Electronic Supplementary Material (ESI) for Polymer Chemistry.

Supporting Information

Controlling the melting transition of semi-crystalline self-assembled block copolymer aggregates: Controlling release rates of Ibuprofen

O.R. Monaghan,[a] P. Bomans,[b] N.A.J.M. Sommerdijk,[b] and S.J. Holder[a]

a Functional Materials Group, School of Physical Sciences, University of Kent, Canterbury, Kent CT2 7NH, UK. E-mail: S.J.Holder@kent.ac.uk

b Laboratory of Materials and Interface Chemistry and Soft Matter Cryo-TEM Research Unit, Eindhoven University of Technology, P.O. Box 513, 5600 MB Eindhoven, The Netherlands. E-mail: N.Sommerdijk@tue.nl

b Institute for Complex Molecular Systems, Eindhoven University of Technology, PO Box 513, 5600 MB Eindhoven, The Netherlands

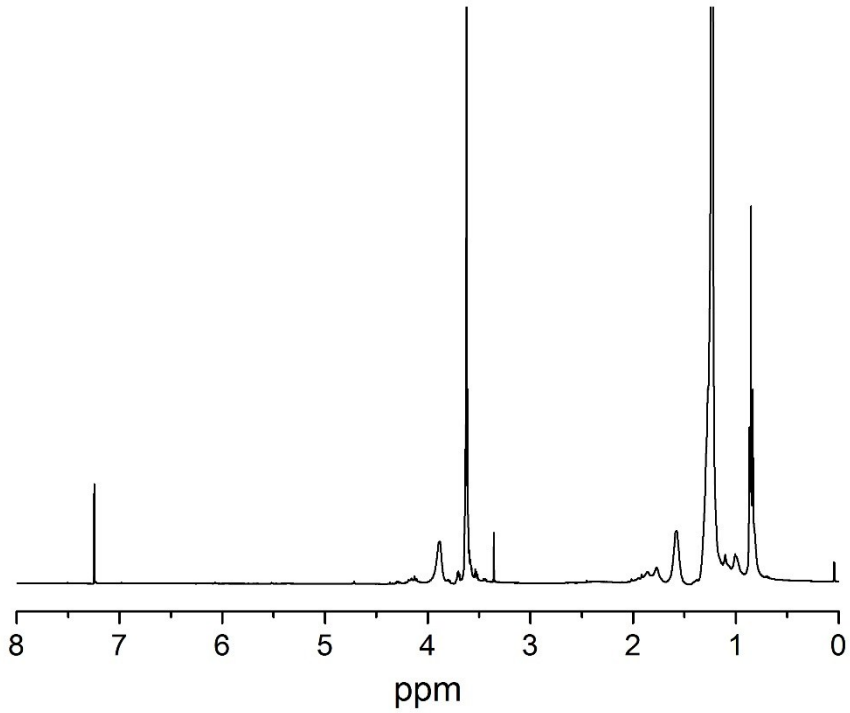

Figure S1: ^{1}H NMR of P2 (25 wt% DSMA)

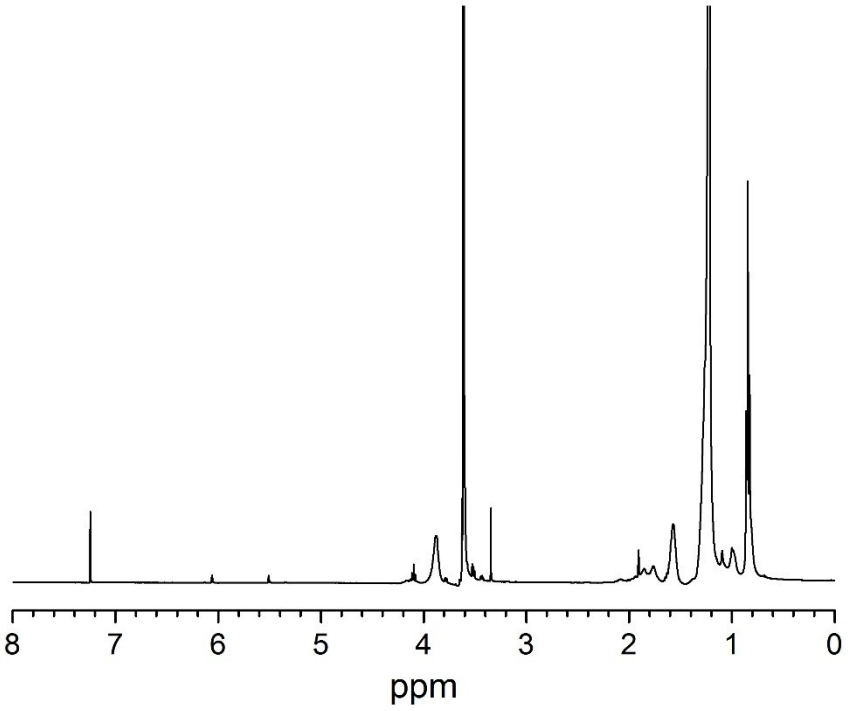

Figure S2: ^{1}H NMR of P4 (60 wt% DSMA)

