

CHAPTER V

CONCLUSIONS

The catalyst model of Pt/CeO₂/Al₂O₃ was tested for its oxygen storage capacity. Characterization results show that the ceria crystallite size increases with ceria loading until the loading approximately 15 %wt. CeO₂ is reached. Beyond this loading, the ceria crystallite size stays constant.

The catalyst oxygen storage capacities per BET surface area initially increase with ceria loading varied up to 10 %wt. CeO₂ nominal. Further increases in ceria loading lead to decrease oxygen storage. From a combination of the XRD results and the catalyst oxygen storage capacities, it can be concluded that portion of ceria fills up and is blocked in small pores if ceria is loaded too much onto the support. This portion of ceria become useless.

Since the amount of oxygen taken by CO is more than that can be supplied from the bulk of ceria crystallites changing from CeO₂ to Ce₂O₃, chemisorbed oxygen must play a role in oxygen storage.