Electronic Supplementary Material (ESI) for Soft Matter

DRY OIL POWDERS AND OIL FOAMS STABILISED BY FLUORINATED CLAY PLATELET PARTICLES

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ESI

Table S1. Elementary composition (wt.%) of the sericite particles used.

	Wt.%												
Element	C	O	F	Na	Mg	Al	Si	P	S	Cl	K	Ti	Fe
PF–0	1.15	50.45	0	0.15	0.32	17.37	22.15	0	0	0	7.67	0.14	0.60
PF–5	3.13	48.29	4.55	0.09	0.25	16.61	19.17	0.20	0.35	0	6.67	0.10	0.59
PF–8	3.64	46.14	7.53	0.11	0.30	16.08	18.42	0.26	0.29	0.05	6.49	0.12	0.58
PF–10	4.24	46.41	8.22	0.22	0.21	15.71	17.71	0.34	0.53	0.07	5.76	0.09	0.50
PF–12	4.76	45.13	8.85	0.12	0.28	15.59	17.76	0.43	0.27	0.05	6.09	0.15	0.54

Figure S1. EDX maps of PF–(a) 0, (b) 5, (c) 8, (d) 10 and (e) 12 sericite particles.

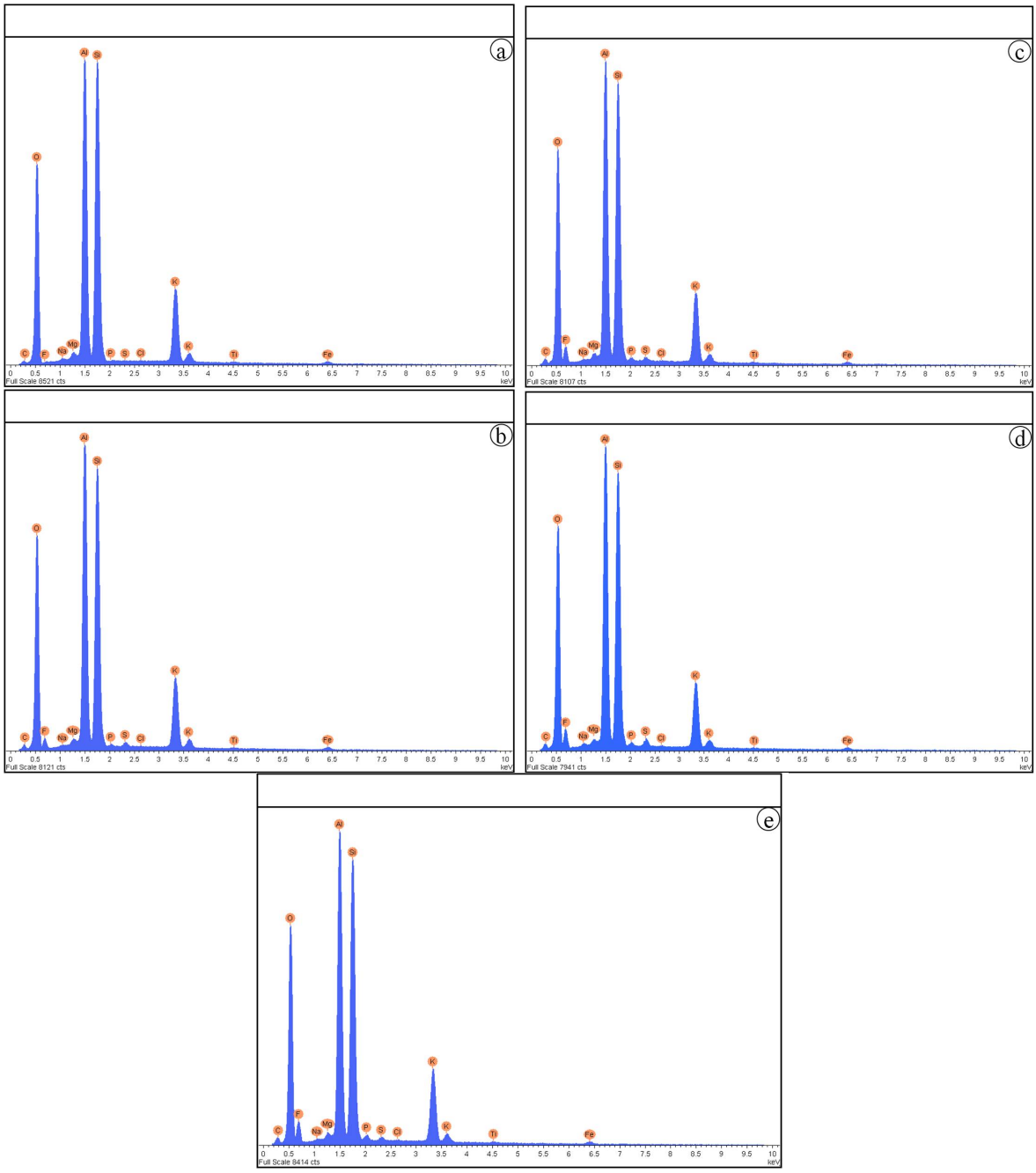

Figure S2. Surface energy chart for (a) PF–8 and (b) PF–10 sericite particles and (c) PTFE substrate as a function of possible values of γ_{sa}^{d} and γ_{sa}^{p}. The ordinate represents the 'goodness of fit' which is the inverse of the sum of the squares of variances.