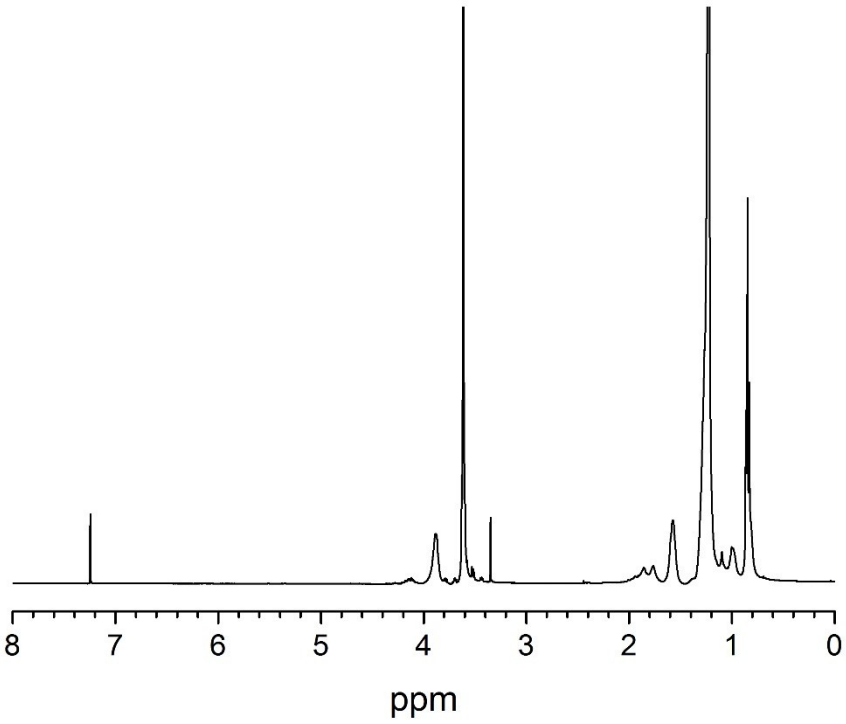

Figure S3: ^{1}H NMR of P5 (75 wt% DSMA)

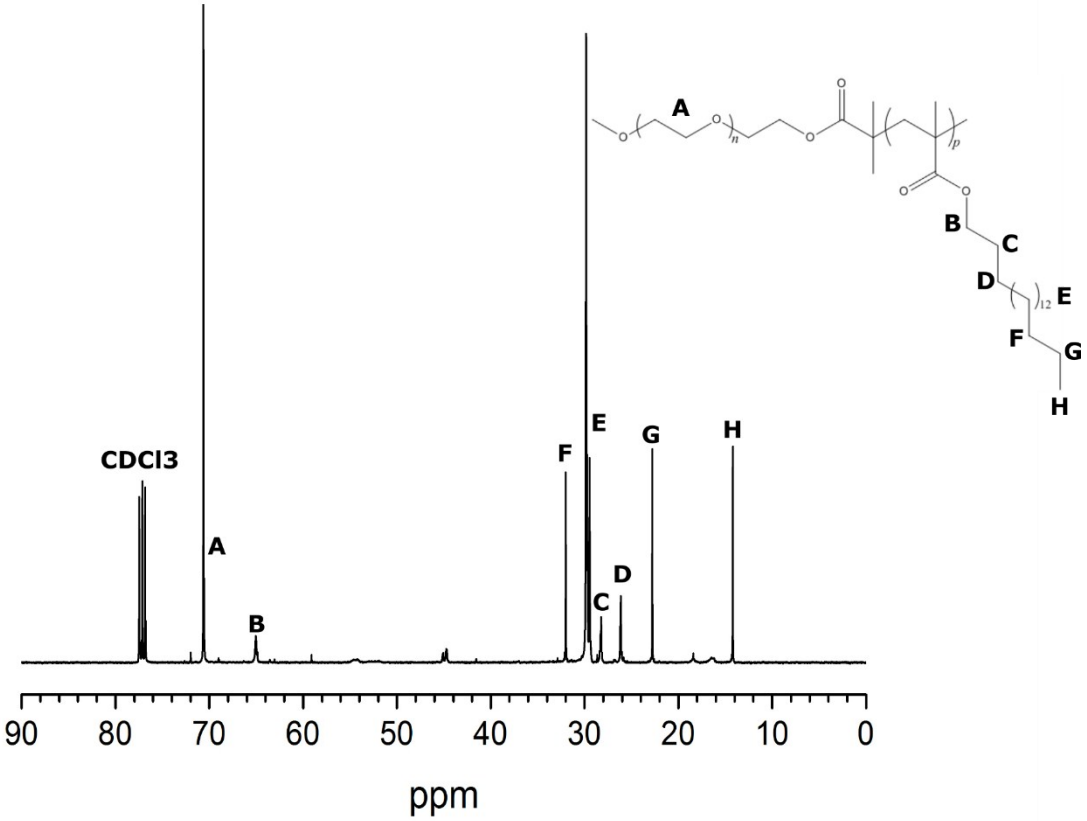

Figure S 4: ^{13}C NMR of P1 (0 wt% DSMA)

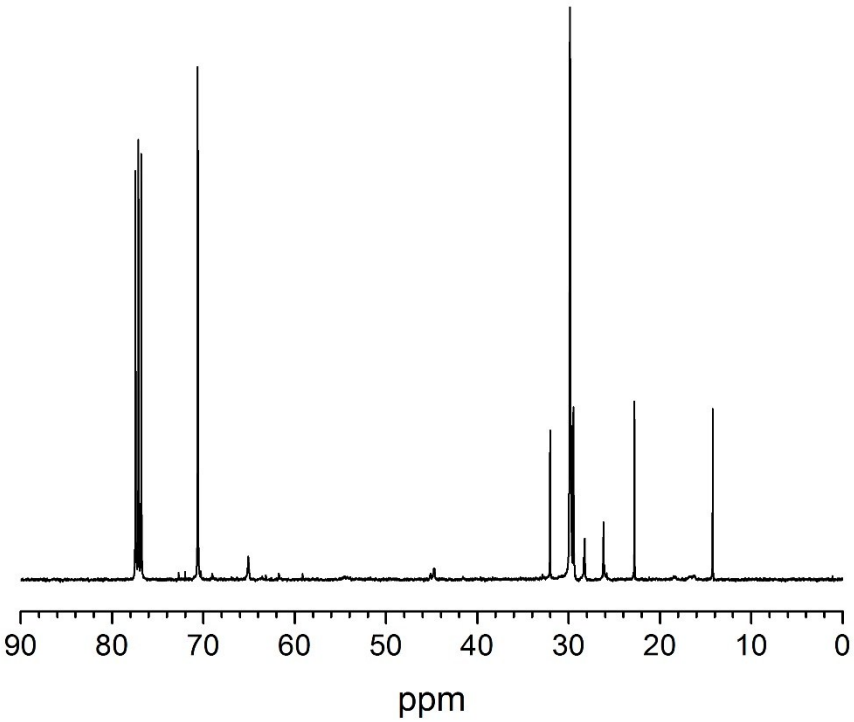

Figure S5: ^{13}C NMR of P2 (25 wt% DSMA)

