Supporting Information for

Thermal Polycondensation of Poly(diol citrate)s with Tethered Quaternary Ammonium Biocides

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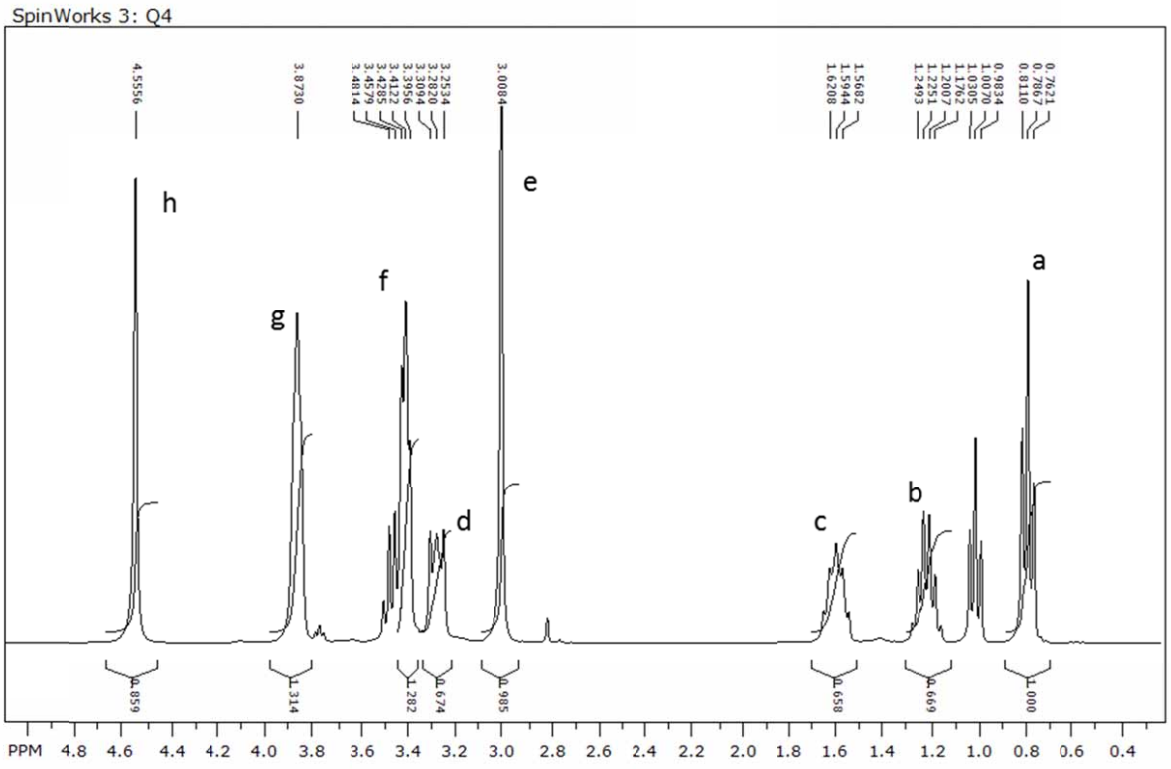
S2 – Complete table of poly(diol citrate) compositions

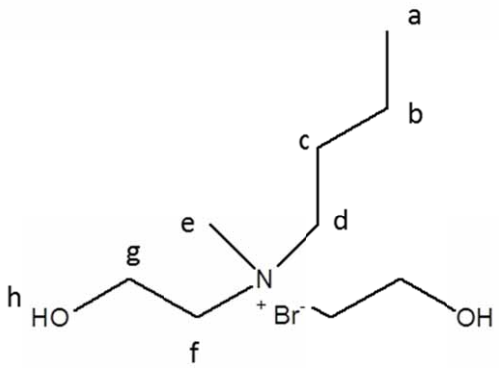
S3-S10 - ^{1}H and ^{13}C NMR spectra of **Q4**, **Q6**, **Q8**, and **Q10**

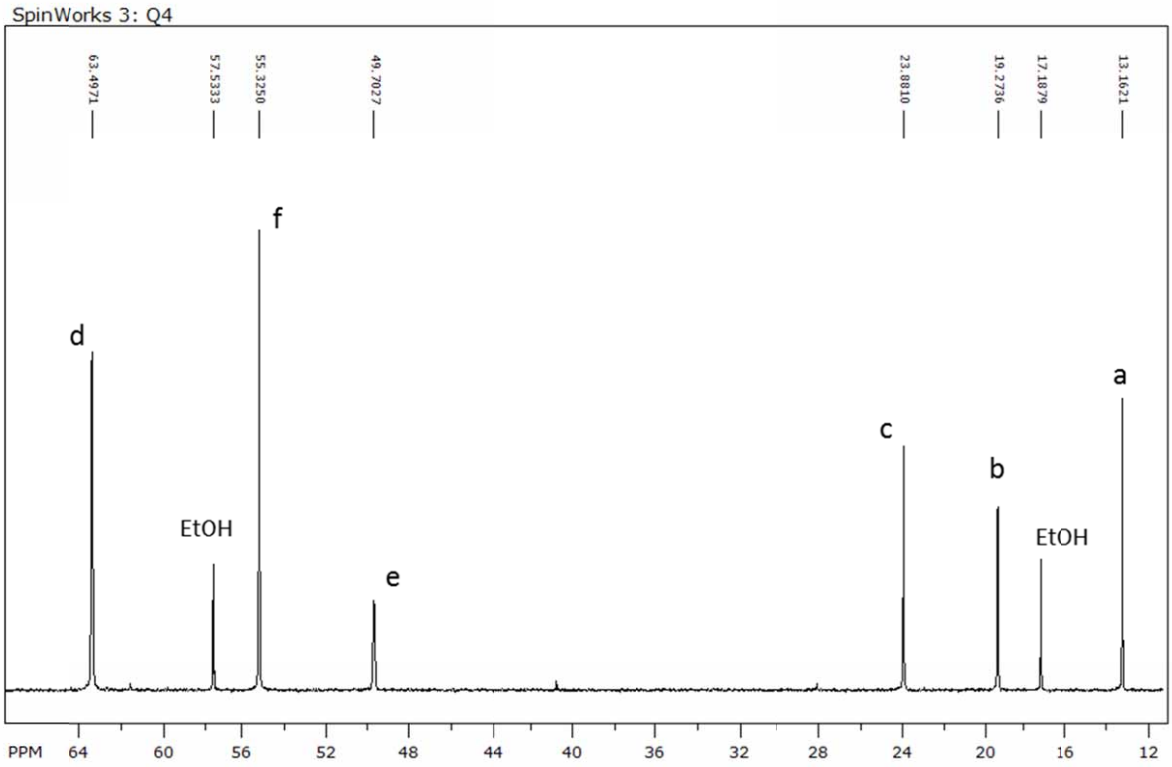
S11-S12 – Thermal analysis of additional poly(diol citrate) compositions

