

CHAPTER V

CONCLUSIONS

This work was the study of the acetylene hydrogenation on a Pd-Ag/Al₂O₃ catalyst containing 0.03 wt % Pd and 0.235 wt % Ag. The reaction was investigated at 80 °C.

For the reaction studies, it was found that the relative degree of catalyst deactivation decreased with increasing acetylene concentration. In the presence of ethylene, the selectivity to ethylene increased with acetylene concentration.

The TPD experiments were conducted over the temperature range of 40-600 °C. The catalyst was reduced at various reduction times, i.e., 2, 3 and 4 hours. The exposure time was also varied at 15 and 30 minutes. It was found that the longer reduction time, the more hydrogen was adsorbed. The exposure time was found to be the dominant variable.

A higher conversion after regeneration at 200 °C was attributed to the more effective removal of carbonaceous deposits from the catalyst surface by hydrogen. Too high temperature could cause a loss of catalyst surface, thus lowering the catalyst activity. The regeneration time was of minor importance.