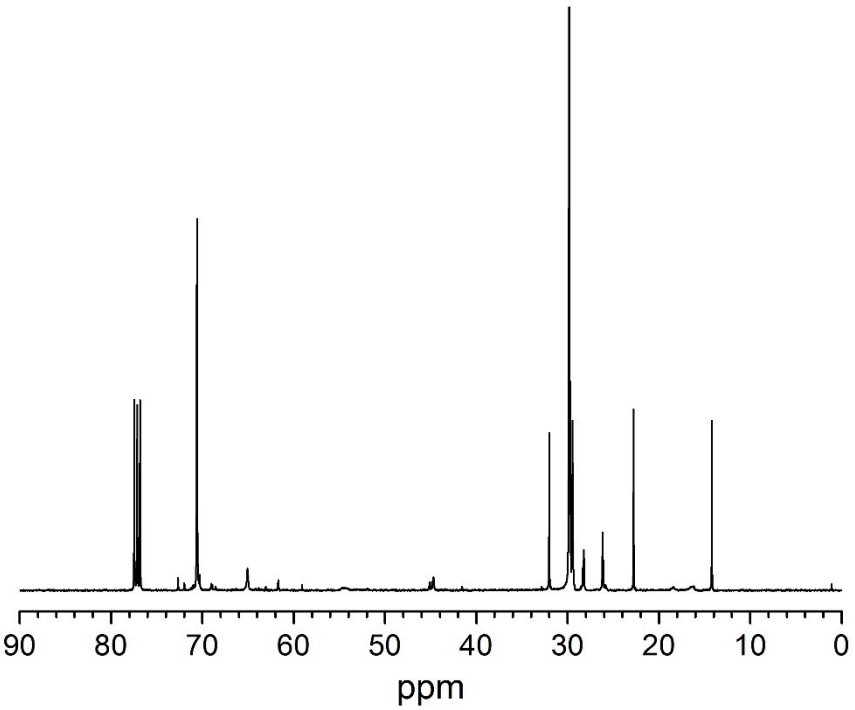

Figure S6: ^{13}C NMR of P3 (50 wt% DSMA)

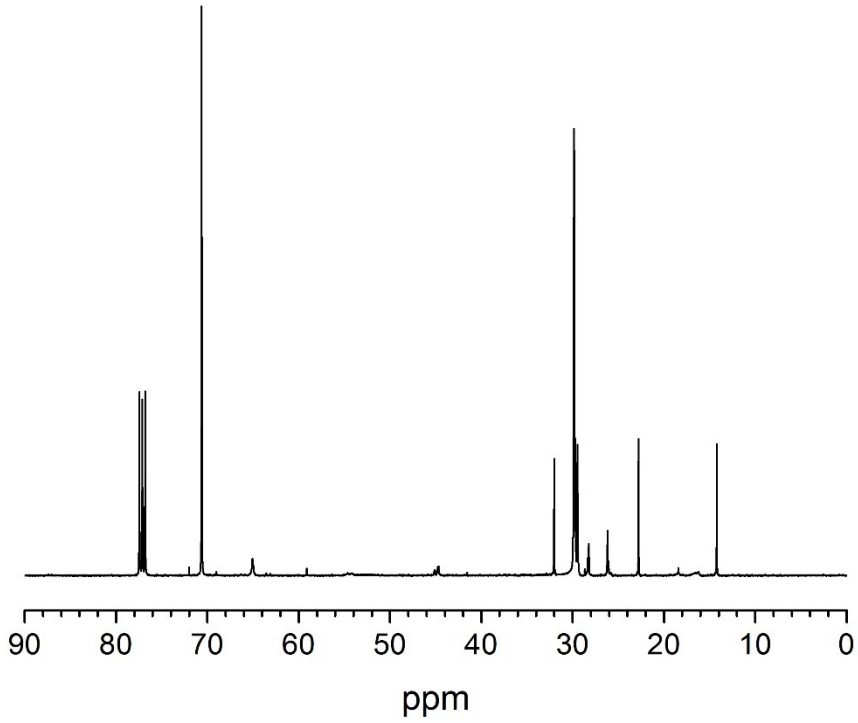

Figure S7: $^{1\,3}$C NMR of P4 (60 wt% DSMA)

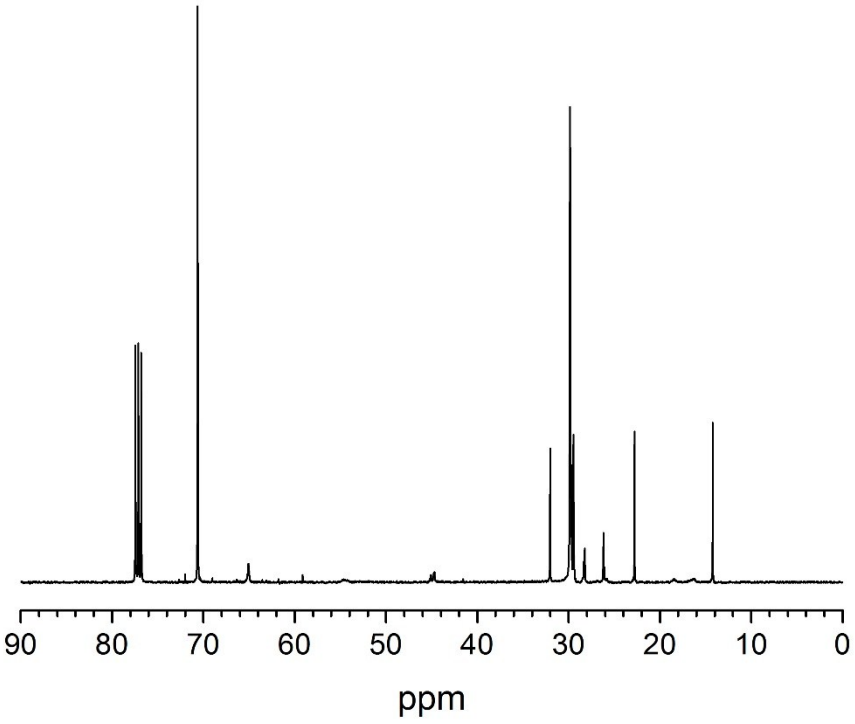

Figure S8: ^{13}C NMR of P5 (75 wt% DSMA)