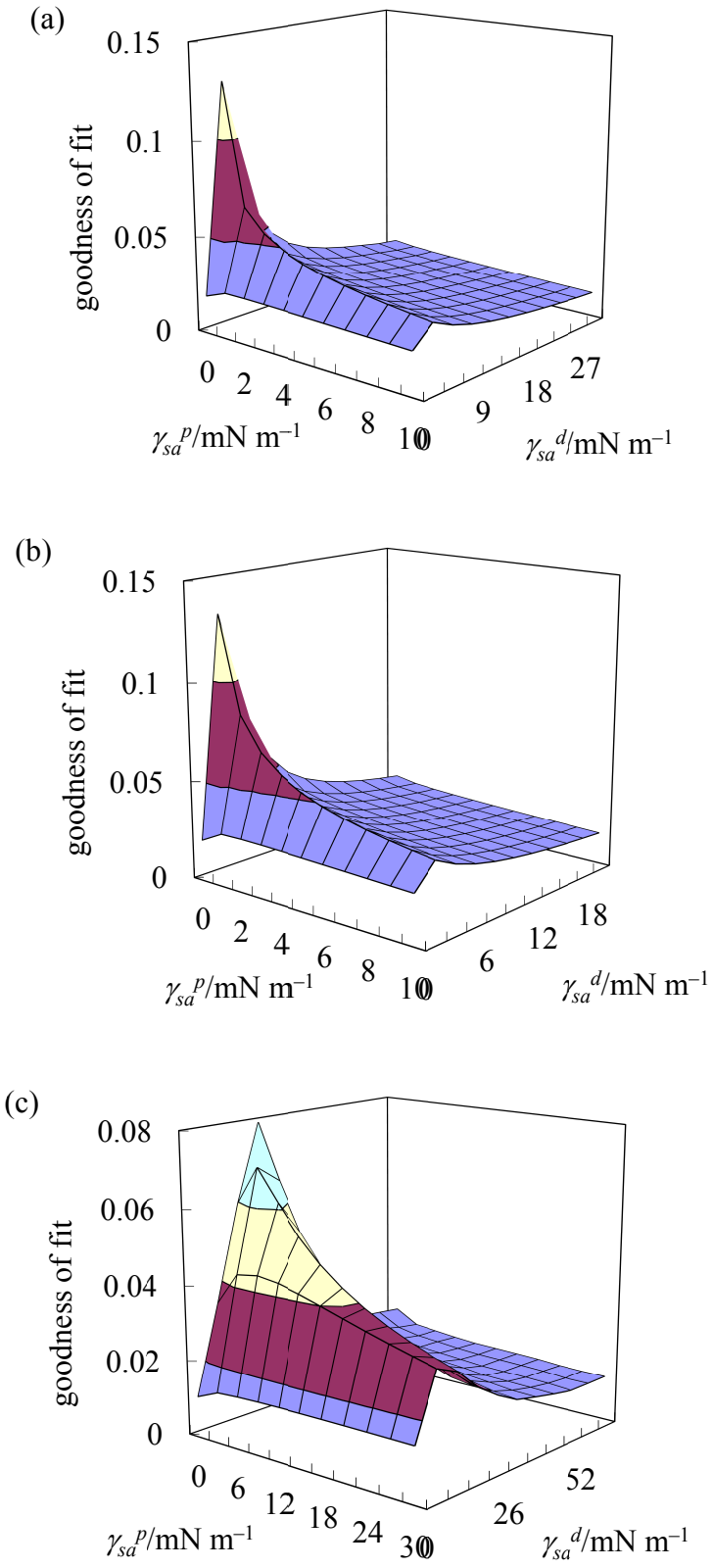

Figure S3. Photos of vessels containing PF–(a) 0, (b) 5, (c) 8, (d) 10 and (e) 12 sericite particles (50 mg) and liquids (3 cm^3) after 30 s agitation: (1) pentane, (2) cyclomethicone, (3) 6 cS PDMS, (4) decane, (5) dodecane, (6) hexadecane, (7) isocetane, (8) jojoba oil, (9) 