

## CHAPTER V

### CONCLUSIONS

This thesis investigated the catalytic activity of silver and gold supported alumina catalysts which were prepared by using coprecipitation and sol-gel methods for the catalytic NO reduction with propylene in an oxidizing atmosphere.

The results indicated that the method of preparation and calcination temperature affected the activity strongly. The BET surface area decreased markedly and the pore radius gradually increased with increasing calcination temperature. All coprecipitation catalysts had the BET surface areas 5 times less than of the sol-gel catalysts.

For the reaction studies, the reaction between nitric oxide and propylene in an excess amount of oxygen was selective towards production of nitrogen and carbon dioxide. It was found that 5%Ag sol-gel catalyst showed the highest activity among other loadings and the activity increased with increasing calcination temperature for sol-gel catalysts. The best reaction temperature was found to be at 450°C. The increment of metal loading from 2%Ag to 5%Ag increased the activity of the reaction. The optimum ratio between nitric oxide and propylene was close to 1:1. The optimum amount of catalyst was found to be 0.1 g.

For further study, it is recommended that other loadings of catalyst should be carried out to find the optimum loading that gives the highest activity.