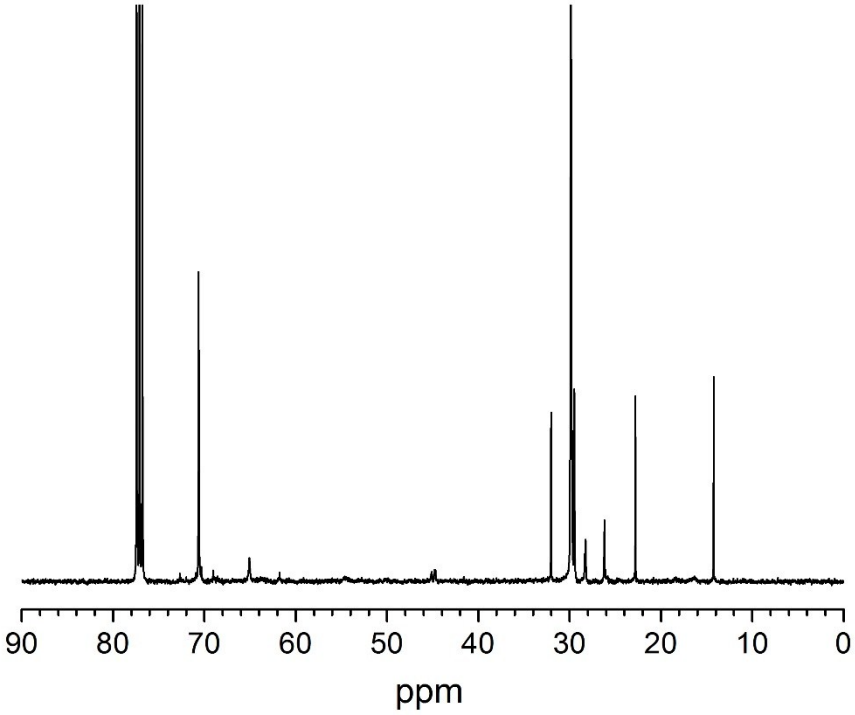

Figure S9: ^{13}C NMR of P6 (100 wt% DSMA)

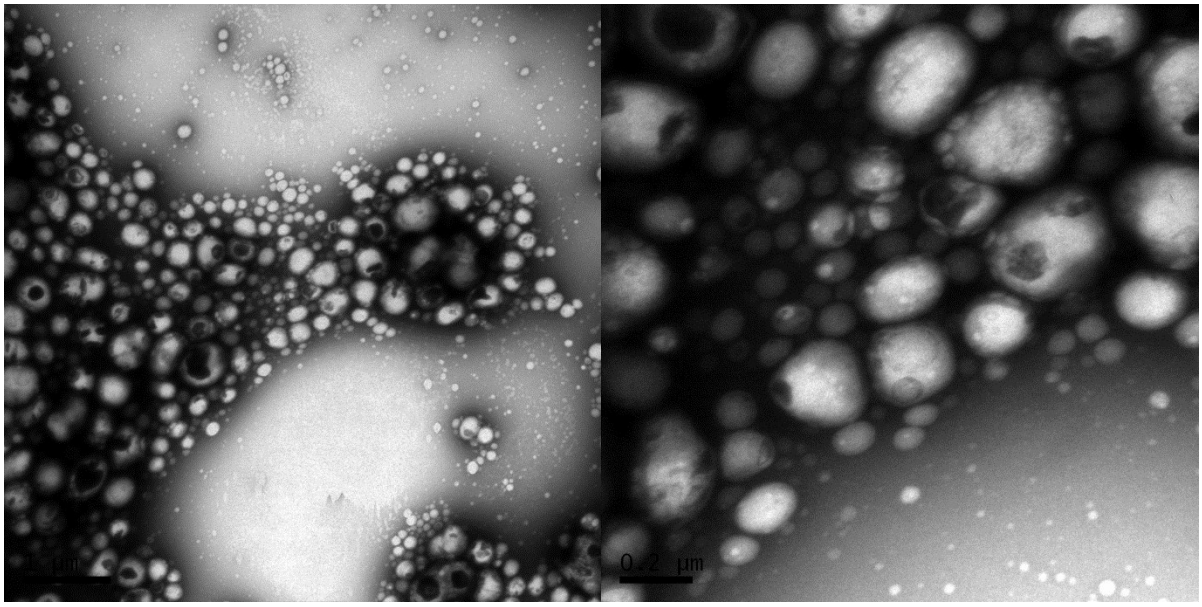

Figure S10: TEM images of P1 4 wt% (0 wt % DSMA) aggregates; negatively stained with 5% uranyl acetate and 1% acetic acid.