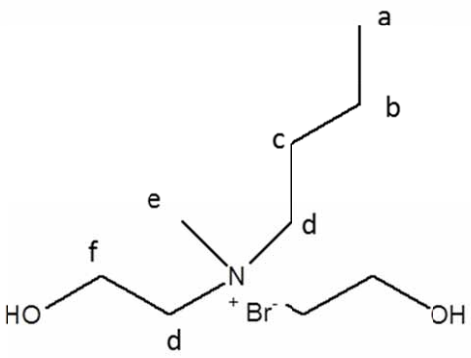
S13 –S16 – Kinetic plots of poly(diol citrate) hydrolysis

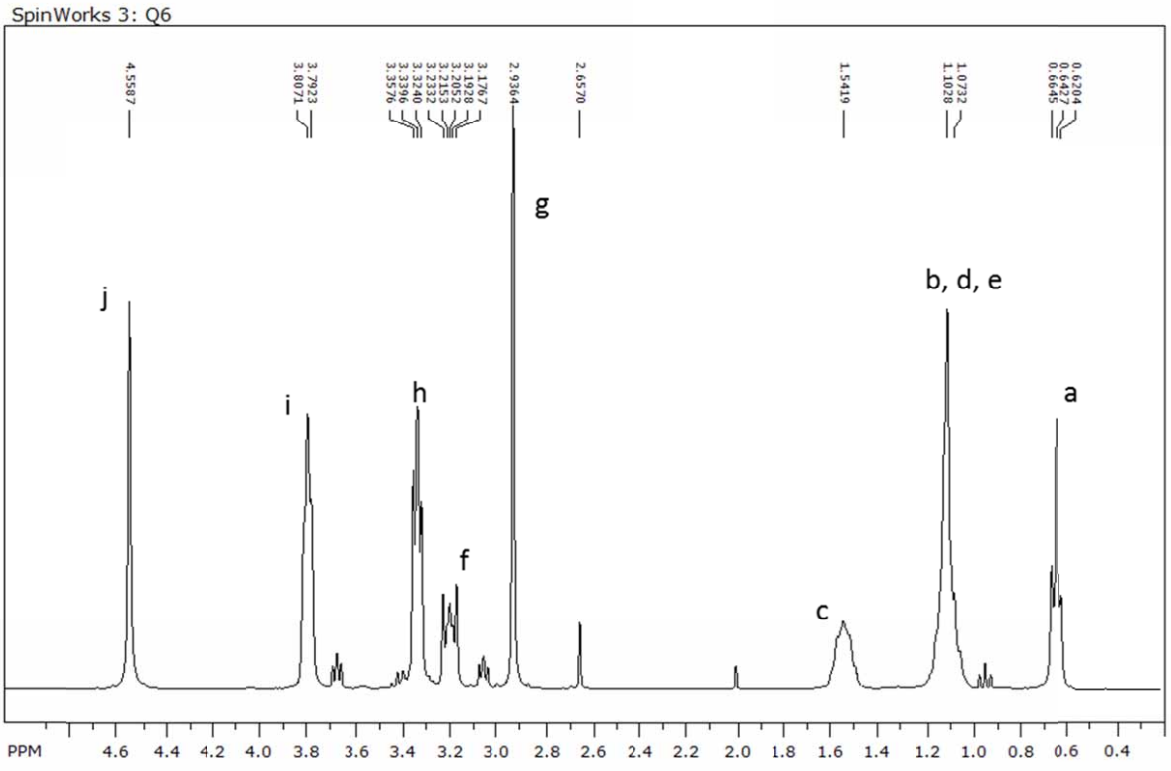
Polymer	Diol(s)	Cure Time (d)
PEC-a/b	100% Ethylene Glycol	a – 4, b - 10
PBC-a/b	100% Butanediol	a – 4, b - 10
PHC-a/b	100% Hexanediol	a – 4, b - 10
POC-a/b	100% Octanediol	a – 4, b - 10
PDC-a/b	100% Decanediol	a – 4, b - 10
PQ10C-a/b	100% **Q10**	a – 4, b - 10
PQ4C-a/b	100% **Q4**	a – 4, b - 10
PQ6C-a/b	100% **Q6**	a – 4, b - 10
PQ8C-a/b	100% **Q8**	a – 4, b - 10
PEC-Q10-a/b	75% Ethylene Glycol:25% **Q10**	a – 4, b - 10
PEC-Q10-c/d	50% Ethylene Glycol:50% **Q10**	c – 4, d - 10
PEC-Q10-e/f	25% Ethylene Glycol:75% **Q10**	e – 4, f - 10
PBC-Q10-a/b	75% Butanediol:25% **Q10**	a – 4, b - 10
PBC-Q10-c/d	50% Butanediol:50% **Q10**	c – 4, d - 10
PBC-Q10-e/f	25% Butanediol:75% **Q10**	e – 4, f - 10
PHC-Q10-a/b	75% Hexanediol:25% **Q10**	a – 4, b - 10
PHC-Q10-c/d	50% Hexanediol:50% **Q10**	c – 4, d - 10
PHC-Q10-e/f	25% Hexanediol:75% **Q10**	e – 4, f - 10
POC-Q10-a/b	75% Octanediol:25% **Q10**	a – 4, b - 10
POC-Q10-c/d	50% Octanediol:50% **Q10**	c – 4, d - 10
POC-Q10-e/f	25% Octanediol:75% **Q10**	e – 4, f - 10
PDC-Q10-a/b	75% Decanediol:25% **Q10**	a – 4, b - 10
PDC-Q10-c/d	50% Decaneediol:50% **Q10**	c – 4, d - 10
PDC-Q10-e/f	25% Decanediol:75% **Q10**	e – 4, f - 10
PHC-Q4-a/b	75% Hexanediol:25% **Q4**	a – 4, b - 10
PHC-Q4-c/d	50% Hexanediol:50% **Q4**	c – 4, d - 10
PHC-Q4-e/f	25% Hexanediol:75% **Q4**	e – 4, f - 10
PHC-Q6-a/b	75% Hexanediol:25% **Q6**	a – 4, b - 10
PHC-Q6-c/d	50% Hexanediol:50% **Q6**	c – 4, d - 10
PHC-Q8-a/b	75% Hexanediol:25% **Q8**	a – 4, b - 10
PHC-Q8-c/d	50% Hexanediol:50% **Q8**	c – 4, d - 10
PDC-Q4-a/b	75% Decanediol:25% **Q4**	a – 4, b - 10
PDC-Q4-c/d	50% Decanediol:50% **Q4**	c – 4, d - 10
PDC-Q6-a/b	75% Decanediol:25% **Q6**	a – 4, b - 10
PDC-Q6-c/d	50% Decanediol:50% **Q6**	c – 4, d - 10
PDC-Q8-a/b	75% Decanediol:25% **Q8**	a – 4, b - 10
PDC-Q8-c/d	50% Decanediol:50% **Q8**	c – 4, d - 10

