

Effect of monovalent ion and hydrocarbon chain length of aliphatic solvents on the lecithin.

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Reverse cylindrical micelles are formed by the mixtures of lecithin and inorganic salts in nonpolar solvents. When the long reverse cylindrical micelles are entangled, the organogels are formed. In this study, we systematically investigated the reverse self-assembly of lecithin with monovalent ion in alkanes with a different hydrocarbon chain length. In this systems, headgroup of lecithin and monovalent ions interact. As increasing the hydrocarbon chain length of alkanes, the length of the reverse wormlike micelles increases, resulting in an increase of the solvent viscosity. Steady-shear and dynamic rheology were used to study the rheological properties of the samples. Small-angle-X-ray scattering (SAXS) was used to confirm the shape and size of the self-assembled structures in the solutions. The rheological properties were studied by steady-shear and dynamic rheology. From FTIR measurements, the interactions between lecithin headgroups and monovalent ions were investigated, in which the interactions play an important role in the formation of the reverse cylindrical micelles.