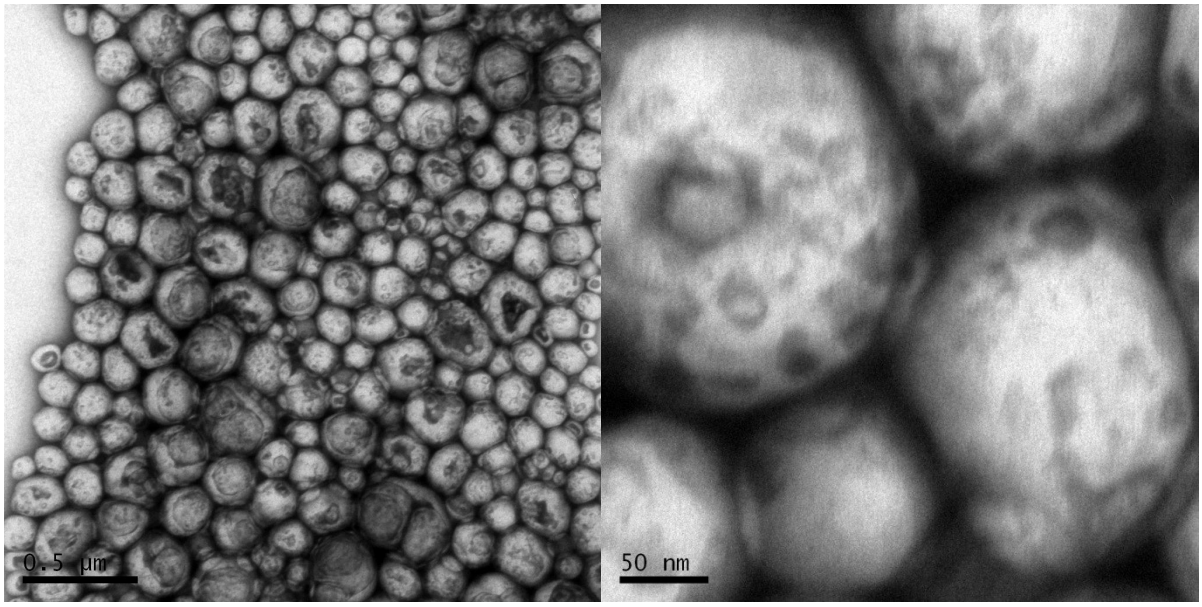

Figure S11: TEM images of P2 5 wt% (25 wt % DSMA) aggregates; negatively stained with 5% uranyl acetate and 1% acetic acid.

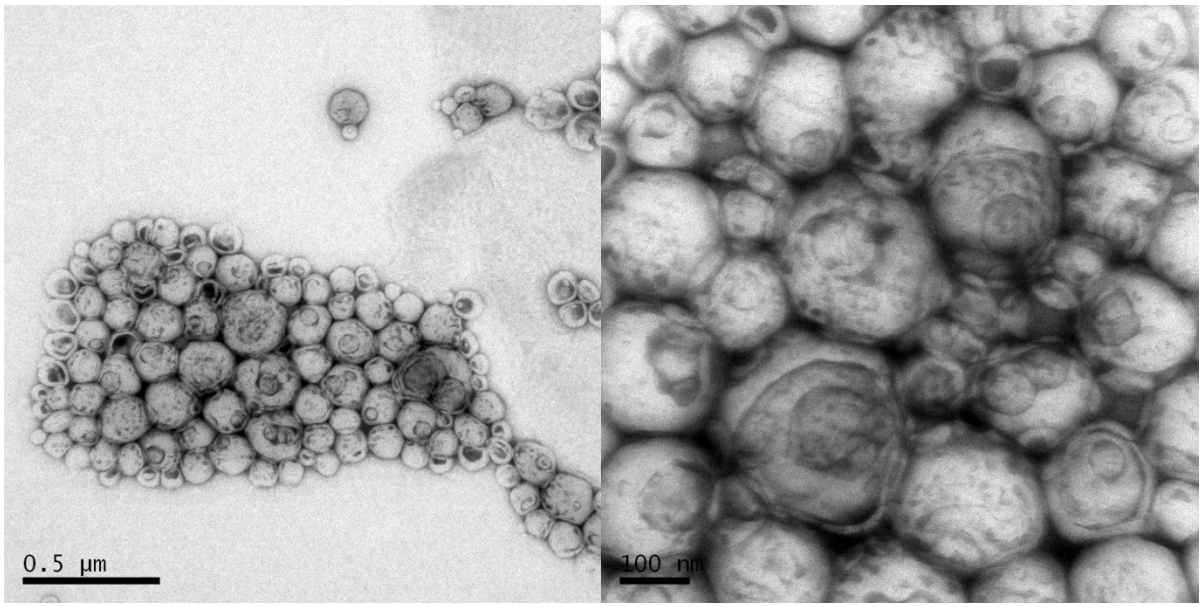

Figure S12: TEM images of P3 5 wt% (50 wt % DSMA) aggregates; negatively stained with 5% uranyl acetate and 1% acetic acid.

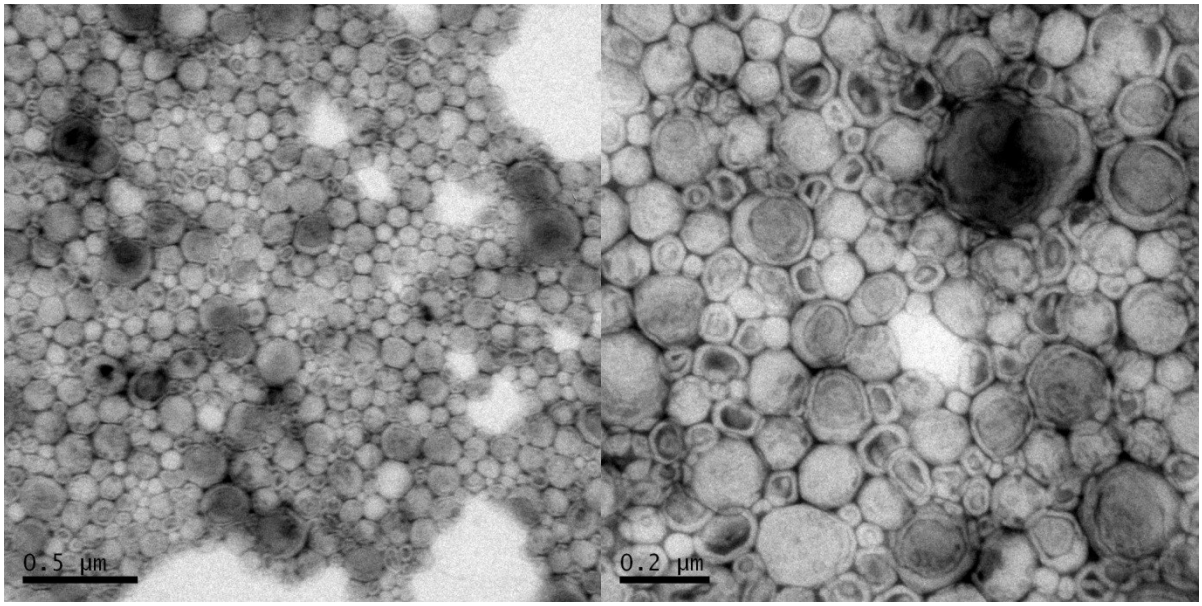

Figure S13: TEM images of P4 5 wt% (60 wt % DSMA) aggregates; negatively stained with 5% uranyl acetate and 1% acetic acid.

