



CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

In this study, the extended surfactant [Alfoterra[®], C145-4(PO)] was selected to examine the detergency performance for semi-solid oil removal. There are many factors that affect the detergency performance; for example, soiling ratio, surfactant concentration, salinity, and washing temperature. The experimental results clearly indicated that the selected formulation at 0.1 %w/v of Alfoterra[®] C145-4(PO) with 3 %w/v of sodium chloride was the best formulation in this washing study at 30 °C due to the highest oil removal from a polyester/cotton blend fabric and the lowest oil re-deposition.

The correlation between the semi-solid oil removal and dynamic interfacial tension (IFT) was also observed. According to the effect of washing temperature result, it was found that the removal of methyl palmitate (semi-solid oil) exhibited an outstanding performance at the temperature slightly higher than its melting point. At temperature below 30 °C, the methyl palmitate became solid, and the oil removal caused by electrostatic repulsion force. On the other hand, the removal of liquid oil at temperature exceeded 30 °C was dependent on the interfacial tension between oil and washing solution. The lower the interfacial tension, the higher the liquid oil removal.

5.2 Recommendations

For further study research, mixed surfactant should be used to form microemulsion system which providing the ultralow interfacial tension (IFT) and then investigated detergency performance under microemulsion condition. Furthermore, the mechanism of semi-solid oil removal should be observed.