

CHAPTER IV

CONCLUSIONS

We can summarize the results of our work as follow:

1. Effect of Aging Time

1.1 The storage modulus and viscosity functions of all systems increase with aging time; the systems possibly reach the a pseudo-equilibrium state after aging for 7 days.

1.2 Aging allows a growth of lamellar/vesicle structures toward equilibrium sizes within seven days.

2. Pseudo-Equilibrium Properties

2.1 Adding more FA produces larger lamellar / vesicle structures leading to higher emulsion elasticity a shown by the increase in entanglement storage modulus and to more viscous emulsion as shown by the increase in viscosity.

2.2 The effect of adding HEC to the ternary systems is to disrupt lamellar formation due to interaction between the polymer and the cationic surfactant, inducing polymer chain expansion; therefore surfactant will not be available to stabilize the lamellar structure. This leads to smaller lamellar sizes.

2.3 The effect of adding modified HEC is to induce the formation of interconnected lamellar structures by the hydrophobic interaction between cetyl branched chain and hydrophobic part of both CTAC and FA. This effect makes the rheological properties such as the storage modulus and viscosity increase with modified HEC concentration.

2.4 For BTAC/FA emulsion, we found nearly symmetric sunflower-like structures. For CTAC/FA emulsion, lamellar structures form layers on excess crystalline FA domains.