

Electronic Supplementary Information

In-Situ Formation of Reverse Polymeric Micelles in Liquid Alkanes to Lodge Alcohol Micro-droplets

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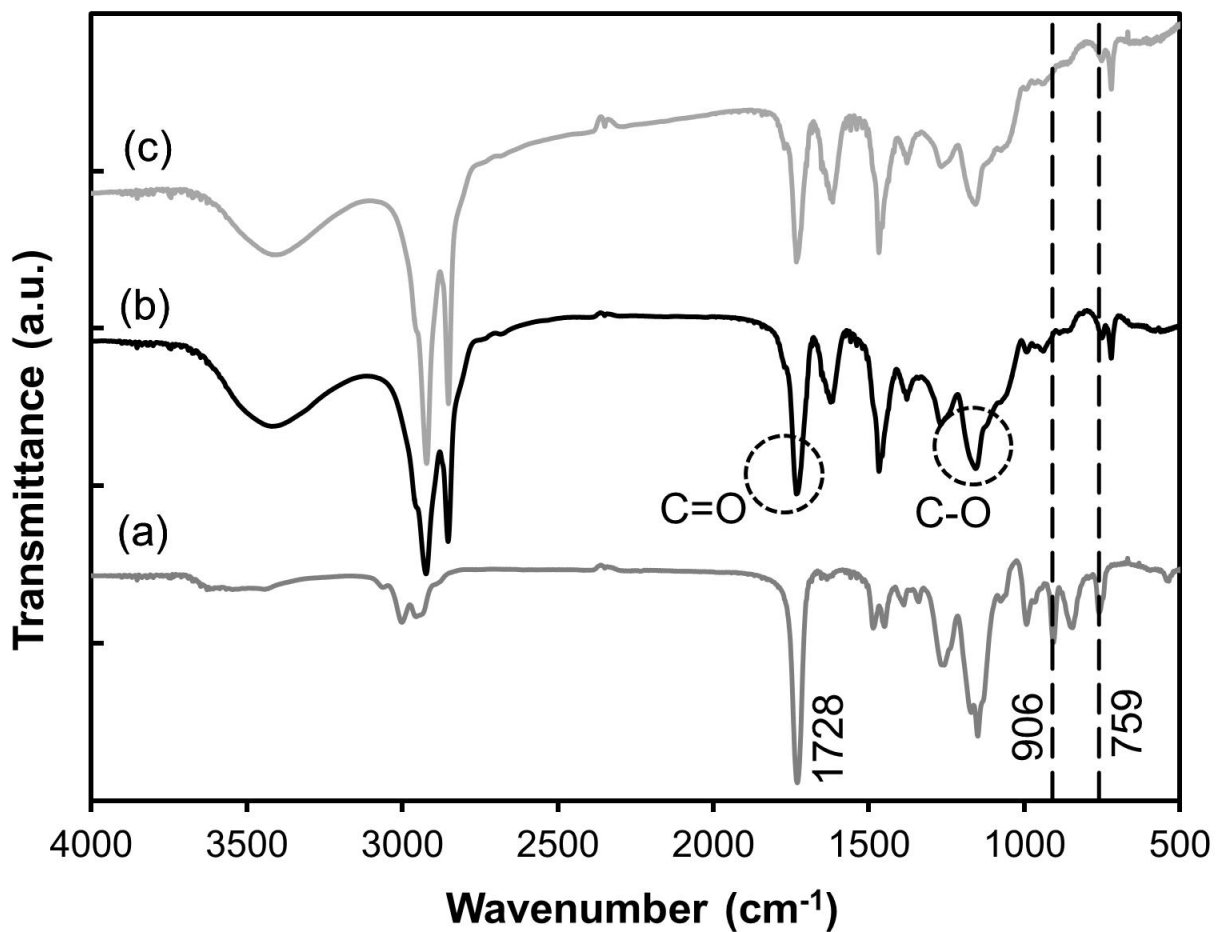


Fig. S1 FTIR spectra of purified polymer species (a) PGMA, (b) P(HDA-GMA), Sample P1 synthesized in *n*-dodecane, and (c) P(ODA-GMA), Sample P5 synthesized in the diesel.