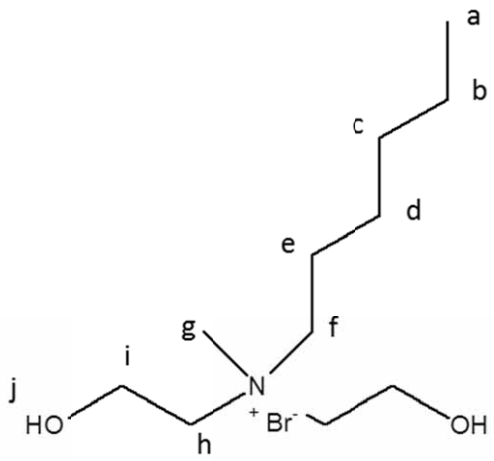


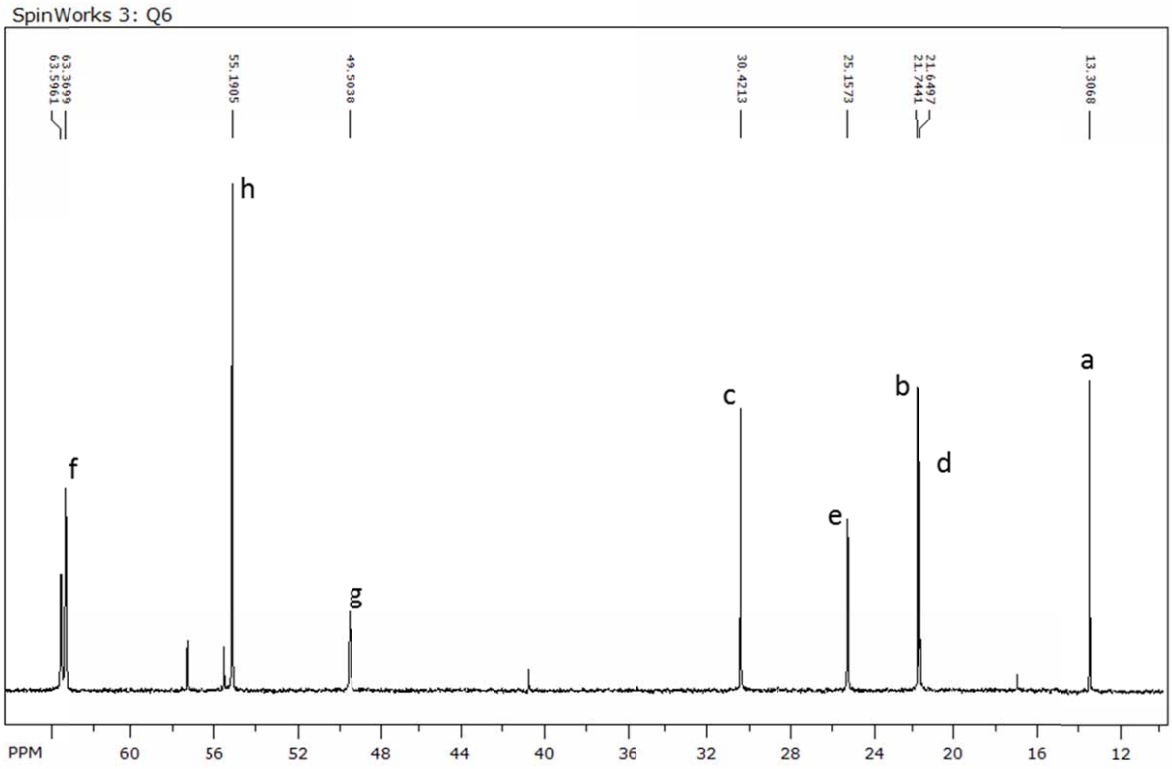


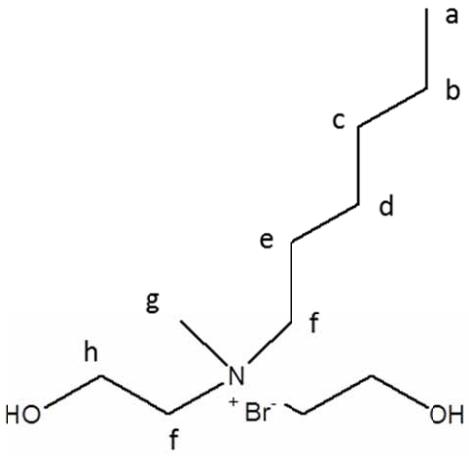


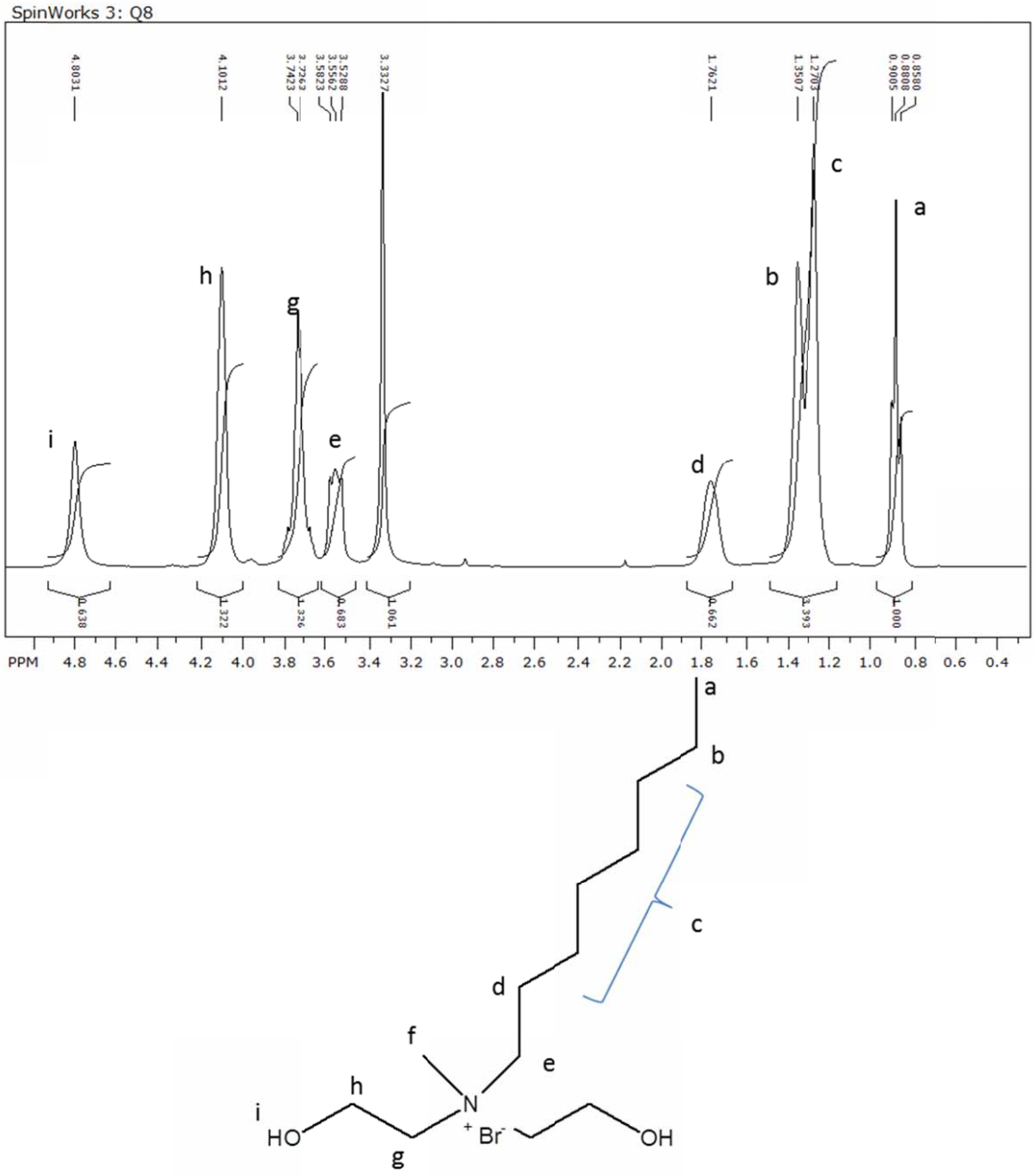


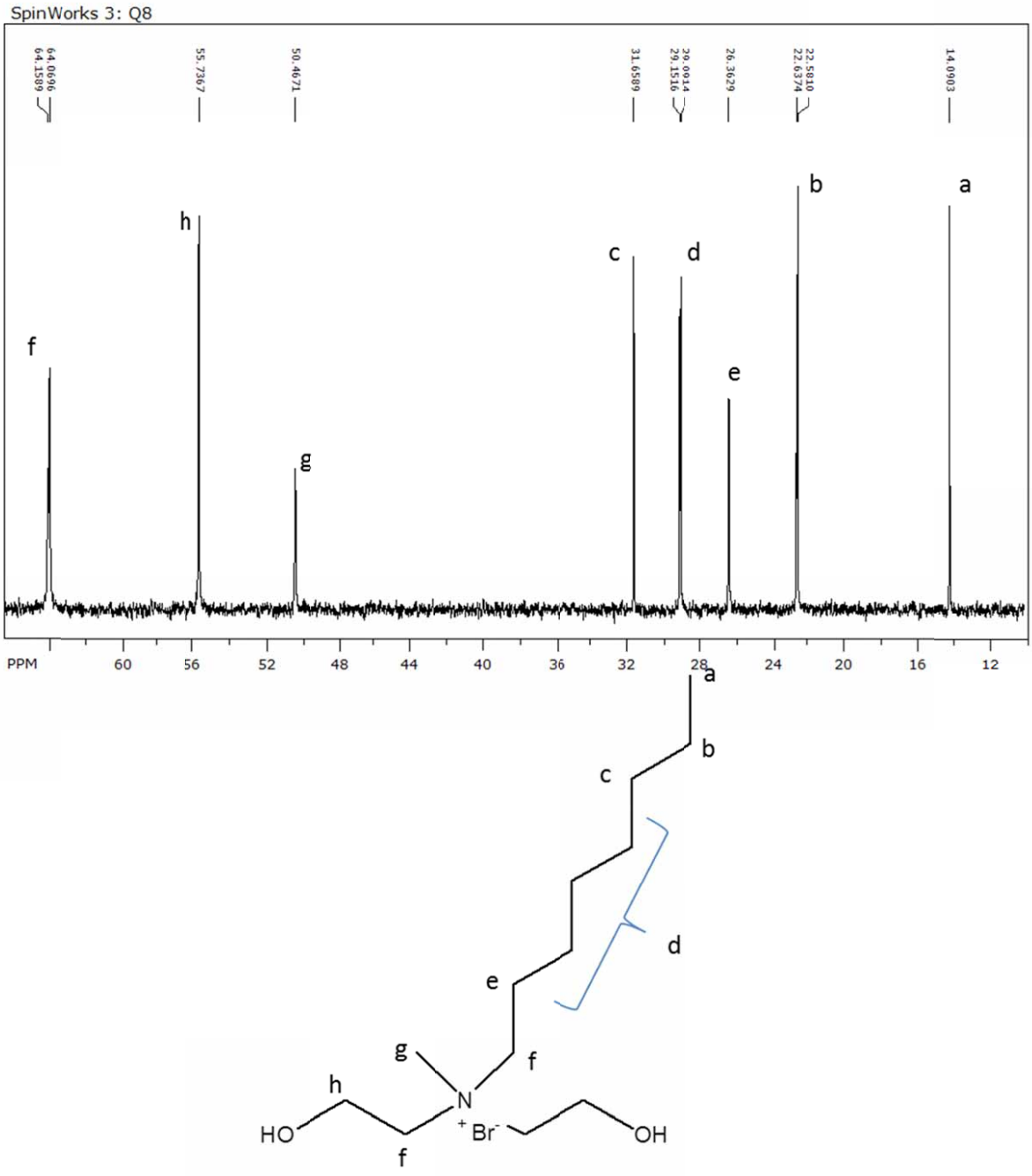

SpinWorks 3: Q6
4.5587
3.7923
3.8071
3.3576
3.3396
3.3240
3.2332
3.2153
3.2052
3.1938
3.1767
2.9364
2.6570
1.5419
1.1028
1.0732
0.6445
0.6427
0.6204
j
i
h
f
g
c
b, d, e
a
PPM
4.6 4.4 4.2 4.0 3.8 3.6 3.4 3.2 3.0 2.8 2.6 2.4 2.2 2.0 1.8 1.6 1.4 1.2 1.0 0.8 0.6 0.4

