

Supporting Information

Impact of Surface Active Ionic Liquids on the Cloud Points of Nonionic Surfactants and the Formation of Aqueous Micellar Two-Phase Systems

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Table S1. McIlvaine buffer composition to a final volume of 1L³⁷.

| pH required | Volume (mL) of Na ₂ HPO ₄ solution (0.2 M) | Volume of citric (mL) acid solution (0.1 M) |
|-------------|------------------------------------------------------------------|---------------------------------------------|
| 3.0 | 205.50 | 794.50 |
| 4.0 | 385.50 | 614.50 |
| 5.0 | 515.00 | 485.00 |
| 6.0 | 631.50 | 368.50 |
| 7.0 | 823.50 | 176.50 |
| 8.0 | 972.50 | 27.50 |

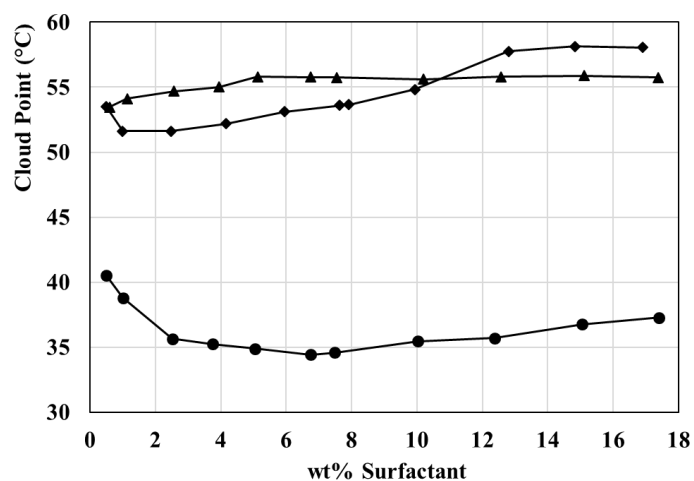


Figure S1. Binodal curves of Tergitol surfactants in absence of SAILs, at pH 7.0: ●, Tergitol 15-S-7; ▲, Tergitol 15-S-9; ◆, Tergitol NP-10.

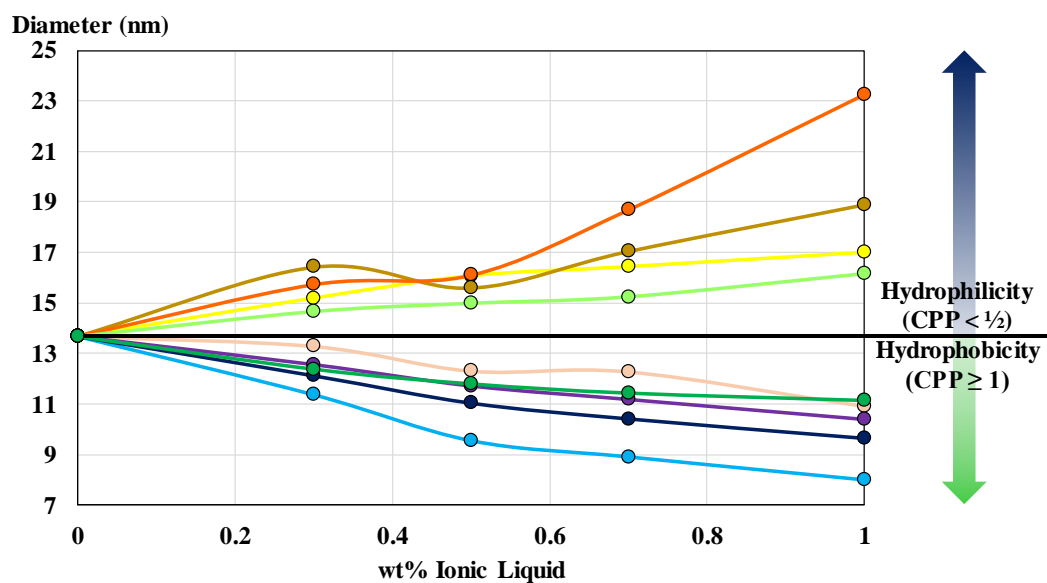


Figure S2. Effect of the SAIL concentration on the micelles size for the 10 wt% Tergitol 15-S-7 solutions:

– system without IL; \bullet , $C_{10}mimCl$; \bullet , $C_{14}mimCl$; \bullet , $[C_{16}py]Cl$; \circ , $[P_{4,4,4,14}]Cl$; \bullet , $[P_{6,6,6,14}]Cl$; \bullet , $[P_{6,6,6,14}]Br$; \bullet , $[P_{6,6,6,14}][TMPP]$; \bullet , $[N_{1,1,1,16}]Br$; and \bullet , $[N_{1,1,14,14}]Br$.