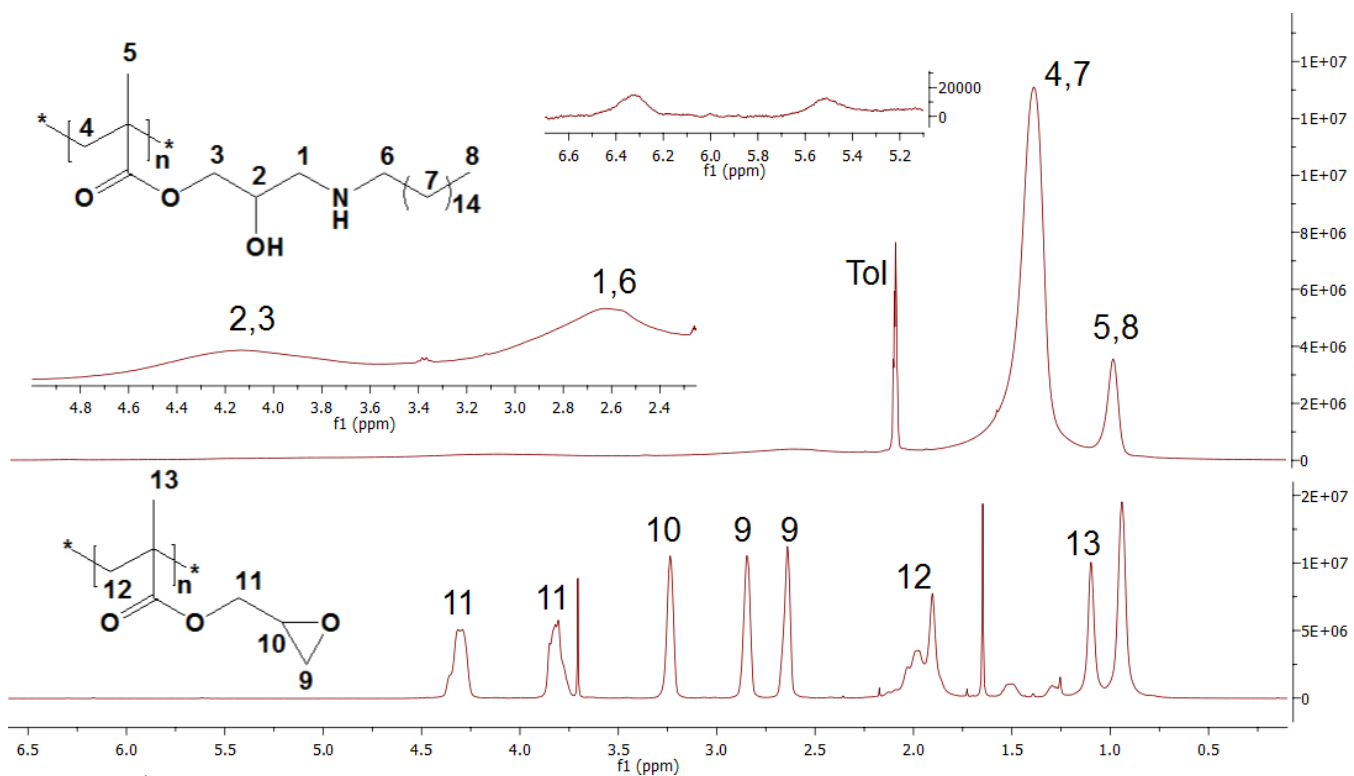


Fig. S2 ¹H-NMR spectrum of purified PGMA (in CDCl₃) and P(GMA-HDA) (in toluene-*d*₈).

