Supporting Information

Electrorheological Properties of Organically Modified Nanolayered Laponite: Influence of Intercalation, Adsorption and Wettability

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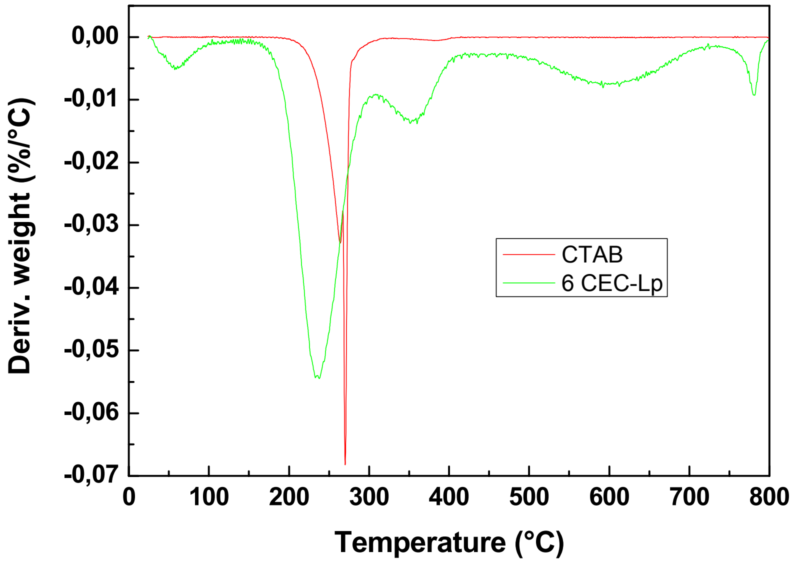
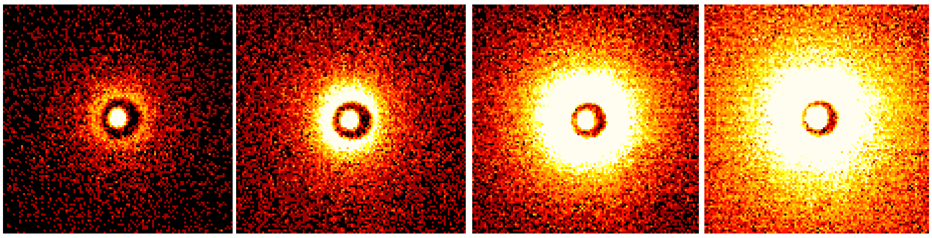


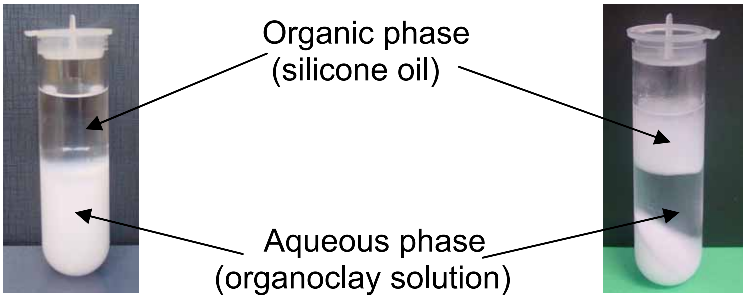
Fig.S1 DTG traces (RT-800℃) of CTAB and 6 CEC-Lp.



a) b) c) d)

Fig. S2 The two-dimensional anisotropic scattering pattern obtained from chains of 0.5 CEC-Lp particles initially dispersed in silicone oil, in the presence of a DC external electric field of magnitude equal to (a) 0 kV/mm, no chain, isotropic scattering pattern; (b) 1 kV/mm, (c) 2kV/mm, (d) 3kV/mm, weak chain, weak anisotropic scattering pattern,.

Here we provide an evidence for the change of wettability. A liquid-liquid phase transfer can verify the change of hydrophilicity of laponite to hydrophobicity of CTAB modified laponite: We chose the combination of ion exchange and liquid-liquid phase transfer to employ the phase transfer. After stirring 4cec-Lp aqueous solution was covered and left overnight to cool down to the room temperature. Before 4cec-Lp flocs were filtered out, some amounts of silicone oil were added into 4cec-Lp aqueous solution and then stirred continuously for 24h~48h at room temperature. Finally the mixed solution was centrifuged for 15 min at 4000pm to accelerate the phase separation. After that, 4cec-Lp organoclay/silicone oil suspension can be obtained from upper phase by the separating two phases successfully as shown in Fig.S3. Meanwhile pure laponite aqueous solution is also used for phase transfer, but no laponite particle can be transfer into silicone oil.



Before transfer After transfer

Fig. S3 Photos of successful phase transfer from the aqueous phase (silicone oil) to the organic phase for 4CEC-Lp sample.