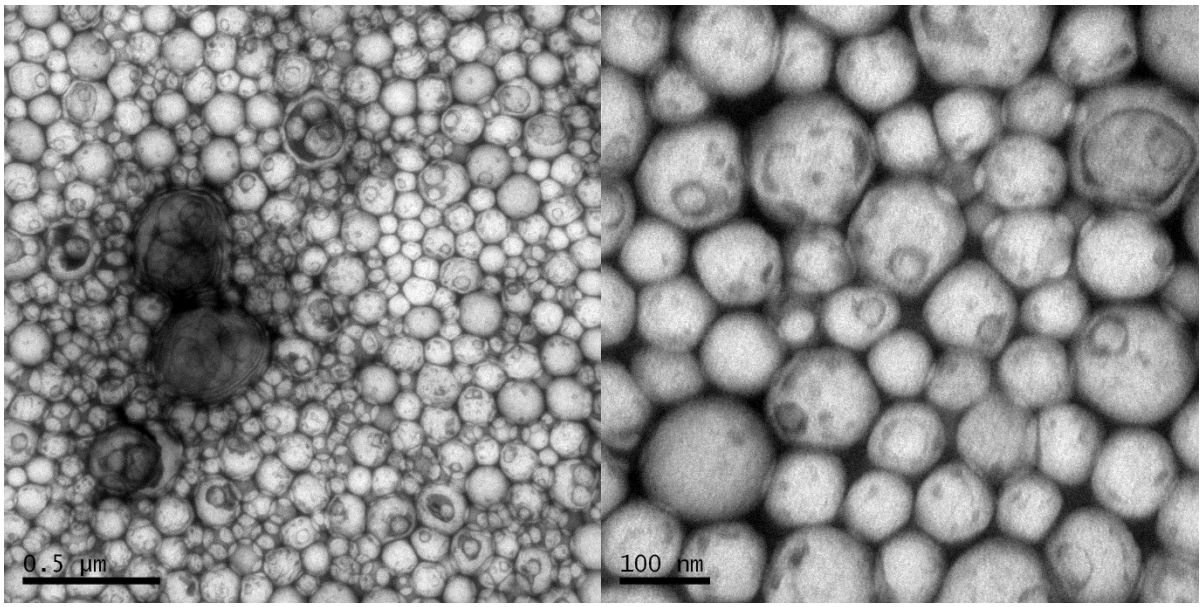

Figure S14: TEM images of P5 5 wt% (75 wt % DSMA) aggregates; negatively stained with 5% uranyl acetate and 1% acetic acid.

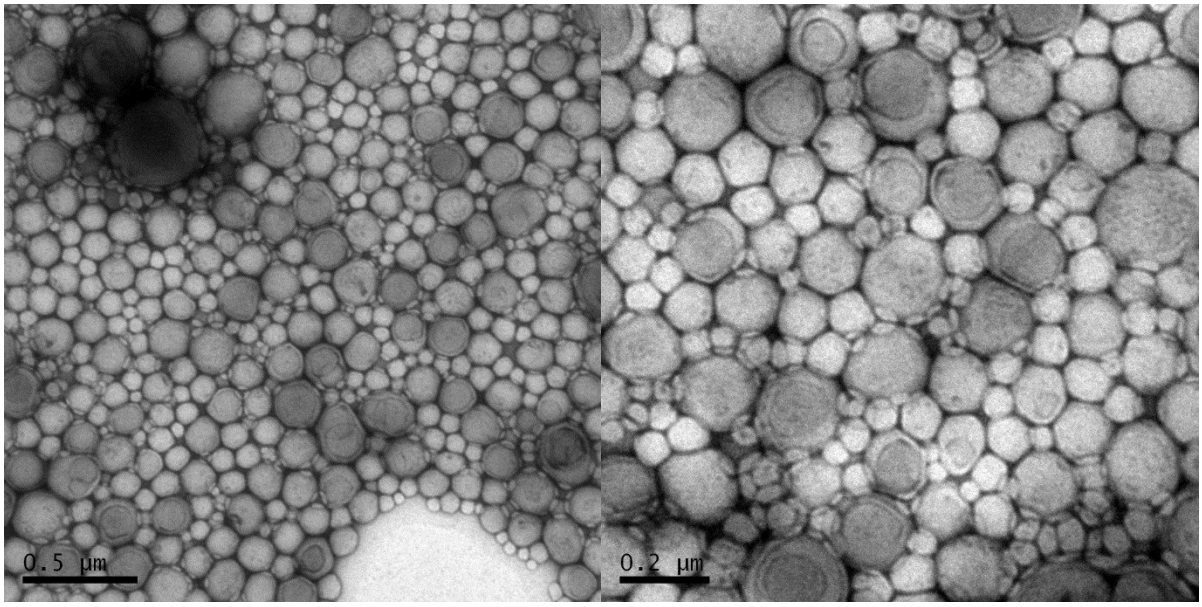

Figure S15: TEM images of P6 5 wt% (100 wt % DSMA) aggregates; negatively stained with 5% uranyl acetate and 1% acetic acid.