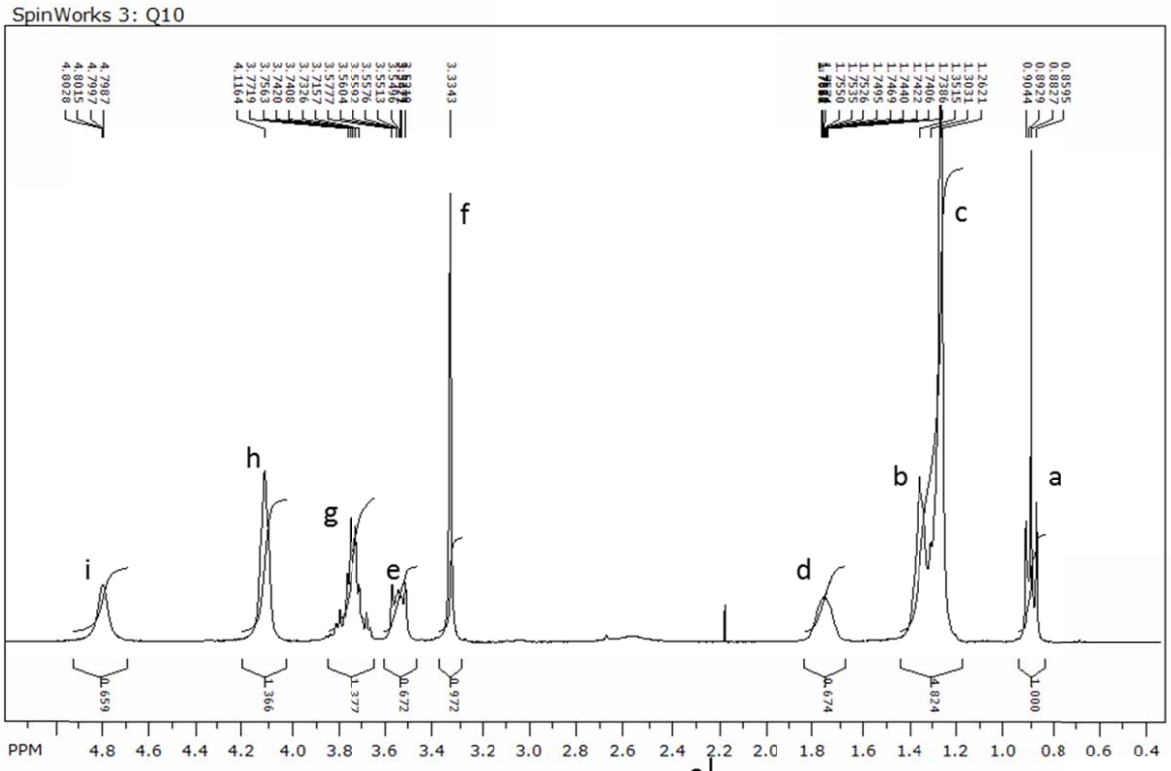

a
b
c
d
e
f
g
i
j
N
+
Br-
HO
OH
h

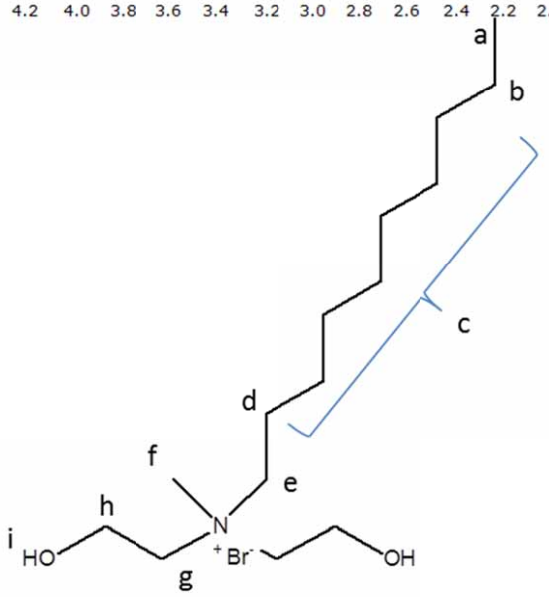


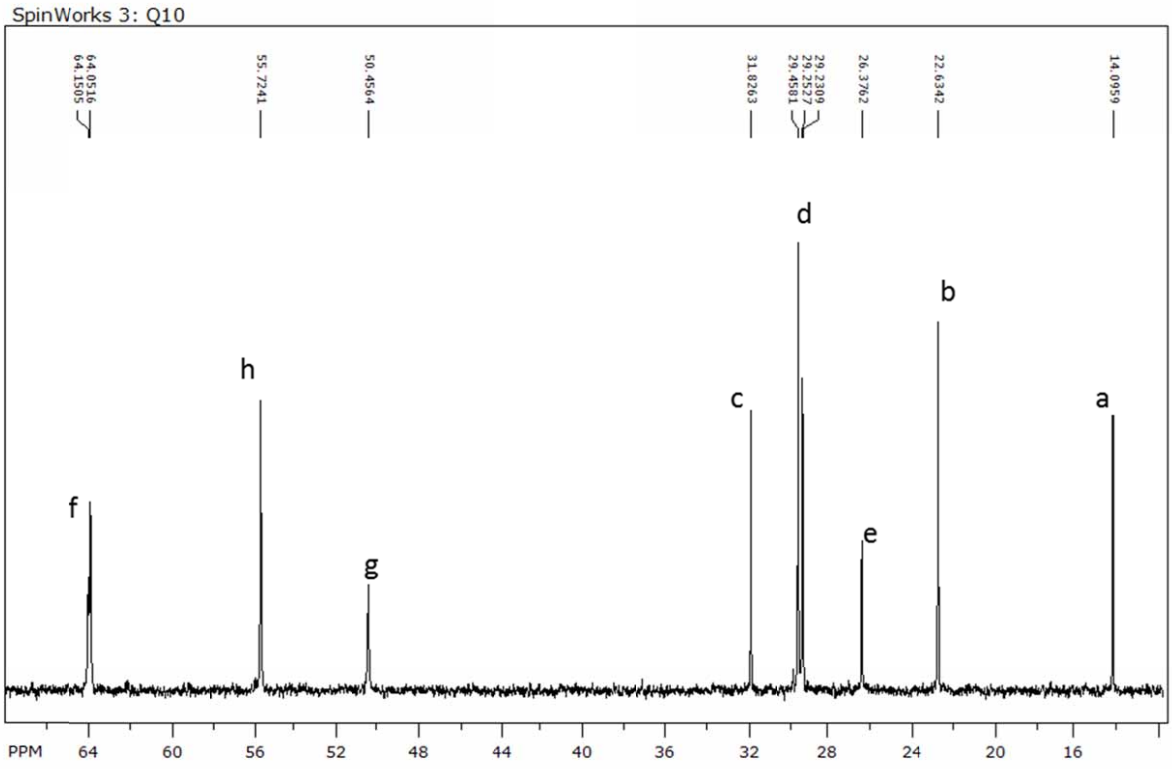


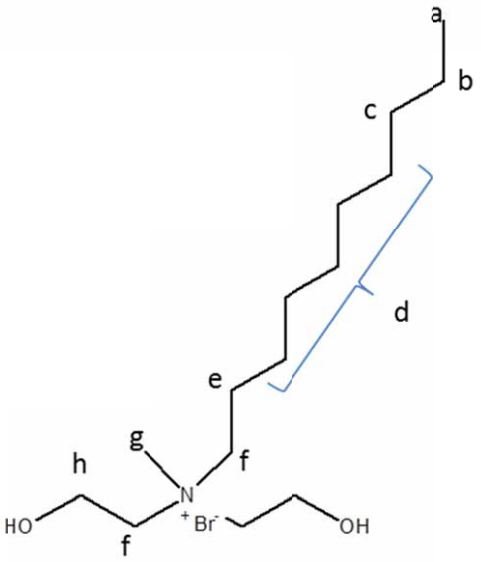






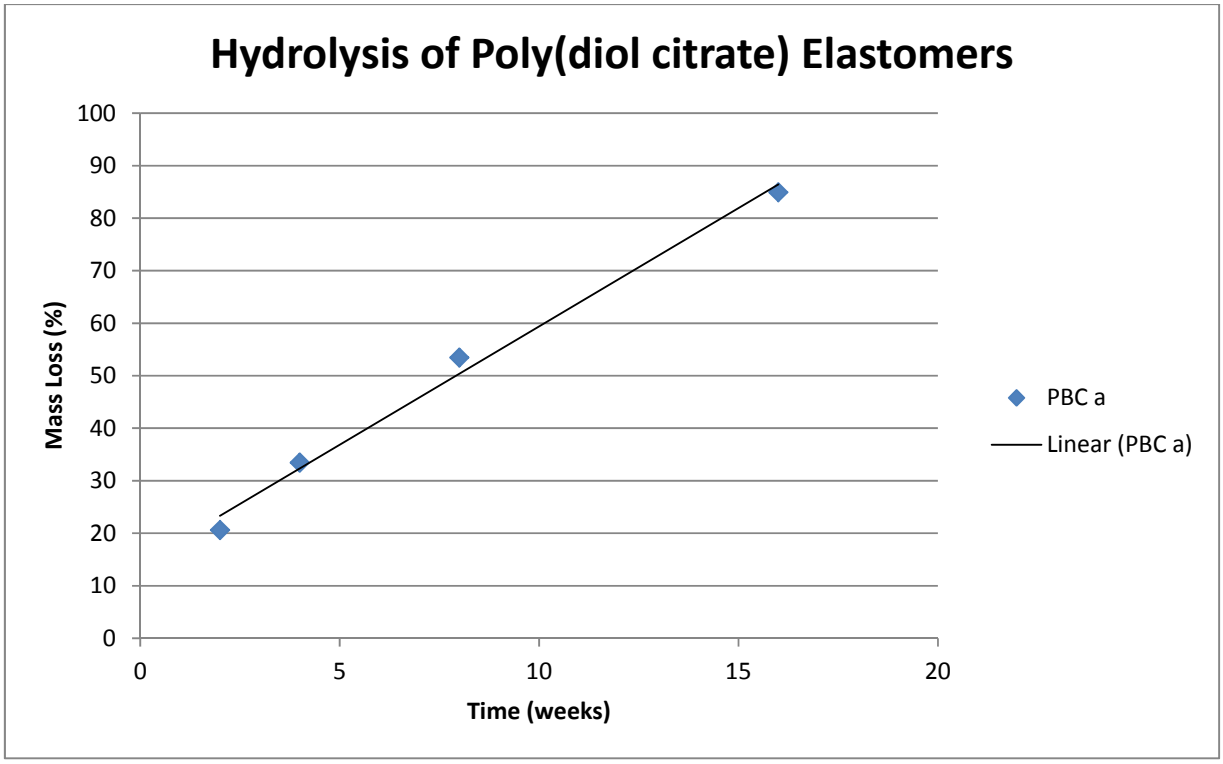




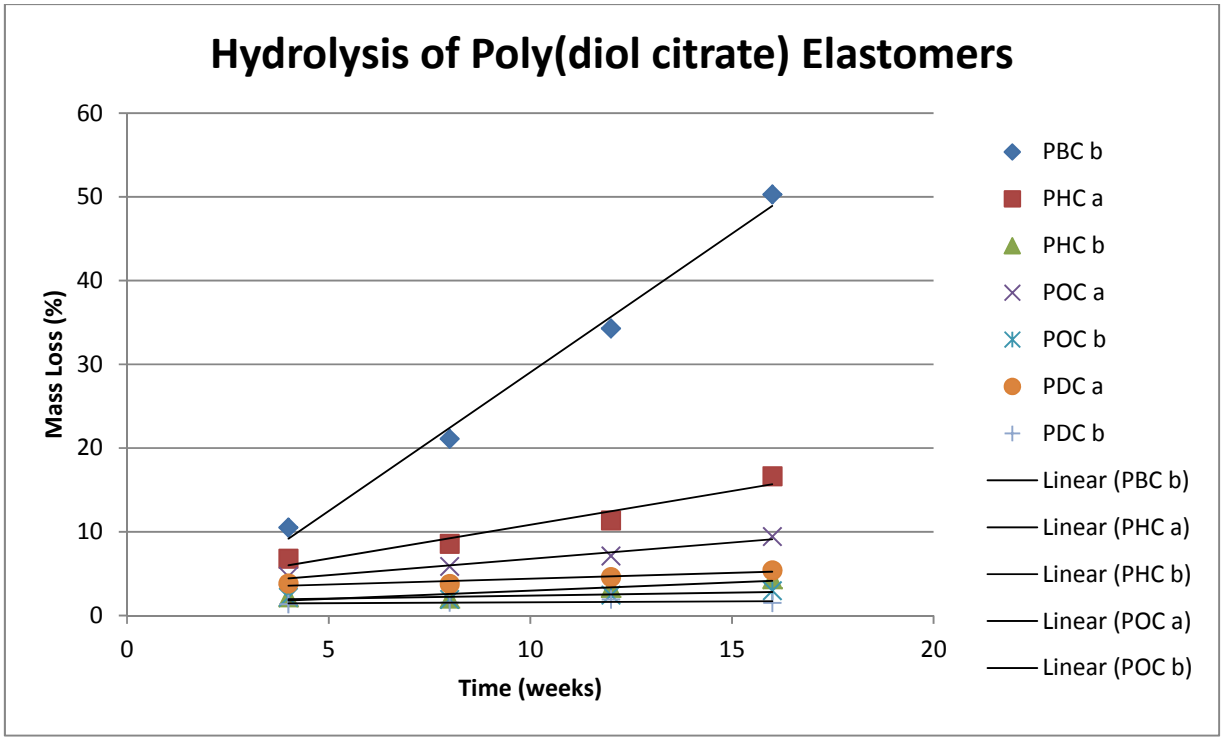


Sample	Degradation Temperature (°C)	Glass Transition Temperature (°C)
PEC Q10a	195	0.5
PEC Q10b	198	19.8
PEC Q10c	194	-5.1
PEC Q10d	195	10.6
