CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The conclusions of the present research are the following:

1. The mixed phase between gamma and chi alumina was used as a support for silver catalysts. The mixed-phase alumina showed the different metal-support interaction, which consequently affected the activity of the catalyst. The 10 % chi in the mixed-phase alumina showed the highest NO conversion to N_2 and the lowest light-off temperature of C_3H_6 oxidation in SCR.

2. The chi phase was added in the γ-Al_2O_3 to change some properties of the support. It increased the platinum dispersion, except the 10% chi phase composition, and certainly improved the catalytic activity for the insensitive-structure reaction such as CO oxidation. In addition, the chi phase changed the reduction characteristics of platinum oxides on the γ-Al_2O_3. It lowered the reduction temperature. The ratio of oxygen and platinum can be increased when a high composition of the chi phase was introduced.

3. The platinum supported on the chi alumina phase was prepared and compared with gamma alumina support in the selective CO oxidation. The chi alumina showed higher catalytic performances than the gamma alumina through the shift down of the light-off temperature about 50°C. This was because the different alumina support affected the interaction between metal and support and the metal forms on the surface, which can be confirmed by TPR results. They showed that the chi alumina supports consumed higher amount of H_2 for reduction than gamma alumina supports.

6.2 Recommendations

From this experiment, the recommendations for the future work are the following;

1. To confirm the metal oxide form of the catalysts by other experiments.
2. To employ extensively the investigation of surface species of the catalysts.