CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Determination of contact angle illustrates that the second subsaturated surfactants, $i.e.$ NaDS, NPE and NaC_8, can act as effective wetting agents in the system of saturated CaC_{12} solution on its precipitated surface. NaC_8 is the most effective wetting agent while NPE is the least effective one. The value of CMC determined from the breakpoint in the slope of a curve of graphical plot between contact angle and subsaturated surfactant concentration in each surfactant mixture system gives the same value as obtained from the breakpoint in a curve of semi-logarithm plot between surface tension versus surfactant concentration and surfactant adsorbed versus equilibrium surfactant concentration, which are general methods used in the determination of CMC values. Addition of NaCl in the system of saturated CaC_{12} and subsaturated NaDS decreases the CMC value of the surfactant mixture solution by reducing the electrical atmosphere surrounding the ionic head groups resulting in decreasing of electronic repulsion between surfactant molecules. The addition of NaCl did not affect the value of the critical surface tension due to adsorption and precipitation of surfactant on the solid surface. The difference between the molecular structure of each subsaturated surfactant and also the distinction in their composition of subparts of surface tension result in the specific interaction between the surfactant solution and the solid surface as can be observed from the dissimilar value of the critical surface tension of the CaC_{12} solid surface by the application of the Zisman equation with the surfactant mixture solutions.

5.2 Recommendations

For the future work, the precipitation and hardness tolerance of sodium octanoate should be studied. The critical surface tension of calcium dodecanoate precipitate determined by using probe liquids should also be studied in order to investigate the molecular interactions at the solid surface.