PEC Q10e	193	-0.8
PEC Q10f	194	9.2
PBC Q10a	211	-3.6
PBC Q10b	221	22.1
PBC Q10c	205	-13
PBC Q10d	201	2.7
PBC Q10e	200	-14.2
PBC Q10f	201	4.1
PHC Q10a	216	-17.1
PHC Q10c	206	-14.3
PHC Q10d	206	-0.2
PHC Q10e	200	-18.1
PHC Q10f	205	-9.1
POC Q10a	224	-17.1
POC Q10c	204	-18.5
POC Q10d	207	1.9
POC Q10e	206	-25.3
POC Q10f	204	5.8
PDC Q10a	220	-21.2
PDC Q10c	209	-18.1
PDC Q10d	210	2.4
PDC Q10e	201	-23.9
PDC Q10f	202	-8.2
PQ10C a	194	-8.4
PQ10C b	195	10.5
PQ4C a	201	-8.1
PQ4C b	207	16.8
PQ6C a	205	-1.8
PQ6C b	200	9.3
PQ8C a	200	-7.9
PQ8C b	203	6.1
PHC Q4 a	229	-2.7
PHC Q4 c	212	4.1
PHC Q4 d	212	1.6
PHC Q4 e	204	-0.4

PHC Q4 f	202	8.7
PHC Q6 a	229	7.8
PHC Q6 c	210	-2.1
PHC Q6 d	209	7
PHC Q8 a	233	4.1
PHC Q8 c	211	-5.6
PHC Q8 d	217	3.1
PDC Q4 a	241	-3.9
PDC Q4 c	210	-3.4
PDC Q4 d	210	7.4
PDC Q6 a	229	-11.4
PDC Q6 c	214	-7.4
PDC Q6 d	213	0.8
PDC Q8 a	236	-10.7
PDC Q8 c	210	-13.3
PDC Q8 d	217	-1.5



