

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

This thesis studied about the effect of Sn, the percentage of Sn loading and the metal loading methods on *n*-octane aromatization. The appropriate amount of Sn loading on Pt/KL was investigated by vary percentage Sn loading at 0.3, 0.6 and 1. The Pt-Sn/KL catalyst was prepared by a vapor-phase impregnation (VPI) method in which the both metals were loading on the KL zeolite by coimpregnation and sequential impregnation method. In addition, the characterization results used to describe the properties of the catalysts.

For the effect of Sn, the results showed that the addition of Sn produces an increase in activity and stability to Pt/KL, and beneficial changes in selectivity during *n*-octane aromatization. The detailed product distribution analysis of Pt-Sn/KL showed that EB and OX were the dominant products among the C₈-aromatics for the Pt/KL. It referred to producing less hydrogenolysis and more isomerization and cyclization. Also confirmed by FT-IR adsorbed CO technique, the Pt-Sn/KL had most metal clusters inside the channel of the KL zeolite. This internal metal clusters can enhanced in the catalytic activity.

For the effect of the metal loading methods and the percentage of Sn loading. The results showed that 1% Sn loading which prepared by coimpregnation method exhibited the highest catalytic activity. This might be the formation of PtSn alloy which we observed in this catalyst by the characterization results (TPR and EDX).

5.2 Recommendations

Study further on the multimetallic catalysts on this Pt/KL. Furthermore, the other characterization techniques may help in the confirmation of PtSn alloy formation.