



CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

In sulfur-free feed, it was found that the addition of Sn and Ge which is an inactive metal improved the catalytic activity and selectivity to aromatics of *n*-octane aromatization over Pt/KL catalyst. For the amount of Ge loading, 0.6 wt% Ge loading exhibited the highest catalytic activity.

In the presence of 25 ppm sulfur, however, *n*-octane aromatization of the unpromoted Pt/KL catalyst was not extremely high sensitivity to sulfur as much as for *n*-hexane aromatization. While the Ge-promoted catalyst for the aromatization of *n*-octane was gradually deactivated by sulfur poisoning. The reason could be because the strength of the bond between metal and support was decreased by the adsorption of sulfur on active site, and then the Pt agglomeration was produced. On the contrary, the *n*-octane aromatization over Pt-Sn/KL catalyst was improved in sulfur-containing feed, at the same time as, hydrogenolysis reaction was diminished. It possibly describe that tin not only enhanced the dispersion of the metals but also stabilized the Pt particle from the agglomeration. Additionally, PtSn alloy could be attributed to the improving of catalyst stability.

5.2 Recommendations

To further apply the bimetallic PtSn catalyst for aromatization reaction in the presence of sulfur, the other supports, such as Al₂O₃ and ZSM 5, are also interesting for a further study.