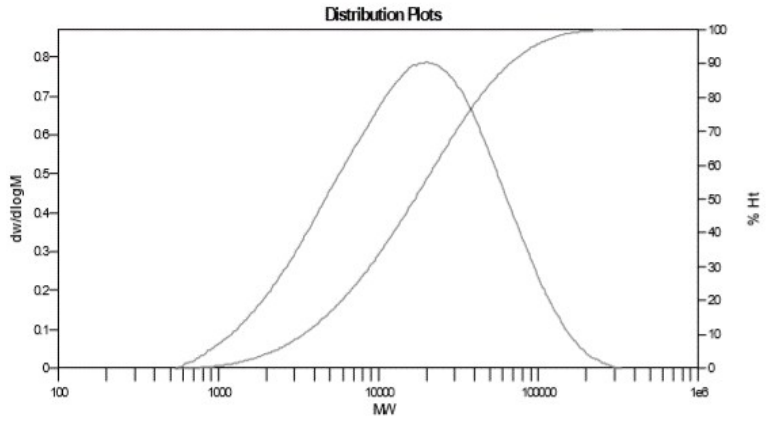
MW Averages

Peak No	Mp	Mn	Mw	Mz	Mz+1	Mv	PD
1	19403	7765	24895	54476	86924	21546	3.20605

Processed Peaks

Peak No	Name	Start RT (mins)	Max RT (mins)	End RT (mins)	Pk Height (mV)	% Height	Area (mV.secs)	% Area
1		12.20	13.97	16.33	13.6094	0	1577.4	100

Figure S32. GPC of the polymer from table 1, entry 4.



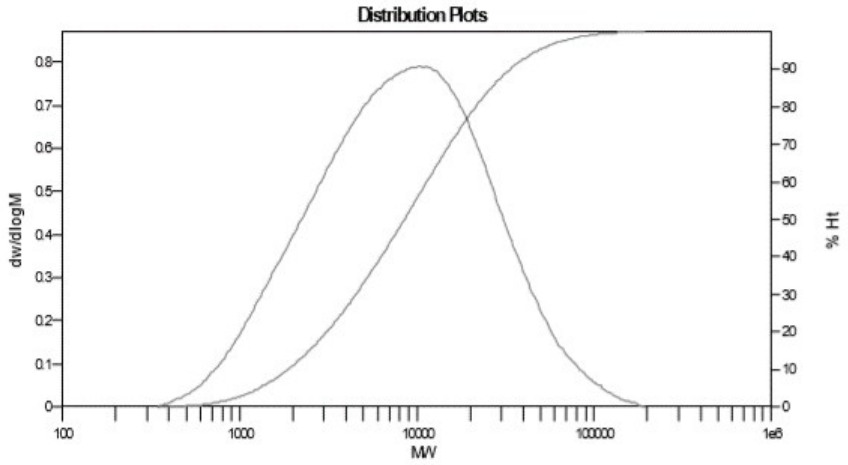
MW Averages

Peak No	Mp	Mn	Mw	Mz	Mz+1	Mv	PD
1	19888	8150	27597	64292	106646	23640	3.38613

Processed Peaks

Peak No	Name	Start RT (mins)	Max RT (mins)	End RT (mins)	Pk Height (mV)	% Height	Area (mV.secs)	% Area
1		12.05	13.95	16.38	16.1915	0	1920.94	100

Figure S33. GPC of the polymer from table 1, entry 6.



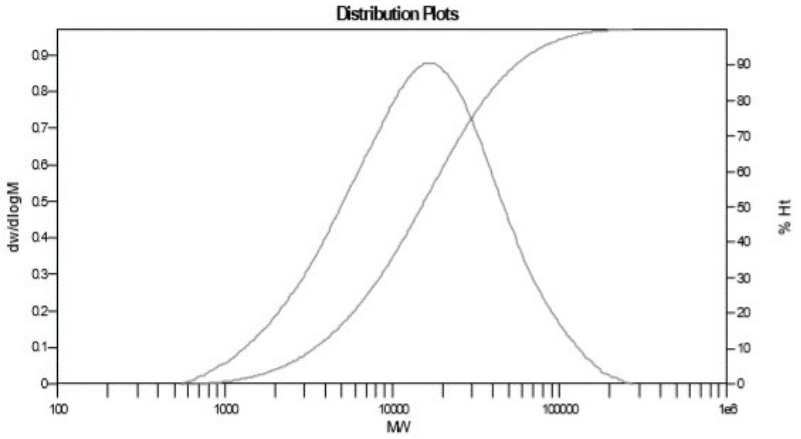
MW Averages

Peak No	Mp	Mn	Mw	Mz	Mz+1	Mv	PD
1	10470	4510	14294	35881	64849	12177	3.1694

Processed Peaks

Peak No	Name	Start RT (mins)	Max RT (mins)	End RT (mins)	Pk Height (mV)	% Height	Area (mV.secs)	% Area
1		12.42	14.38	16.68	11.4346	0	1349.26	100

Figure S34. GPC of the polymer from table 1, entry 7.



