CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Both single (AMA) and mixed surfactants (AOT and Dowfax8390) were used to study the formation of middle phase microemulsion. The transformation of microemulsion's type of the studied systems was achieved by salinity scan. In froth flotation operation, the separation by using the mixed surfactants did not occur even though the system had the ultra low interfacial tension of mixed surfactant system (10^{-3} mN/m) while the single surfactant system could offer separation. It is because the foamability and foam stability of the mixed surfactant systems are very low when compared with the single surfactant. In froth flotation experiment, the system with 0.3 wt % AMA at 3 wt % NaCl gave 99.55 % oil removal. From the result, it showed that the system providing the maximum oil removal did not correspond to the minimum interfacial tension found in the middle phase obtained from the phase study. This result leads to a conclusion that the ultra low interfacial of Winsor's type III microemulsion is not the sole factor that affects flotation process. The equilibrium system was found to have a very much higher oil removal than that of the non-equilibrium system. A short mixing time of 40 minutes was long enough to move the system closed to its equilibrium. Foamability and foam stability are other parameters should be taken into consideration for froth flotation operation.

5.2 Recommendations

Based on the experimental results, the following recommendations are suggested for future studies:

1. To investigate the effect of foamability of froth on the froth flotation operation.
2. To investigate the effect of foam stability of froth on the froth flotation operation.
3. To investigate the effect of oil loading on the froth flotation operation.
4. To study the removal efficiency of oil from water using froth flotation operation with continuous mode.