

CHAPTER V

CONCLUSIONS AND FUTURE SUGGESTION

5.1 Conclusions

From the experimental results, it can be summarized as follows

1. The optimal condition of selectivity catalytic reduction (SCR) of NO by NH₃ is that it has to react under the dilute gas condition in the presence of O₂ and the reaction temperature does not exceed 300°C.

2. A lower space velocity of about 18820 hr⁻¹ yields high NO conversion.

3. V₂O₅-TiO₂ is the most active catalyst for this work and V₂O₅-TiO₂ with 25.61 wt% V₂O₅ content gives the highest NO conversion. Considering the case of utilization, pure V₂O₅ is better than cation exchanged zeolite. This is due to the fact that preparation step of cation exchanged zeolite is very difficult and the activity of having V₂O₅ as a catalyst is higher than that using Pt-HY and Cu-Pt-HY in the presence of O₂.

5.2 Future suggestion

From the basic thermodynamics principle, the NO-NH₃ reaction with NO₂ incorporated is very likely to occur. So, the next research step should concentrate on the effect of the NO₂ addition in NO-NH₃ reaction and the effect of Cu in metal-HY catalyst on the NO conversion.