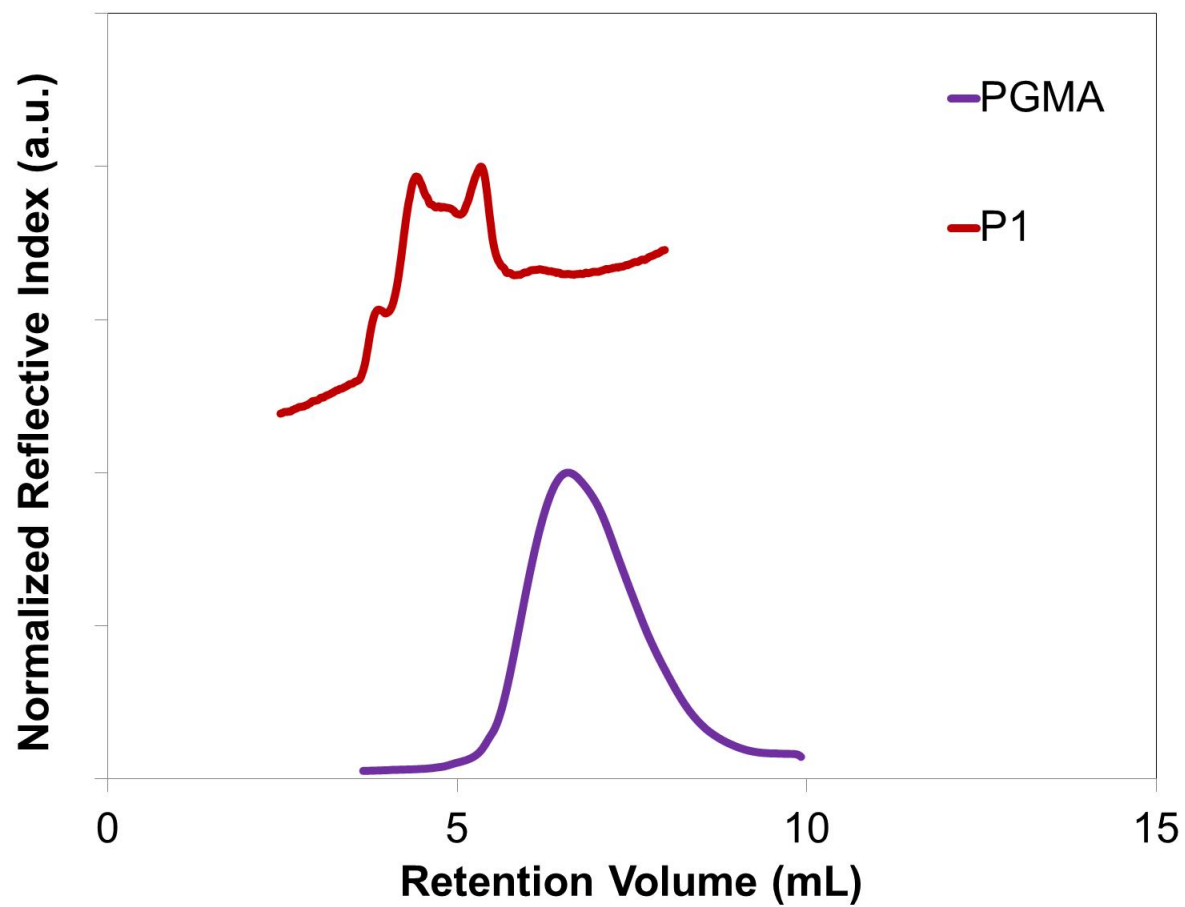


Fig. S3 Size exclusion chromatograph for homopolymer PGMA and comb-like amphiphilic polymer P1 using DMF as eluent.