2-ethylhexyl-4-methoxycinnamate and (10) water. Particle dispersions, foams with or without climbing films or climbing films alone formed in the liquids after agitation.

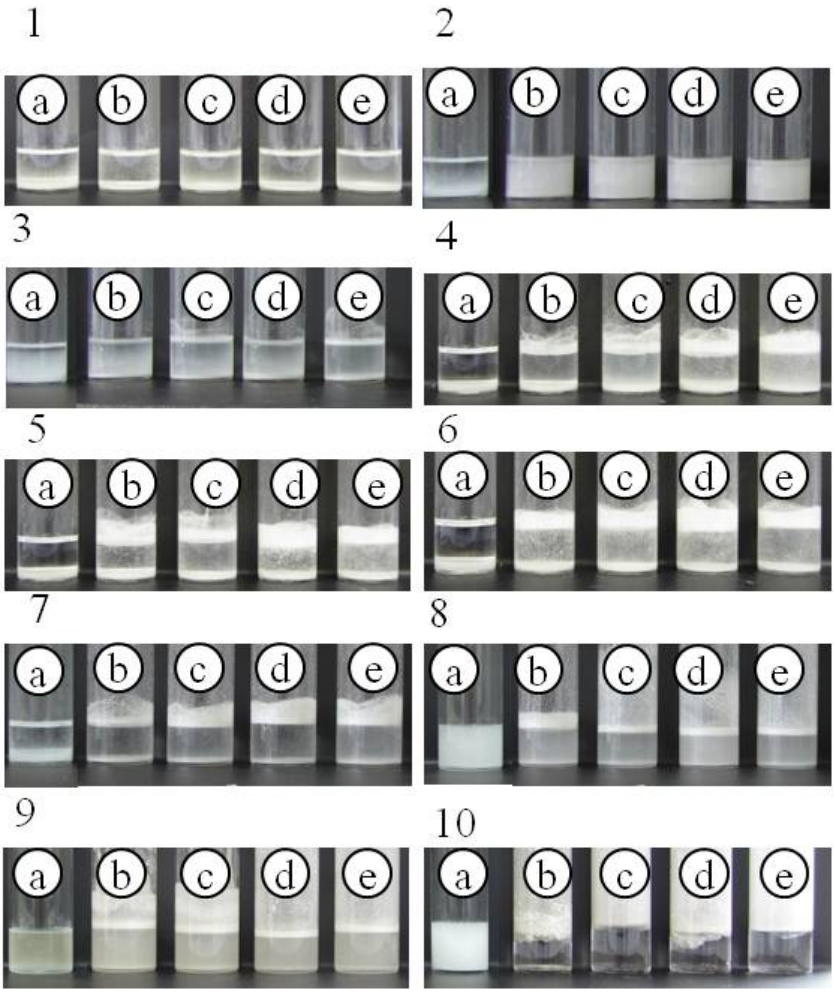

Figure S4. Cryo-SEM images of frozen dry oil powder composed of 2-ethylhexyl-4-methoxycinnamate stabilised by PF-12 particles.

