



CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

This thesis studied about the effects of various supports and the percentage of Pt loading on n-octane aromatization. All catalysts were prepared by vapor-phase impregnation (VPI) method. In addition, the characterization results were used to describe the properties of the catalysts.

For the effect of support, the results showed that Pt/KL and Pt/SiO₂ exhibited the highest catalytic activity, while Pt/KY and Pt/KOmega showed the lowest catalytic activity. These results were confirmed by the characterization result (TPD), that are Pt/KL and Pt/SiO₂, which had small amount of acid sites, gave the highest aromatics selectivity. In addition, from other characterization technique results, these two catalysts exhibited great performance in both activity and stability.

For the effect of the percentage of Pt loading, only two series of the best support, Pt/KL and Pt/SiO₂, were performed the reaction. In case of Pt/KL, the results showed that 1% Pt loading exhibited the highest catalytic activity. Also confirmed by the characterization results (FT-IR adsorbed CO), the 1.5%Pt loading catalyst had some part of external Pt cluster. This external Pt cluster can lower aromatics selectivity. In case of Pt/SiO₂, the results showed that 1% Pt loading also gave the highest catalytic activity.

5.2 Recommendations

Study further on increasing sulfur tolerance of various supports by addition of rare earth. Furthermore, the addition of back-exchange step may decrease the acidity of the supports.