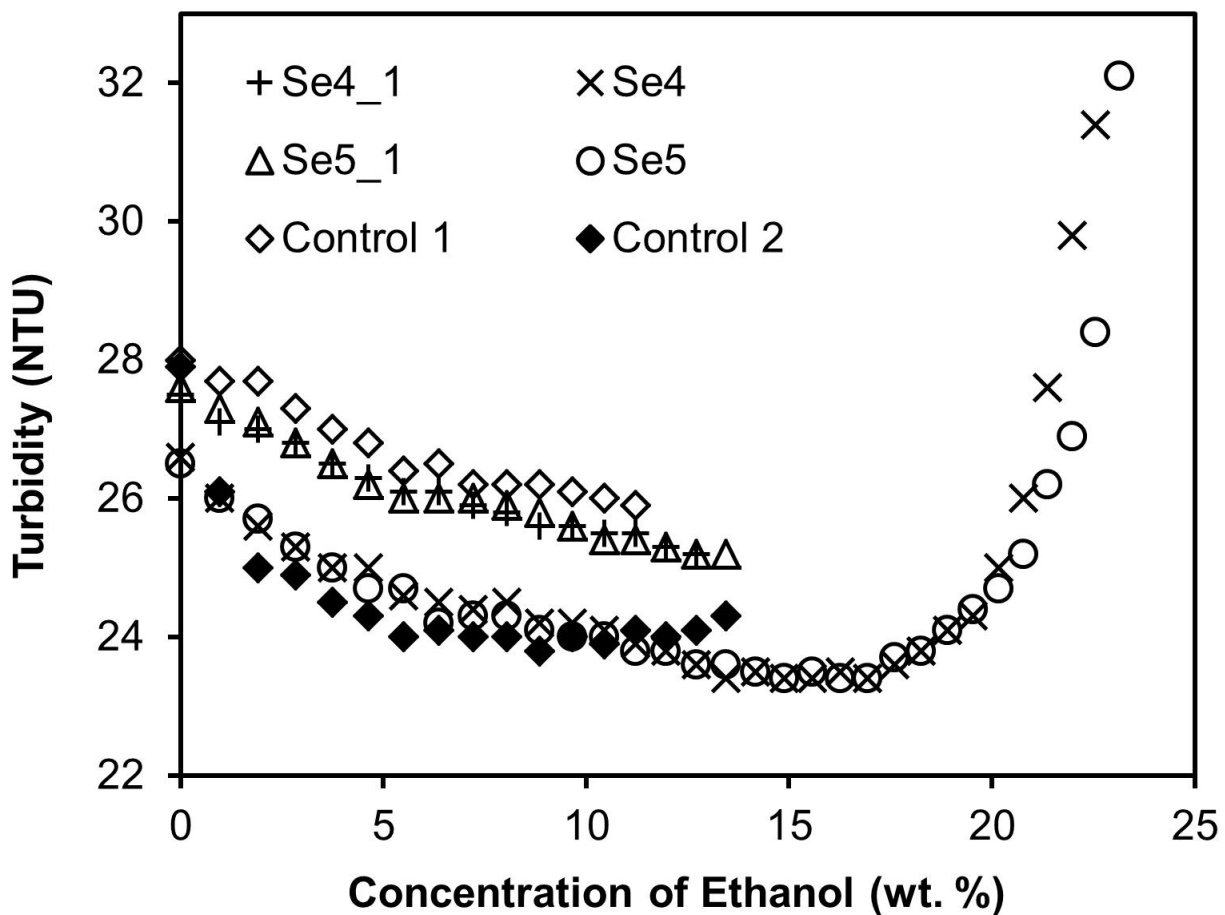


Fig. S4 The variation of turbidity with the addition of ethanol into the four reverse polymeric micellar solutions and the two controls where the diesel is the dispersion medium (refer to Table 3 for labels).