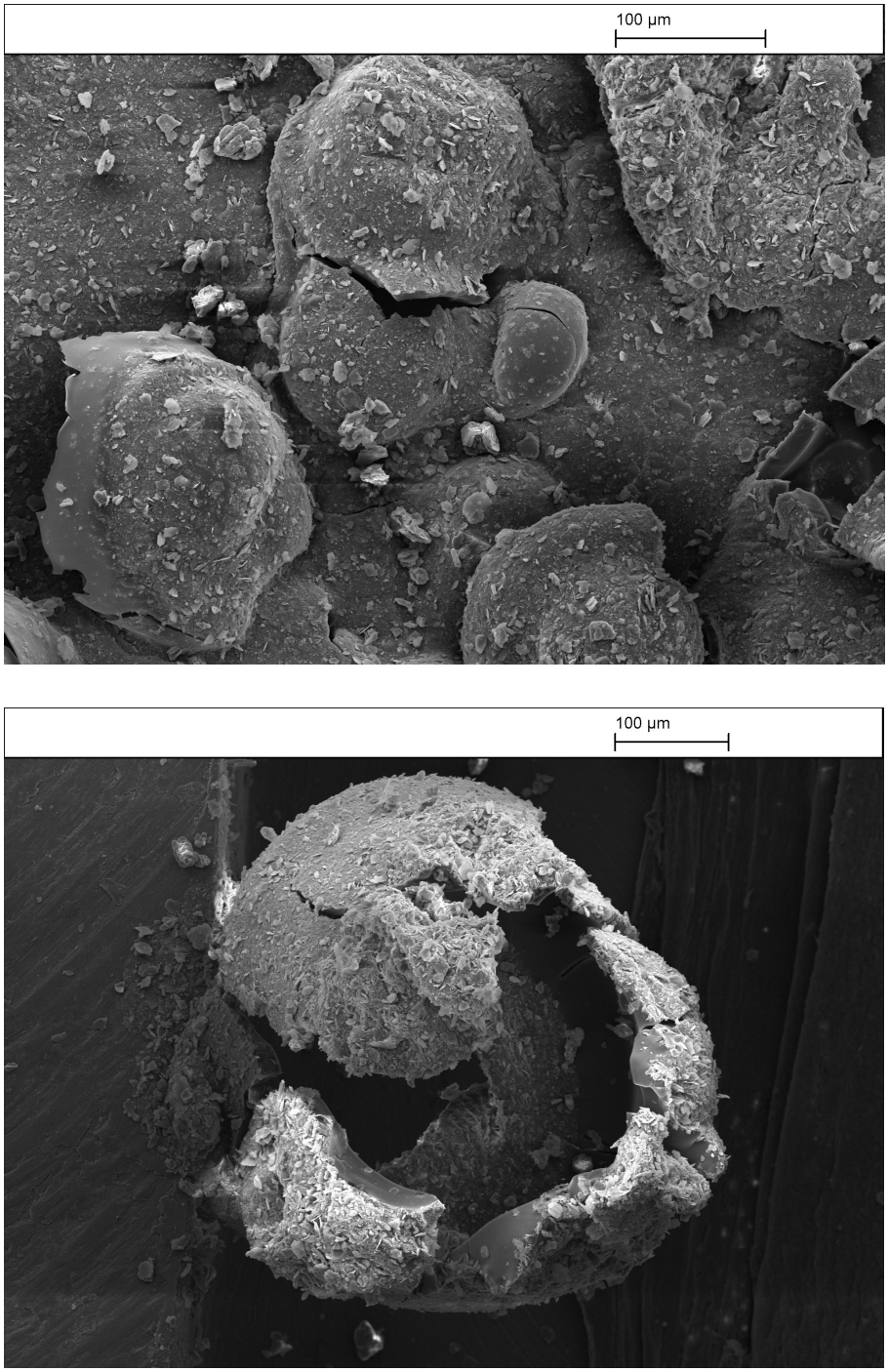

Figure S5. (upper & middle) Photos of (a) 2-ethylhexyl-4-methoxycinnamate dry powder, (b) corresponding oil foam both stabilised by 0.5 g of PF–8 sericite particles containing 1.45 and 1.50 g of oil, respectively and (c) a cream obtained by shearing 8.5 mg of (a) on a dry glass slide. (lower) Corresponding photos of 400 mg of the above mentioned materials added to 20 cm^3 of 2-ethylhexyl-4-methoxycinnamate after vigorous stirring. The o/a powder (a) does not disperse whereas the a/o foam (b) does.