CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

As salinity increases, the attractive forces become strong enough to overcome the electrical repulsion. A upper phase microemulsion of the Cetyl pyridium chloride (CPC), Sodium dodecyl sulfate (SDS), Mono and di-hexadecyl diphenyloxide disulfonate,sodium salt(DADS or Dowfax 8390) transfered to the middle phase microemulsion. Adding pentanol (as a cosurfactant) promoted phase transformations. Varying Oil-to-water ratio to very large or very small was a cause of formation of liquid crystalline or other phases. The removal of o-dichlorobenzene (ODCB) from the system using froth flotation method was higher when the system was in Winsor type III microemulsion and increased with decreasing volume ratio of oil to water. The ability of surfactants to remove oil under the same range of salinity was in the order: CPC > DADS > SDS. The liquid crystalline phase had an effect on the surfactant removal but had no effect on the ODCB removal.

5.2 RECOMMENDATIONS

Based on the studies in this work, these recommendations are given

for the future work.

The froth flotation process involves a number of physical phenomena occurring simultaneously including attachment of the oil (or microemulsion) droplets to air bubbles, size of oil droplets and air bubbles, oil (or microemulsion) interfacial tensions with the water phase and the air phase, froth stability, ability of the froth to suspend floated oil droplets, and nonequilibrium effects such as dynamic interfacial tensions, to mention a few effects in this complex separation process. This paper is a first investigation of the potential improvement in this separation process related to substantial reduction in interfacial tension due to incorporation of the oil into a microemulsion phase. The improvement in oil removal absented here when a Winsor Type III microemulsion is present shows the promise of this novel approach and indicates the importance of understanding the mechanisms of synergism in more detail.