

CHAPTER VI

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusions

The thesis dealt with studies of the effect of Silicon to Aluminum ratio of Ag-ZSM5 catalyst on the silver cluster formation. The conclusions of this research were summarized as follow.

1. Ag clusters (Ag_4^{2+} clusters) are formed in Ag-ZSM by the reduction with H_2 at 300 °C
2. From the study of the effect of Si/Al ratio of Ag-ZSM5 to Ag cluster, it was found that Si/Al ratios of 22, 28 and 32 were suitable for the Ag_4^{2+} cluster formation.
3. From the study of the effect of H_2 concentration to Ag clusters formation, it was found that when increasing H_2 concentration , Ag_4^{2+} cluster formation would decrease. And it was also observed that the suitable H_2 concentration to Ag_4^{2+} cluster formation was at 3% H_2 .
4. From the study of the effect of the amount of Ag loading to Ag clusters formation, it was found that the increasing amount of Ag loading would affect the increasing of Ag_4^{2+} cluster formation.

6.2 Recommendation

From this research, the recommendations for further study are as follow.

1. Analyst and identify Ag species at the broad band between 350-480 nm.
2. Study the effect of Ag_4^{2+} clusters on Ag-ZSM5 catalyst which affects the Selective Catalytic Reduction of NO by hydrocarbon.
3. Study the type of Brønsted acid and Lewis acid of the prepared catalysts to Ag_4^{2+} clusters formation.