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Supporting Information

Lyotropic Liquid Crystal to Soft Mesocrystal Transformation in Hydrated Salt–Surfactant Mixtures

Cemal Albayrak, Gözde Barım, and Ömer Dag*[a]

chem_201301662_sm_miscellaneous_information.pdf

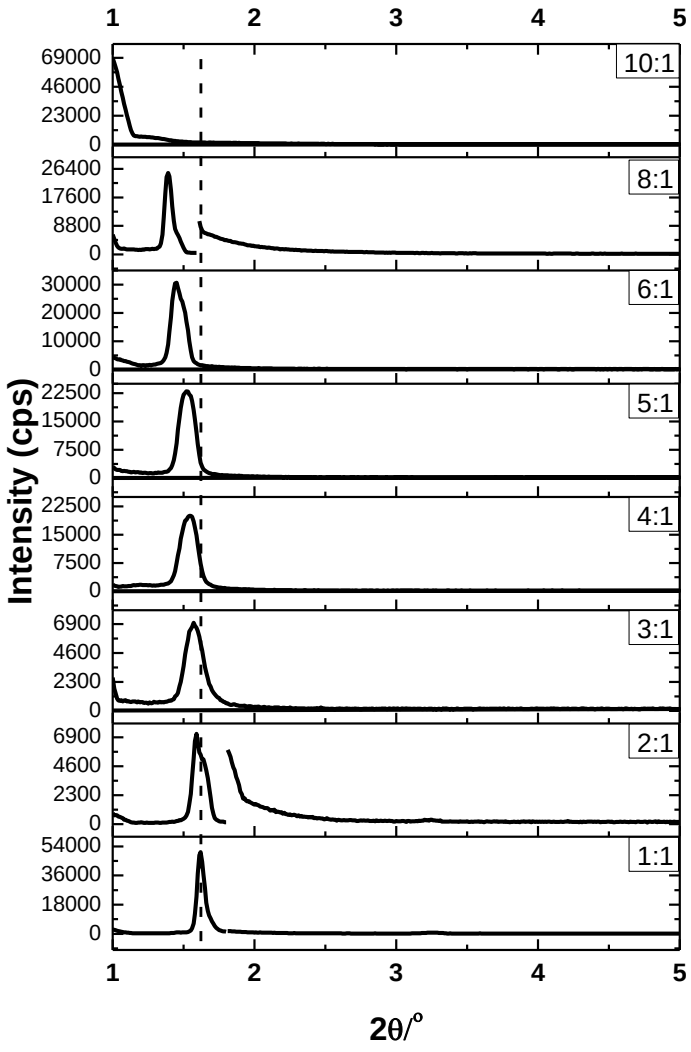

Figure S1. XRD patterns of $CaCl_2 \cdot xH_2O$-$C_{12}EO_{10}$ with increasing salt/surfactant mole ratios (as shown in the plots).

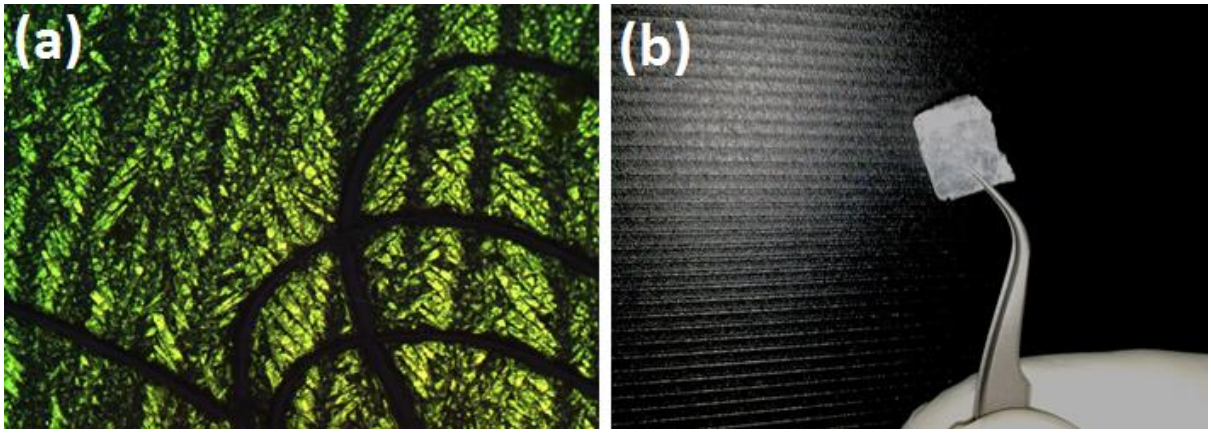

Figure S2. (a) POM image of a scratched film and (b) Photograph of scraped sample of $CaCl_2 \cdot xH_2O$-$C_{12}EO_{10}$ at a 2.0 $CaCl_2/C_{12}EO_{10}$ mole ratio.

