

## CHAPTER V

### CONCLUSION AND SUGGESTIONS

#### 5.1 Conclusion

The crystallization step in TREF was improved by employing EG/xylene mixed system and faster cooling rate to reduce the fractionation time. Parameters that affect the fractionation are cooling rate, solvent for crystallization, and structure of polymer sample. Too fast cooling rate will give less time for crystallization. The polymer with higher chain branching content spends longer time in the solution than the one with lower chain branching content. The LLDPE sample with longer chain branching dissolves in mixed solvents more than the one with shorter chain branching. From TREF and  $^{13}\text{C}$ -NMR results, short chain branching contents of every polymer fraction can be identified. This finding is useful for understanding and interpreting the physical and mechanical behavior of the whole polymer sample.

#### 5.2 Suggestions for the further work

1. In the crystallization step other mixed solvent system with different kinds of polar solvents should be further explored.
2. TREF with mixed solvent system shall be applied for the characterization of other kinds of polymers and polymer blends.

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