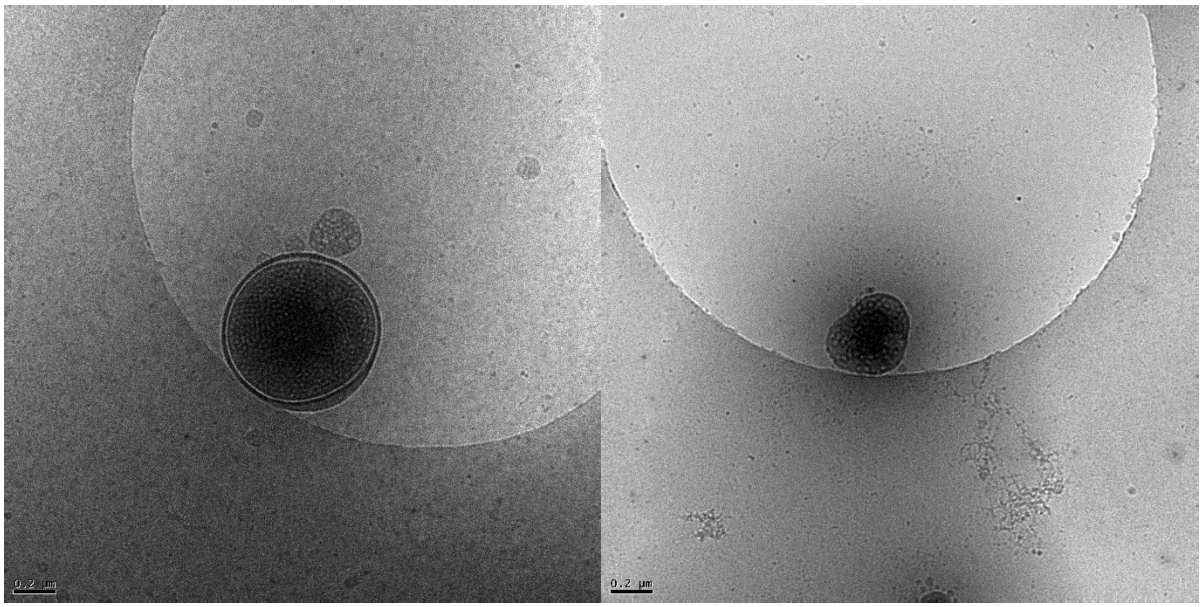

Figure S16: Cryo-TEM images of P1 4 wt% (0 wt % DSMA) bicontinuous nanospheres.

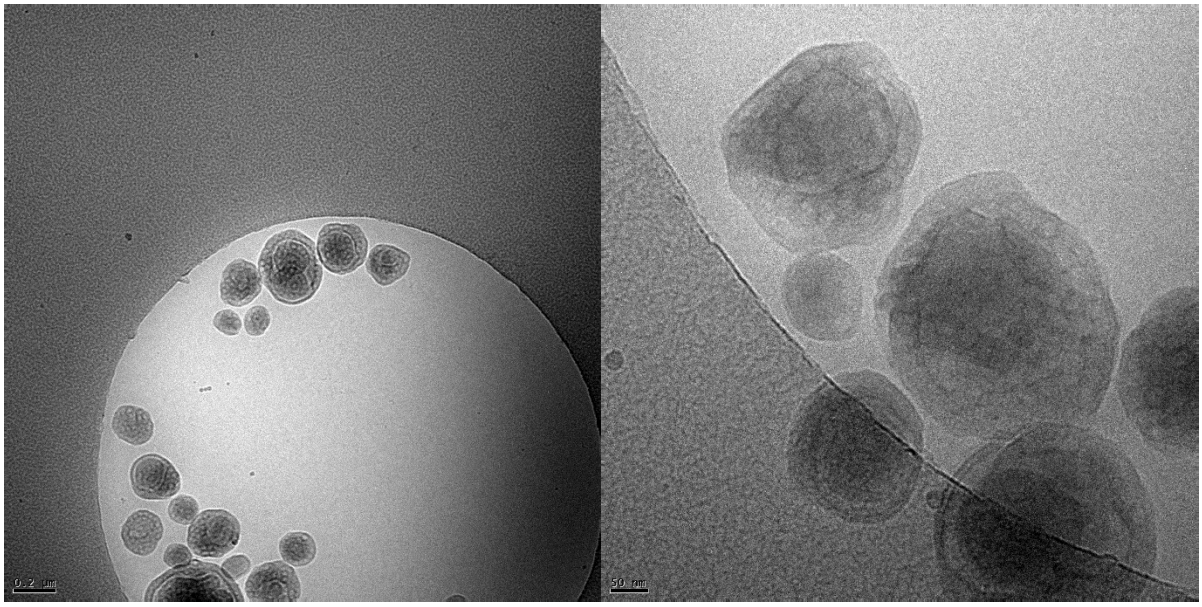

Figure S17: Cryo-TEM images of P2 5 wt% (DSMA 25 wt%), bicontinuous nanospheres.

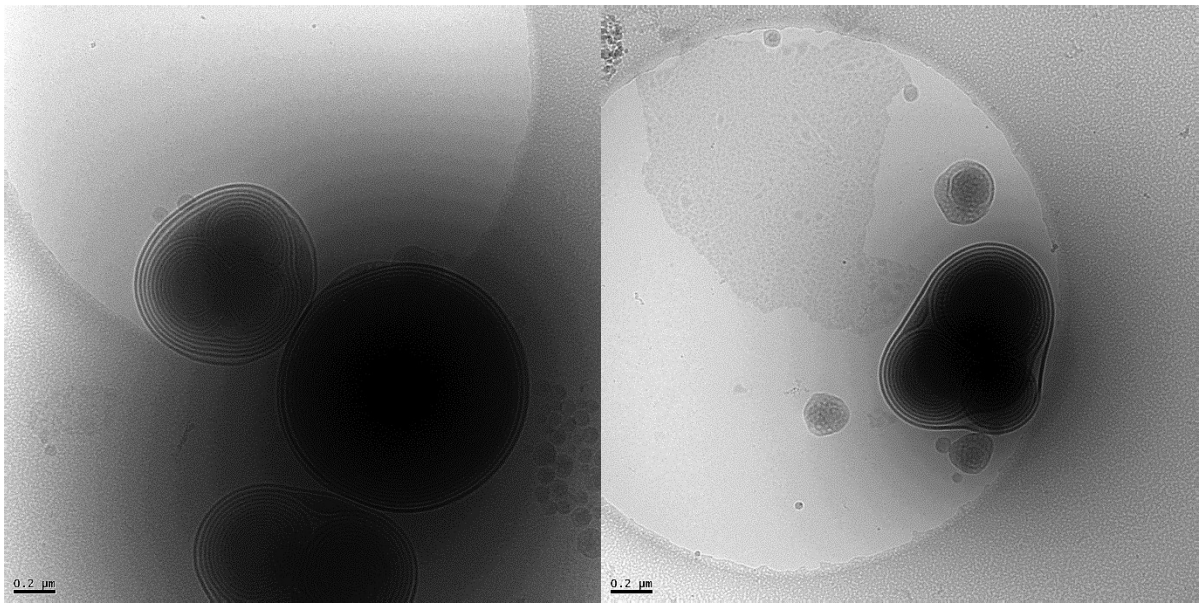

Figure S18: Cryo-TEM images of P3 5 wt% (DSMA 50 wt%), bicontinuous nanospheres and multi-lamellar aggregates.