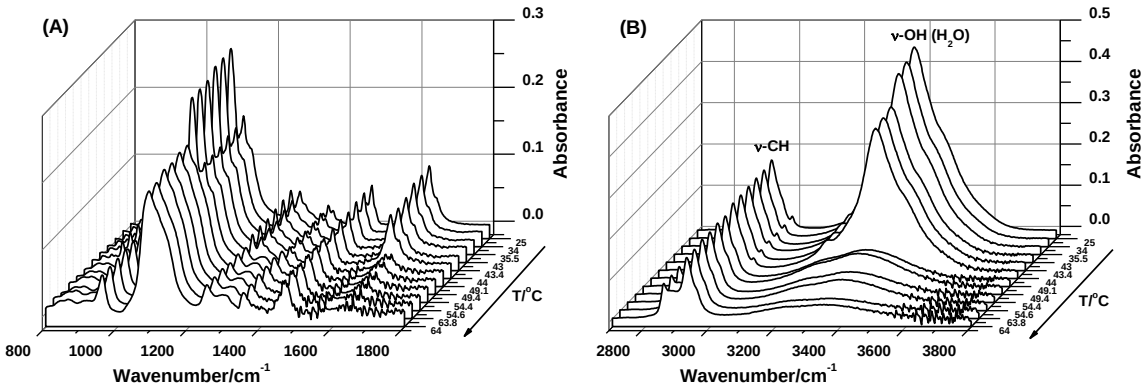

Figure S3. FT-IR spectra of $CaCl_2 \cdot xH_2O$-$C_{12}EO_{10}$ with a $CaCl_2/C_{12}EO_{10}$ mole ratio of 2.0 during heating process.

Figure S4. POM imaging during heating (top to bottom, left panel) and cooling (top to bottom, right panel) of $CaCl_2 \cdot xH_2O$-$C_{12}EO_{10}$ with a $CaCl_2/C_{12}EO_{10}$ mole ratio of 2.0.

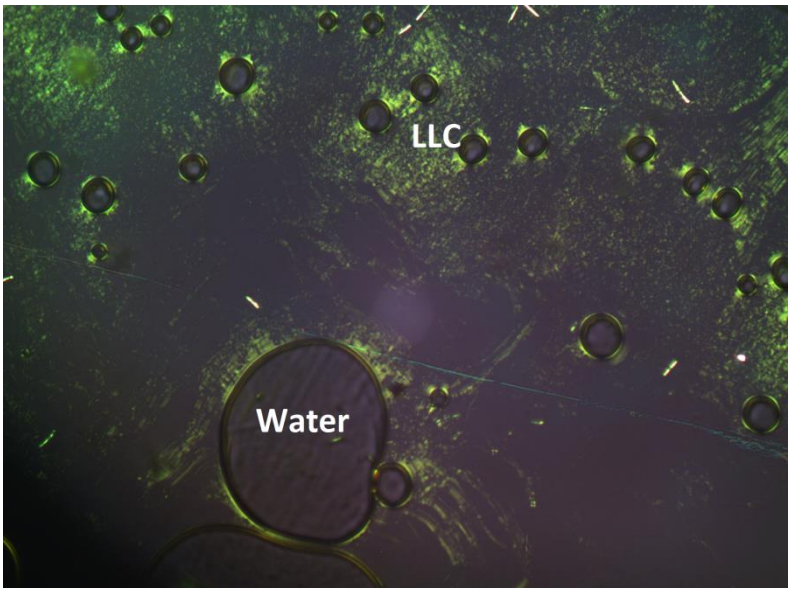

Figure S5. POM image of $CaCl_2 \cdot xH_2O$-$C_{12}EO_{10}$ with a $CaCl_2/C_{12}EO_{10}$ mole ratio of 2.0 at 90 ^oC.

