CHAPTER VI
CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Solvent type has been shown to affect the cloud point temperatures of both pure *n*-alkanes and multi-paraffinic waxes. Cloud point temperatures of wax and pure *n*-alkane in *n*-alkane solvents are higher than those in cycloalkane solvent and lower than those in an aromatic solvent. Differences in molecular shape and chemical bond between solvent and solute molecules are responsible for this behavior. An aromatic bond in the solvent affects an increase in cloud point temperature of both wax and pure n-alkane solutes while the globular shape solvent affects a reduction in cloud point temperature. The thermodynamic model which sucessfully predicts cloud point temperatures of pure octacosane solute in *n*-alkane solvents fails to predict cloud point temperatures for the solute in non-normal alkane solvents. In order to account for energetic interactions in non-normal alkane solvents, a residual activity coefficients were calculated. Group interaction parameters obtained from vapor-liquid equilibrium can not be used for solid-liquid equilibrium systems. New interaction parameters were estimated in this work from octacosane-solvent cloud point temperature data. Cloud point temperatures predicted were greatly improved for both binary and multicomponent systems using interaction parameters estimated in this work.

5.2 Recommendations

Wax deposits are removed generally by runing pigs through partially pluged pipelines. Deposit strength or gel strength is an important data to determine how often the pig should be run. Therefore, effect of solvent type on gel strength should be investigated.