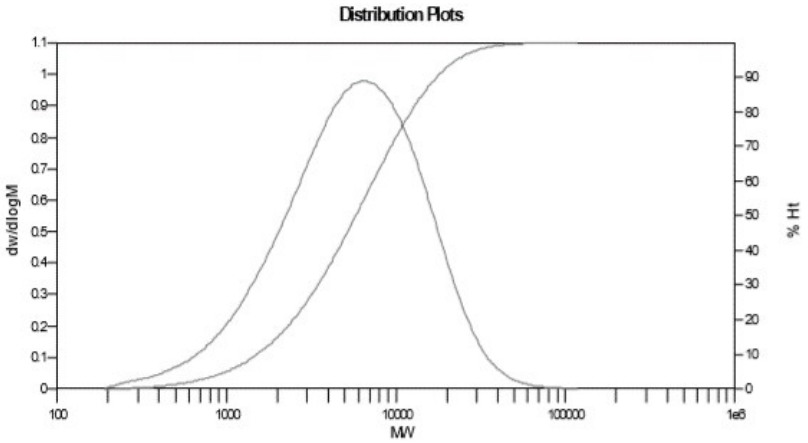
MW Averages

Peak No	Mp	Mn	Mw	Mz	Mz+1	Mv	PD
1	16733	7915	23627	54327	92835	20436	2.98509

Processed Peaks

Peak No	Name	Start RT (mins)	Max RT (mins)	End RT (mins)	Pk Height (mV)	% Height	Area (mV.secs)	% Area
1		12.18	14.07	16.37	15.9959	0	1698.27	100

Figure S35. GPC of the polymer from table 1, entry 8.



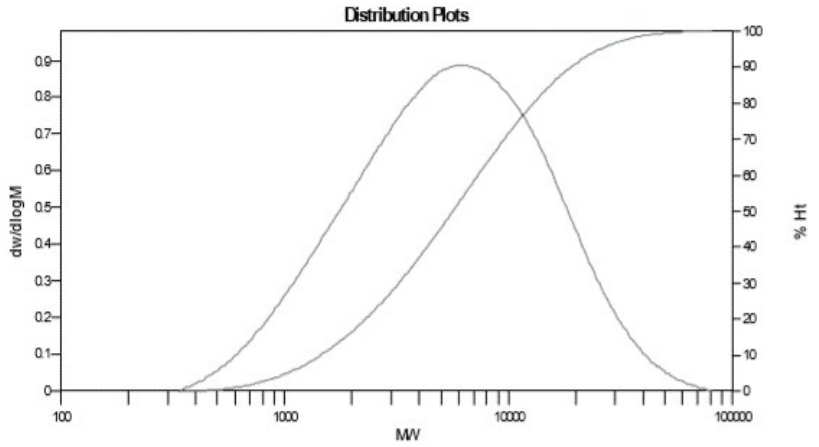
MW Averages

Peak No	Mp	Mn	Mw	Mz	Mz+1	Mv	PD
1	6551	3239	7997	15468	26136	7152	2.46897

Processed Peaks

Peak No	Name	Start RT (mins)	Max RT (mins)	End RT (mins)	Pk Height (mV)	% Height	Area (mV.secs)	% Area
1		12.75	14.70	17.08	41.3503	0	3945.56	100

Figure S36. GPC of the polymer from table 2, entry 2.



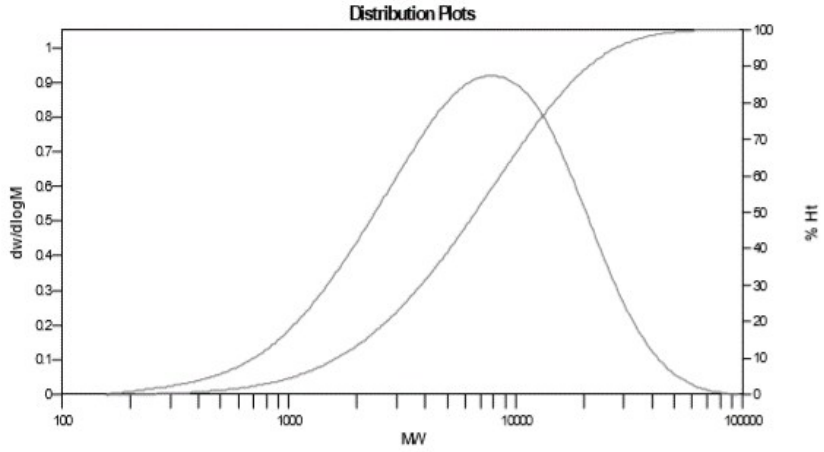
MW Averages

Peak No	Mp	Mn	Mw	Mz	Mz+1	Mv	PD
1	5935	3349	8363	17057	27349	7385	2.49716

Processed Peaks

Peak No	Name	Start RT (mins)	Max RT (mins)	End RT (mins)	Pk Height (mV)	% Height	Area (mV.secs)	% Area
1		13.00	14.77	16.70	15.7345	100	1652.32	100

Figure S37. GPC of the polymer from table 2, entry 3.



