CHAPTER VII

CONCLUSION AND RECOMMENDATION

The conclusions of this study are the following :

1. The addition of tin to the Pt/Al_2O_3 base catalyst enhanced the dehydrogenation activity of the catalyst. The nature of coke deposits on this catalyst was changed to be more irreversible coke.

2. The addition of rhenium to the Pt/Al_2O_3 base catalyst improved the hydrogenolysis activity of the catalyst. The coke deposits on this catalyst was more reversible than on Pt/Al_2O_3 catalyst.

3. The addition of lithium to the $Pt-Sn/Al_2O_3$ catalyst enhanced the dehydrogenating activity to be higher than $Pt-Sn/Al_2O_3$ and altered the nature of coke deposits to be more reversible coke.

4. The addition of lithium to the $Pt-Re/Al_2O_3$ catalyst improved the hydrogenolysis activity of the catalyst. The coke deposits on this catalyst was more reversible than $Pt-Re/Al_2O_3$.

5. The irreversible coke which deposited on $Pt-Sn-Li/Al_2O_3$ catalyst was less toxicity than those on $Pt-Sn/Al_2O_3$ and Pt/Al_2O_3.

6. The catalyst which has higher total irreversible coke will have the higher irreversible coke deposited on the metal active site, too.

From this study, it can be clearly seen that the Pt-Sn-Li/Al_2O_3 catalyst had the highest activity and low irreversible coke deposited on metal active sites. So, more studies should be carried on. Here are the recommendations.

1. From the literature, the amounts of metal loading has an effect on catalyst activity. Attempt should be made to determine the suitable designed loading value of tin and lithium.

2. According to empirical chemical knowledge, paraffins are dehydrogenated at high temperature. In order to obtain industrially important concentrations of olefin, the operating temperature must be rather high (above 500°C). So, it should be tested the stability of Pt-Sn-Li/Al_2O_3 catalyst by increasing the reaction temperature to 550-650 C.