CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

The conclusions in this study can be drawn as follows:

The selective reduction of nitric oxide with propene in the presence of oxygen was investigated over silver supported on alumina catalysts. These catalysts were prepared by sol-gel method.

From the dependence study of metal loading, among the sol-gel silver supported on alumina catalysts, the 5 %Ag/Al_2O_3 is the most effective at lean NO reduction whereas the best reaction temperature is 450 °C.

The combination study of the two different function catalysts confirmed that the reactivity of lean NO reduction for Ag catalysts was correlated to the hydrocarbon-oxidation activity of the catalysts. This can be explained by a reaction mechanism in which NO is reduced by reacting with intermediates generated from the partial oxidation of hydrocarbons used as reductants.

The addition of Mn_2O_3 catalyst to Ag/Al_2O_3 catalyst exhibited a negative effect on the conversion of NO to N_2.

The 5 % Ag/Al_2O_3 catalyst prepared could be operated over a wide range of oxygen concentrations from 5 to 20 vol % without losing its activity.

For the future work, it is recommended that the performance on resistance to moisture and to SO_2 should be carried out over the 5% Ag/Al_2O_3 catalyst because most NO_x exhaust streams usually contain high water vapor content and some sulfur compounds (Armor, 1997). These components present in the exhaust streams have a significant negative effect on the activity of the lean NO_x catalysts.