MW Averages

Peak No	Mp	Mn	Mw	Mz	Mz+1	Mv	PD
1	7786	3519	9370	18079	28091	8336	2.66269

Processed Peaks

Peak No	Name	Start RT (mins)	Max RT (mins)	End RT (mins)	Pk Height (mV)	% Height	Area (mV.secs)	% Area
1		12.88	14.58	17.22	55.264	0	5616.72	100

Figure S38. GPC of the polymer from table 2, entry 5.

6. X-ray Crystallography

Table S1. X-ray crystallography results of **Ni1** (CCDC 1922561)

Compound	**Ni1**
Formula	$Br_2C_{22}ClH_{32}N_3NiO_2$
$D_{calc.}$/ g cm^{-3}	1.516
μ/mm^{-1}	3.749
Formula Weight	624.48
Colour	brown
Shape	block
Size/mm^3	0.30×0.20×0.20
T/K	273
Crystal System	trigonal
Space Group	P-3
a/Å	23.206(5)
b/Å	23.206(5)
c/Å	8.801(5)
α/°	90
β/°	90
γ/°	120
V/Å^3	4105(3)
Z	6
Z'	1
Wavelength/Å	0.71069
Radiation type	MoK□
Θ_{min}/°	1.755
Θ_{max}/°	24.993
Measured Refl.	28692
Independent Refl.	4837
Reflections with I > 2(I)	2675
R_{int}	0.0859
Parameters	313
Restraints	60
Largest Peak	0.549
Deepest Hole	-0.318
GooF	0.989
wR_2 (all data)	0.1115
wR_2	0.0916
R_1 (all data)	0.0978
R_1	0.0414

7. ^{1}H NMR spectra of 3,6-dichloropyridazine/$B(C_6F_5)_3$ mixtures

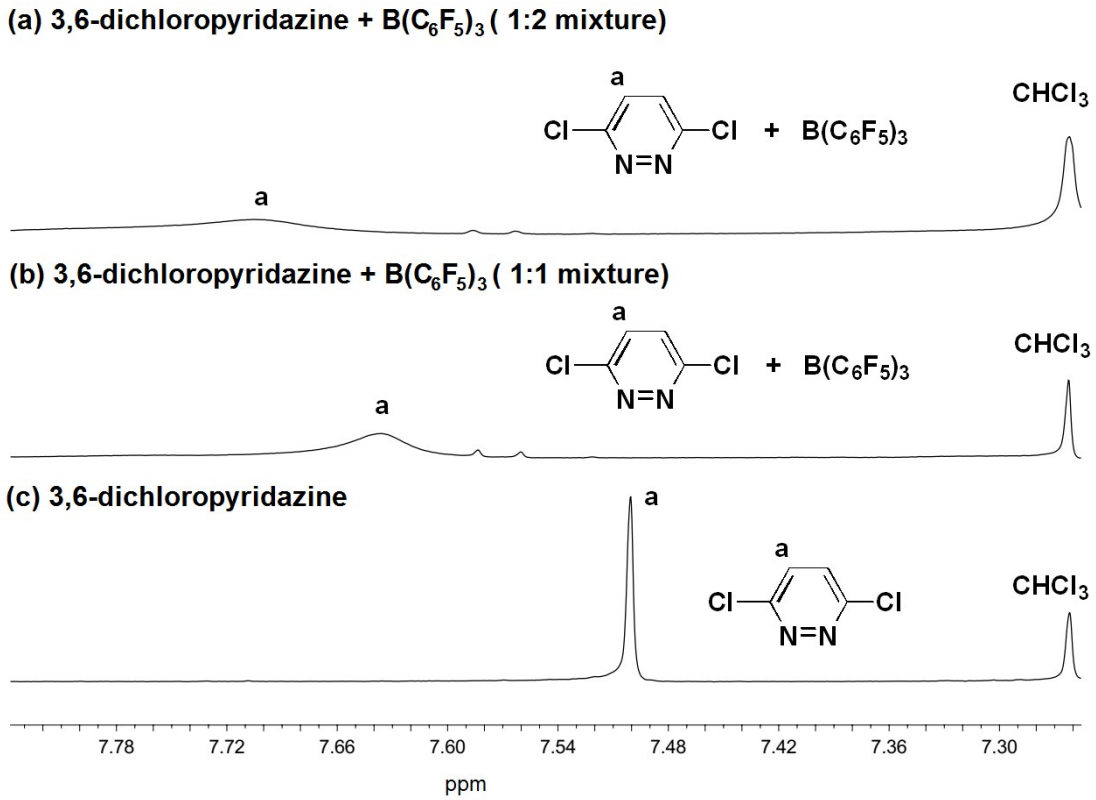


Figure S39. ^{1}H NMR spectra of 3,6-dichloropyridazine/$B(C_6F_5)_3$ mixtures (in $CDCl_3$) with different molar ratios: (a) molar ratio = 1:2; (b) molar ratio = 1:1; (c) 3,6-dichloropyridazine.