CHAPTER IV
CONCLUSIONS AND RECOMMENDATIONS

The results obtained from phase behavior studies clearly showed that the optimal salinity yielding the optimal interfacial tension corresponded closely to the optimal salinity yielding optimal solubilization. The oil solubilization capacity of the surfactants is dependent on the type of oil.

Middle-phase microemulsion system was more efficient in oil removal from fabric than the supersolubilization system for hexadecane staining, whereas for motor oil staining, both systems did not differ significantly in terms of solubilization capacity and detergency performance. The detergency results revealed that soil removal of both hexadecane and motor oil from cotton fabric was better than for soil removal from polyester fabric.

According to the results that showed low oil solubilization with an increase in propylene glycol concentration, the use of other type of nonionic surfactants that has better solubility than span 20 is suggested. Therefore, less amount of propylene glycol will be required to prevent phase separation and may result in higher oil solubilization and lower interfacial tension.

Using electrolytes in the form of STPP or Na_2CO_3 which are builders in detergent is also recommended because it helps to chelate the Ca^{2+} and Mg^{2+} ions in hard water so that performance comparable to commercial detergents might be possible.

Due to the high viscosity of motor oil, conducting phase behavior studies and detergency test at a higher temperature e.g. 40°C might help to achieve higher detergency efficiency.