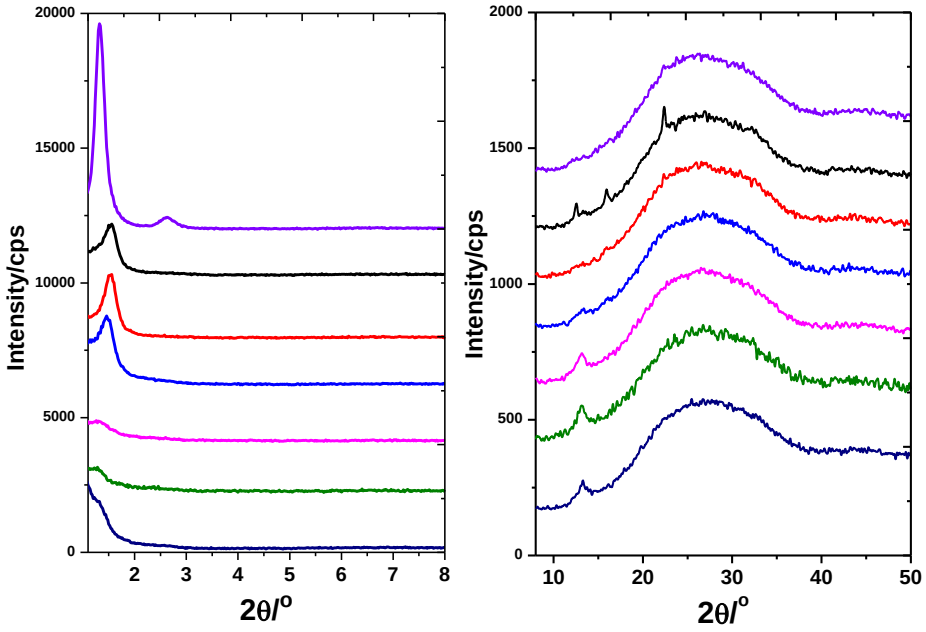

Figure S6. XRD patterns of theaged $CaCl_2.xH_2O$-$C_{12}EO_{10}$ thin films. From top to bottom the $CaCl_2/C_{12}EO_{10}$ mol ratio changes as 2.0, 3.0, 4.0 , 5.0 , 6.0, 8.0 and 10.0 * marks the visible diffraction lines.

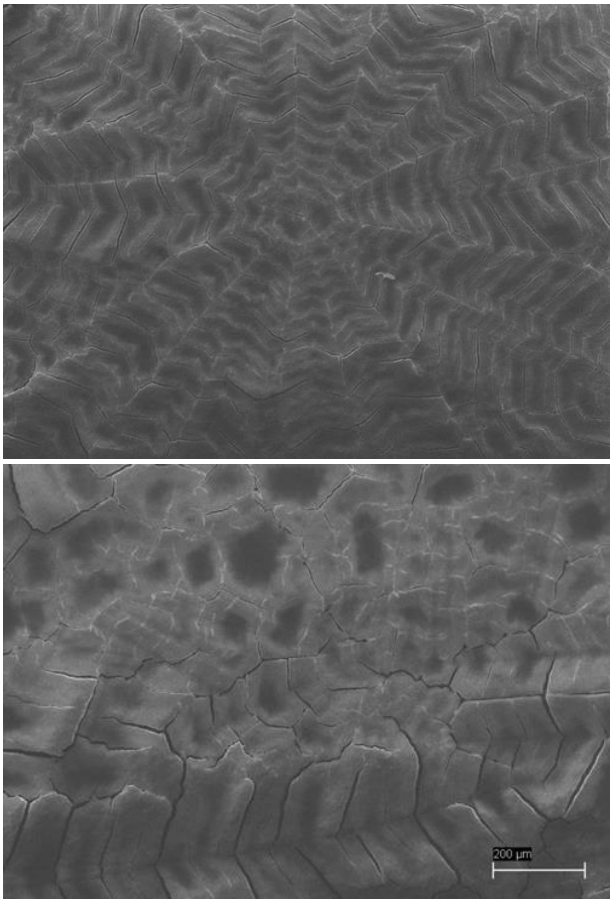

Figure S7. SEM images of $CaCl_2 \cdot xH_2O$-$C_{12}EO_{10}$ ($CaCl_2/C_{12}EO_{10}$ mole ratio of 3.0) mesocrystals.

