

Studies on Formation, Stabilization and Applications of Reverse Vesicles by Biocompatible Surfactants

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We have found that reverse vesicles can be formed by mixing biocompatible surfactants such as lecithin-lysolecithin, N^a-1auroyl argmme methylester hydrochlond (LAM)-lecithin, LAM-glycerol monolaurylether, sucrose monoalkanoate (DKE)-hexano1, DKE-hexaethyleneglycol hexadecyl ether (R₁₆EO₆).

We have investigated the structure of reverse vesicles with the help of phase diagrains, small-angle X-ray scattering, video enhanced microscopy, freeze-fractured transmission electron microscopy. We have confirmed that reverse vesicles form from lamellar liquid crystal swelling a large amount of oil. We have also determined and reported spontaneous formation of reverse vesicles from an isotropic solution in a DKE/R₁₆EO₆/decane system. The effect of the mixing ratio of surfactants and water content on the stability of reverse vesicles was also investigated in the DKE system.