

CHAPTER VII

RECOMMENDATIONS FOR FUTURE WORK

For this study, it was necessary to measure diffusion coefficients in an actual sample of Fischer-Tropsch wax so that the feasibility of using model compounds such as n-octacosane could be validated. In future work, we recommend that diffusion coefficients be measured in different model compounds or in synthetic wax mixtures containing known fractions of alkanes, olefins, and or oxygenates. Such studies could ascertain the effect of different types of compounds on the diffusion coefficient.

Our study has been restricted to the study of non-polar studies. Future studies could determine diffusion coefficients for polar molecules such as water. Eventually, as more diffusion data becomes available, the diffusion coefficient model presented herein could be refined even further.

Accurate estimates of the diffusion coefficient will lead to more accurate determinations of mass transfer coefficients which in turn will lead to improved kinetic models. Future studies could evaluate the overall effect of using the improved estimates of diffusion coefficients for Fischer-Tropsch reactor design.