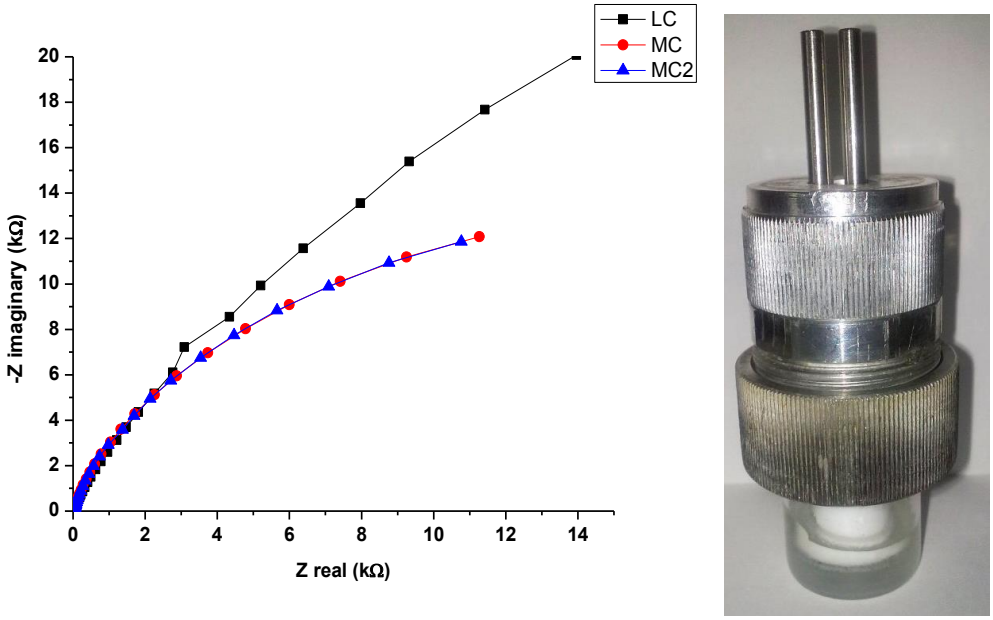

Figure S8. AC impedance spectra of $CaCl_2 \cdot xH_2O$-$C_{12}EO_{10}$ ($CaCl_2/C_{12}EO_{10}$ mole ratio of 3.0) LLC and SMC as indicated in the plots (LC is liquid crystalline phase, MC and MC2 are mesocrystals over time) and the photograph of the cell used.

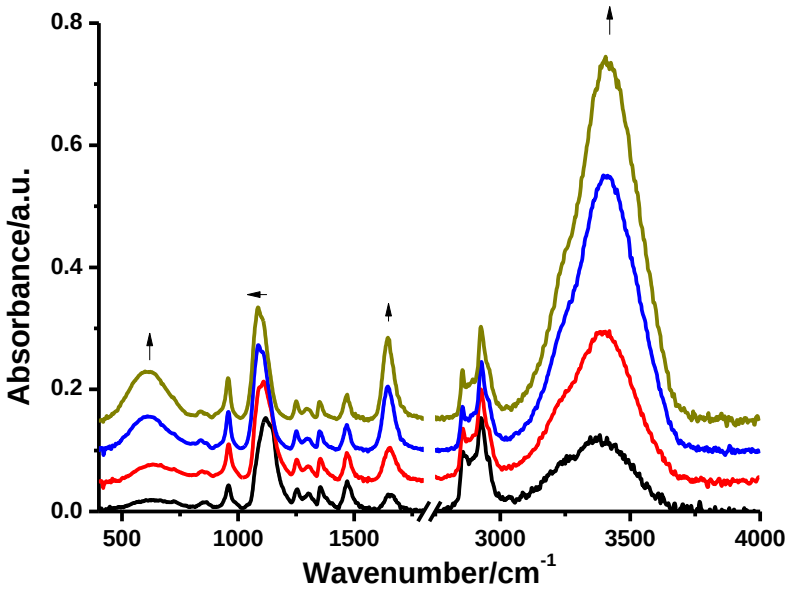

Figure S9. FTIR spectra of $CaCl_2 \cdot xH_2O$-$C_{12}EO_{10}$ with $CaCl_2/C_{12}EO_{10}$ mole ratio of 2, 3, 4,and 5 bottom to top.