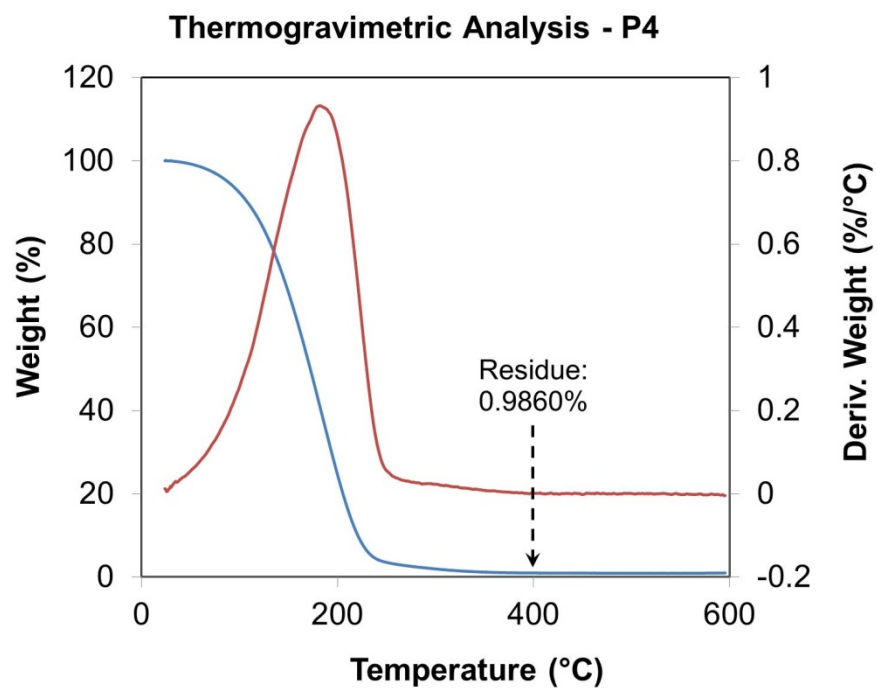
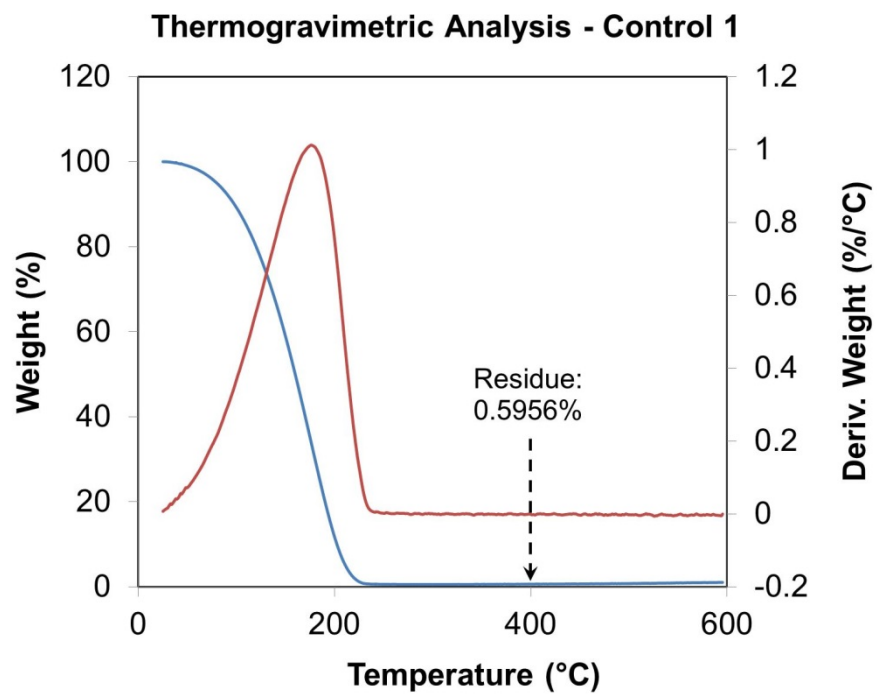


Fig.

S5

The pyrolysis profiles of Control 1 (Top, pristine diesel) and sample P4 (Bottom, polymer micellar solution with 5 wt.% emulsifier).

Table S1 Tabulated turbidity measurement data for the dissolution of methanol in the polymeric reverse micellar solution

Methanol (wt. %)	Turbidity (NTU)								
	S _{m1}	S _{m2}	S _{m3}	S _{m4}	S _{m5}	S _{m6}	S _{m7}	S _{m8}	S _{m9}
0.00	1.65	2.01	7.41	27.1	27.1	26.9	33.3	27.1	30.4
0.24	1.50	1.76	6.57	26.9	26.8	27	31.2	27.1	29.4
0.48	1.30	1.57	5.86	26.9	26.8	26.7	29.5	26.9	28.2
0.73	1.23	1.36	5.37	26.8	26.7	26.6	28.1	26.9	27.4
0.97	1.10	1.25	4.95	26.5	26.5	26.3	27.1	26.8	26.7
1.20	0.99	1.13	4.60	26.4	26.3	26.1	26.7	26.6	26.8
1.44	0.92	1.04	4.29	26.2	26.4	26.1	27.1	26.4	27.7
1.68	0.83	0.93	4.07	26.3	26.1	25.8	26.4	26.3	31.5
1.91	0.79	0.88	3.88	26.0	26.1	25.9	27.7	26.2	40.6
2.15	0.74	0.81	3.67	26.0	26.1	26.0	30.5	26.3	57.4
2.38	0.75	0.70	3.51	26.0	26.2	25.9	33.4	26.2	61.5
2.61	0.72	0.72	3.38	26.0	26.0	26.0		26.2	79.3
2.84	0.61	0.71	3.32	26.0	26.1	26.0		26.5	
3.07	0.58	0.71	3.22	25.9	25.9	800		26.6	
3.30	0.57	0.70	6.17	1194	1091			1246	
3.53	0.60	5.50							
3.75	2.01								

