

## CHAPTER V

### CONCLUSION AND RECOMMENDATIONS

#### 5.1 Conclusion

This work demonstrates that the synthesis of low molecular weight PVC resin can be done in two ways, use of high polymerization temperature without chain transfer agent and use of lower polymerization temperature in the presence of chain transfer agent. Increasing the amount of chain transfer agent decreases the polymerization temperature. Low molecular weight PVC synthesized from low polymerization temperature in the presence of chain transfer agent shows improvement in the particle size, grain shape, distribution of particle size, bulk density, fusion torque and fish eye of PVC resin without influence to processibility (melt flow index) and mechanical properties (thermal stability, impact strength and heat deflection temperature) of PVC.

In this study, it was found that the most suitable condition for polymerization PVC with K-value of 50 was using VCM polymerization temperature at 69°C with 0.080 phm of chain transfer agent because the PVC obtained from this condition showed the best properties such as porosity, particle size and shape, particle size distribution, bulk density, fish eyes and melting property. However, the disadvantage of this method was the reduction of polymerization rate and therefore the quantity of initiator was increased to maintain a constant polymerization time.

## 5.2 Recommendations

5.2.1 Use of initiator with lower dissociation temperature such as *t*-butylperpivalate to improve the efficiency of polymerization should be studied.

5.2.2 Use of proper antioxidant to improve the heat stability of PVC should be studied.