CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Adsorption isotherms between a solution of n-hexane and cyclohexane and coconut shell based activated carbon indicate that n-hexane is preferentially adsorbed onto the activated carbon. Based on batch experiments in which adsorption was measured as a function of time an intraparticle diffusion coefficient assuming a surface diffusion mechanism was obtained. Experimental breakthrough curves on an adsorption column enabled the calculation of external mass transfer coefficients based on the experimental diffusion coefficient obtained through batch experiments and based on published correlations of axial dispersion in packed beds. It was found that the intraparticle diffusion coefficient was the rate determining step. Given values for the external mass transfer coefficient breakthrought curves may be calculated and used for design purpose.

5.2 Recommendation

The area of liquid adsorption is interesting to consider as it can be developped locally for various separation processes without too large an investment as against normal procedures of bulk separation that needs that the liquids to be

separated be gasified first. Various type of adsorbents ought to be tested for their potentials as a separation medium for various systems of economic interest. This study can then be used as theoretical framework with which to calculate the various separation.