Shaded area: Turbidity at phase separation

Table S2 Tabulated turbidity measurement data for the dissolution of ethanol in the polymeric reverse micellar solution

EtOH (wt. %)	Turbidity (NTU)											
	C1	C2	S _e 4_1	S _e 4_2.5	S _e 4	S _e 5_1	S _e 5_2.5	S _e 5	S _e 6	S _e 7	S _e 8	S _e 9
0.00	28.0	27.9	27.5	27.1	26.6	27.6	27.0	26.5	26.7	33.3	27.3	30.2
0.96	27.7	26.1	27.1	26.7	26.0	27.3	26.7	26.0	26.1	29.4	26.8	27.8
1.91	27.7	25.0	27.0	26.5	25.6	27.1	26.6	25.7	25.6	27.5	26.3	26.4
2.83	27.3	24.9	26.8	26.2	25.3	26.8	26.1	25.3	25.5	26.5	26.2	25.9
3.74	27.0	24.5	26.5	26.0	25.0	26.5	25.8	25.0	25.2	25.6	25.8	25.5
4.63	26.8	24.3	26.3	25.9	25.0	26.2	25.7	24.7	24.9	25.6	25.6	25.3
5.51	26.4	24.0	26.1	25.5	24.6	26.0	25.4	24.7	24.8	25.7	25.3	25.5
6.36	26.5	24.1	26.1	25.1	24.5	26.0	25.2	24.2	24.4	25.2	25.0	26.4
7.21	26.2	24.0	25.9	25.3	24.4	26.0	25.2	24.3	24.4	24.9	24.9	28.0
8.04	26.2	24.0	25.8	25.2	24.5	25.9	25.1	24.3	24.2	24.8	24.7	29.3
8.85	26.2	23.8	25.6	25.1	24.2	25.8	24.9	24.1	24.1	25.0	24.6	31.1
9.65	26.1	24.0	25.6	25.0	24.2	25.6	24.9	24.0	23.9	25.3	24.4	32.8
10.44	26.0	23.9	25.5	24.7	24.1	25.4	25.0	24.0	24.0	25.6	24.4	33.1
11.21	25.9	24.1	25.5	24.8	23.9	25.4	24.6	23.8	23.8	25.8	24.1	32.3
11.97	1254	24.0	25.3	24.5	23.8	25.3	24.6	23.8	23.7	27.1	24.2	31.6
12.71		24.1	25.2	24.5	23.6	25.2	24.5	23.6	23.7	26.5	24.0	29.8
13.45		24.3	806	24.3	23.4	25.2	24.4	23.6	23.7	942	24.0	28.9
14.17		1068		24.6	23.5	938	24.5	23.5	24.2		24.3	26.4
14.88				24.6	23.4		24.5	23.4	23.9		24.2	26.3
15.58				24.7	23.4		24.7	23.5	24.2		24.3	26.5
16.26				24.8	23.5		24.8	23.4	24.7		24.5	27.6
16.94				1377	23.4		1368	23.4	24.7		24.6	28.0

17.60	23.6	23.7	26.8	25.1	919
18.26	23.8	23.8	27.3	25.5	
18.90	24.1	24.1	28.0	25.7	
19.53	24.3	24.4	29.3	26.3	
20.16	25.0	24.7	1957	1669	
20.77	26.0	25.2			
21.38	27.6	26.2			
21.97	29.8	26.9			
22.56	31.4	28.4			
23.14	2522	32.1			
23.71		2394			

Shaded area: Turbidity at phase separation
