

CHAPTER V

CONCLUSION AND RECOMMENDATIONS

The aim of this work was to correlate the microemulsion formation at low salinity with the detergency performance by using of 0.3% active of a mixture of 0.1% Alfotera and 5% Tergitol 15S5 which is a commercial surfactant used in laundry applications and is friendly to the environment. The Winsor's type III microemulsion was form at the lowest optimum salinity at 5 wt% w/v.

The phase height results showed that the height or amount of the middle phase did not have much of an effect on the detergency performance. Moreover, the detergency performance of our formulation is higher than commercial grade detergents at equal amounts. The recommendation for detergency by selected formulation should be in the range of 30°C-50°C which is near the PIT of nonionic surfactant. Moreover, the detergency performance under the microemulsion condition was much higher than commercial detergents at the same active surfactant concentration. The pretreatment by the selected formulation before washing is an advantage to improve the efficiency of detergency that show the detergency performance as high as re-wash for 2 times due to the high concentration of surfactant. In addition, the salinity concentration in wash step has affected to each step of oil removal. The remaining oil on the fabric further removed by the 2 rinse steps due to the IFT increased in reduction of the spreading effect.

In this study, the maximum detergency can be achieve by commercial and non-toxic surfactant with the minimum IFT for detergency experiment, that means the low IFT can improve the detergency performance.