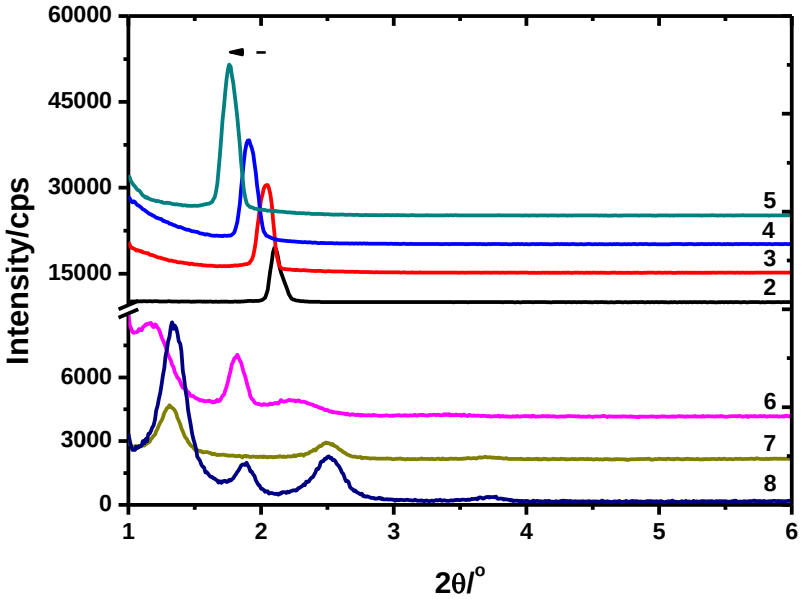

Figure S10. XRD patterns of $LiI \cdot xH_2O$-$C_{12}EO_{10}$ with $LiI/C_{12}EO_{10}$ mole ratio of 2 to 8.

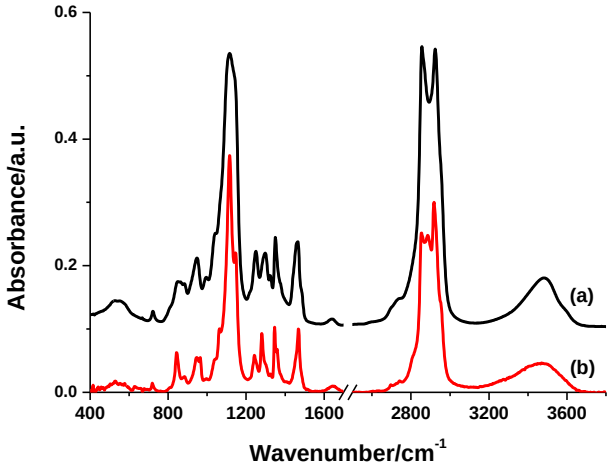

Figure S11**.** FTIR spectra of (a) molten and (b) crystalline $C_{12}EO_{10}$

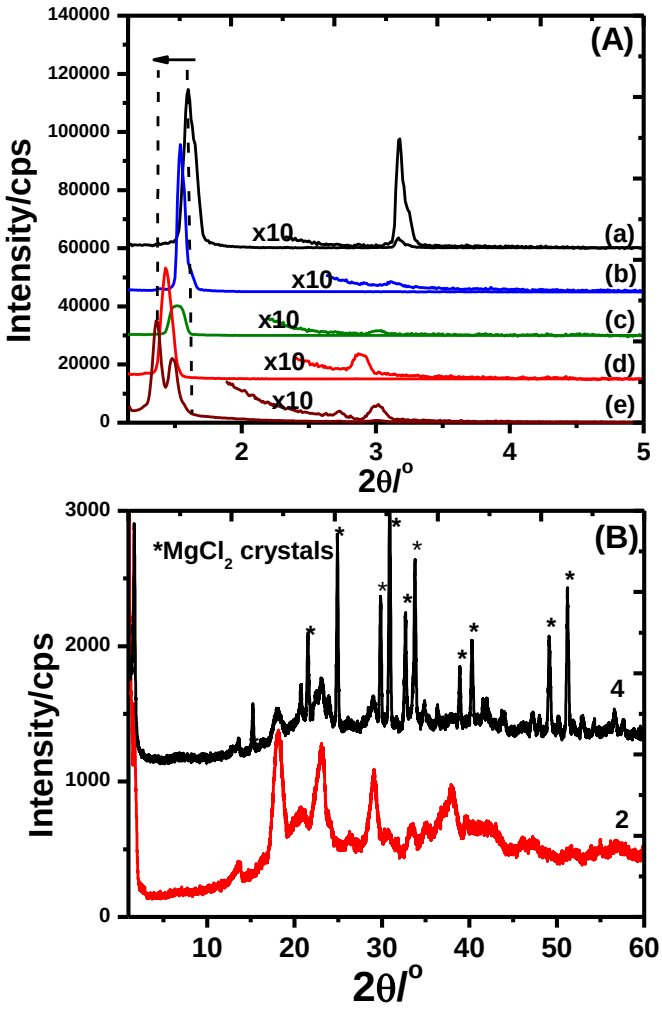

Figure S12. The XRD patterns of (A) fresh $MgCl_2 \cdot xH_2O$-$C_{12}EO_{10}$ with a $MgCl_2/C_{12}EO_{10}$ mole ratio of a) 1, b) 2, c) 3, d) 4, and e) 5 and (B) aged samples with a $MgCl_2/C_{12}EO_{10}$ mole ratio of 2 and 4.