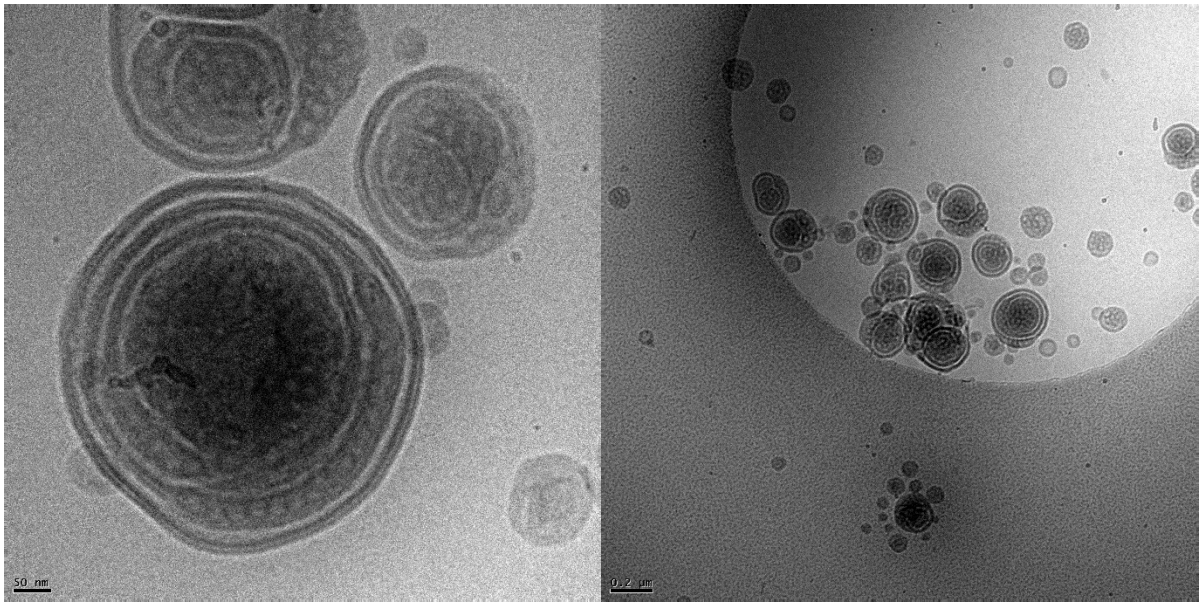

Figure S19: Cryo-TEM images of P4 5 wt% (DSMA 60 wt%), bicontinuous nanospheres and multi-lamellar aggregates.

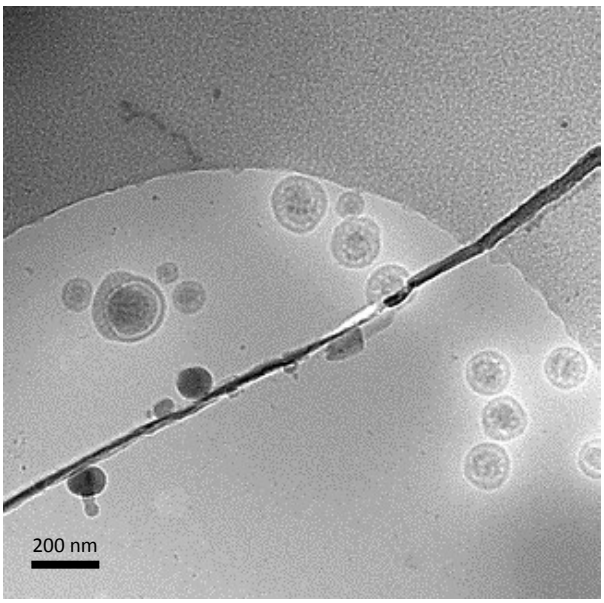

Figure S 20: Cryo-TEM images of P5 5 wt% (DSMA 75 wt%), bicontinuous nanospheres.

Table S1: Particle sizes and dispersity calculated from dynamic light scattering.

Polymer	T (°C)	N_{ave} (d.nm)	SD (± nm)	Z_{Ave} (d.nm)	SD (± nm)	V_{ave} (d. nm)	SD (± nm)	Đ
P1 (5 wt%)	15	344	61	840	30	2414	840	0.57
P1 (5 wt%)	35	360	53	760	19	2577	924	0.54
P2 (5 wt%)	15	194	37	237	3	302	79	0.16
P2 (5 wt%)	45	186	30	242	2	312	51	0.15
P3 (5 wt%)	15	178	32	327	6	1654	1017	0.44
P3 (5 wt%)	45	175	22	299	4	1335	931	0.42
P4 (5 wt%)	15	143	42	207	3	724	973	0.17
P4 (5 wt%)	45	169	24	212	1	536	632	0.17
P5 (5 wt%)	15	116	19	174	2	233	140	0.21
P5 (5 wt%)	45	77	33	165	1	272	311	0.25
P6 (5 wt%)	15	146	49	200	2	226	9	0.15
P6 (5 wt%)	45	171	17	205	1	251	28	0.14
P1-IB (1 wt%)	10	60	13	395	103	1506	910	0.95
P7 (1 wt%)	10	332	17	396	8	646	219	0.19
P7-IB (1 wt%)	10	226	24	245	2	315	62	0.10
P5 (1 wt%)	10	354	33	529	10	1205	764	0.42
P5-IB (1 wt%)	10	408	96	888	37	2814	1396	0.68
P6 (1 wt%)	10	431	84	709	31	1895	1031	0.45
P6-IB (1 wt%)	10	420	91	819	79	3078	1685	0.67