PBC a – $y = 4.5078 + 14.311$; $R^2 = 0.9913$



PBC b – $y = 3.3123x - 4.07$; $R^2 = 0.9917$

PHC a – $y = 0.8078x + 2.77$; $R^2 = 0.943$

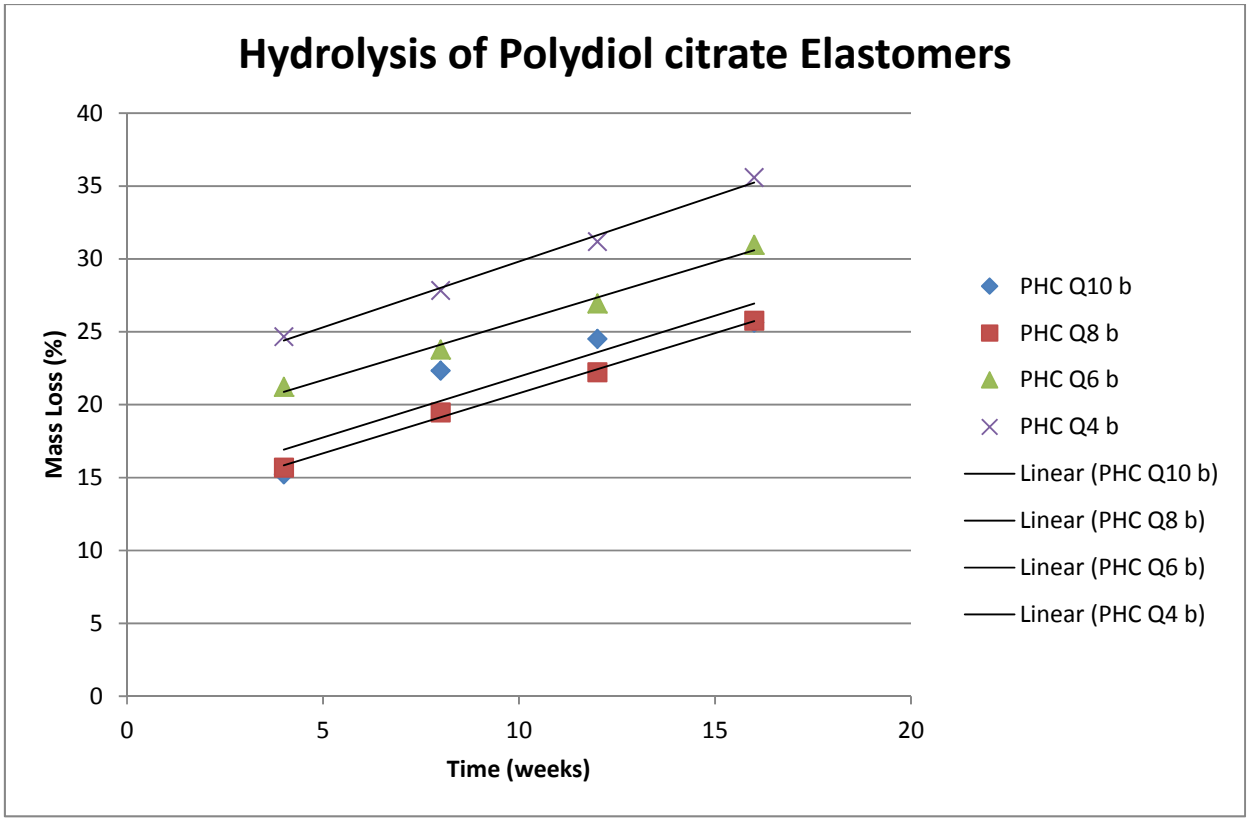
PHC b – $y = 0.1948x + 1.025$; $R^2 = 0.8572$

POC a – $y = 0.389x + 2.885$; $R^2 = 0.9707$

POC b – $y = 0.0715x + 1.665$; $R^2 = 0.7005$

PDC a – $y = 0.1385x + 3.025$; $R^2 = 0.871$

PDC b – $y = 0.0212x + 1.375$; $R^2 = 0.2147$

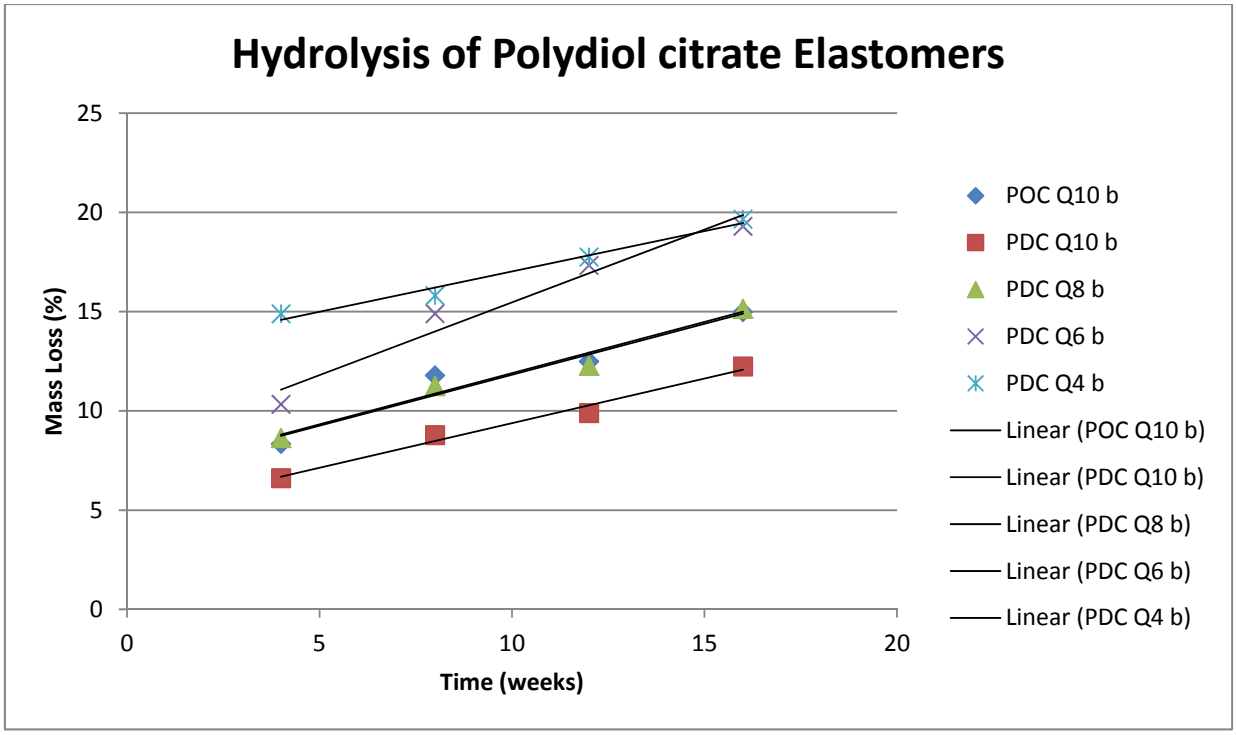


PHC Q4 b – $y = 0.9035x + 20.785$; $R^2 = 0.9937$

PHC Q6 b – $y = 0.8102x + 17.635$; $R^2 = 0.9898$

PHC Q8 b – $y = 0.825x + 12.535$; $R^2 = 0.9967$

PHC Q10b – $y = 0.8352x + 13.58$; $R^2 = 0.8517$



POC Q10 b – $y = 0.5158x + 6.74$; $R^2 = 0.9448$

PDC Q4 b – $y = 0.4063x + 12.965$; $R^2 = 0.9778$

PDC Q6 b – $y = 0.7335x + 8.13$; $R^2 = 0.9592$

PDC Q8 b – $y = 0.5137x + 6.685$; $R^2 = 0.9719$

PDC Q10 b – $y = 0.45x + 4.88$; $R^2 = 0.9835$