

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

The IR results obtained from this thesis demonstrate the possibility to analyze carbon species adsorbed on supported Pt catalyst. This research provides useful preliminary information for further study by in-situ IR technique. Even though it is still present the limitation in which coked catalysts at long reaction time almost totally inhibit the transmittance of IR radiation, this technique seems to practical in initial time of reaction.

From this research, the following conclusions have been emerged.

1. Water and CO₂ adsorb on the surface of γ -Al₂O₃, fresh Pt-Sn/ γ -Al₂O₃ catalyst and coked catalyst at ambient condition can be eliminated upon raising the sample temperature in N₂ atmosphere.
2. The carbonaceous deposit is able to form aromatic ring structure within short reaction time.
3. The methyl and methylene groups in the carbonaceous deposit decrease as reaction time increase.

Recommendations

Following subjects are recommended for future study of coke characterization by IR spectroscopy technique :

1. Effect of reaction temperature on rate of coke formation and coke structure.
2. Effect of reactant gas, e.g. H₂ per hydrocarbon ratio etc.