CHAPTER VI

CONCLUSION

The conclusions of this study are as follows :

1. The addition of alkali metal to the Pt-Sn/Al_2O_3 base catalyst enhanced the activity of the catalyst. The nature of coke deposit on this catalyst was changed to be less irreversible coke.

2. The third metal was chosen from Li, Na, K. The Pt-Sn-Na system gave the highest YPP of catalyst and Pt-Sn-Li/Al_2O_3 had the lowest activity of catalyst.

3. For the optimal composition of catalyst, it was found that 0.6 wt% loading of sodium gave the highest value for propylene selectivity and propane conversion.

4. Increase operating temperature resulted in increase propane conversion directly opposite propylene selectivity. Furthermore, the temperature of 600 $^{\circ}C$ had optimal yield per pass.

5. The total, irreversible and reversible coke deposited on metal active site were found to asymptote indicating the equilibrium between irreversible coke and reversible coke.

6. The amount total and irreversible coke on metal active sites increased with operating temperature.

7. The amount of reversible coke on metal active site did not change with reaction temperature range between 480 to 600 $^{\circ}C$.

8. During the initial time on stream, irreversible coke deposited on metal site was extrapolated to zero order reaction and had Ea = 280 kJ/mole with reaction temperature 460-520 $^{\circ}C$

The result obtained from this study show that the (0.3 wt%)Pt-(0.3 wt%)Sn-(0.6 wt%)Na/Al_2O_3 catalyst had the highest activity, low irreversible coke deposited on metal active sites and can also be used to explain the mechanism of coke deposition on

metal active sites. Therefore, more studies should be carried on. Here is the recommendation.

At present, only the activities of new catalysts are studied. There is no work on the stability of these catalysts. Therefore, an attempt should be made to study the stability of catalysts.