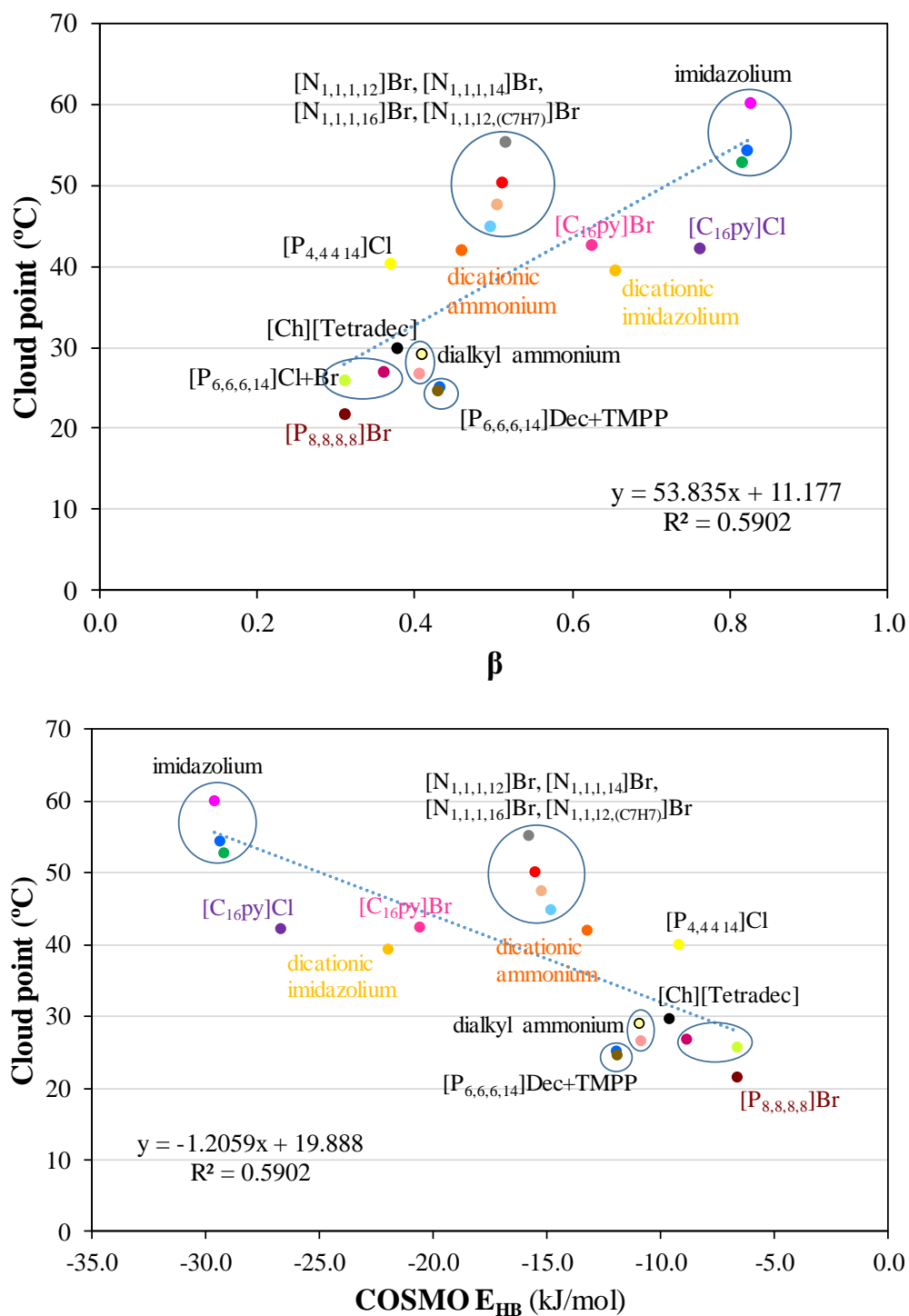


Figure S3. Effect of the SAIL hydrophobicity, expressed in terms of solvatochromic parameter β , and COSMO E_{HB} descriptor, on the measured cloud points of 4 wt% Tergitol 15-S-7 solutions with 0.3 wt% of SAIL