

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The conclusions of the present research are the following:

1. The catalytic activity of 8Co/MgO catalysts is high for the oxidation of alcohol.
2. For the oxidation reaction, the oxidation property of the catalyst depends upon the type of reactant.
3. For methanol and 1-butanol oxidation, all catalysts play role as the combustion catalyst at all the reaction temperature range.
4. The nature of support affects the catalytic activity and selectivity of the catalyst for ethanol, 1-propanol, and 2-propanol oxidation. The basic support, MgO, promotes aldehyde formation for the oxidation of ethanol and 1-propanol while the acidic supports promote the formation of alkene instead.
5. 8Co/MgO catalyst is a suitable catalyst for ethanol and 1-propanol oxidation because it provides the maximum acetaldehyde and propionaldehyde yield ca. 58% and 53%, respectively, at 400°C.

6.2 Recommendations for future studies

From the previous conclusions, the following recommendations for future studies are proposed.

1. For ethanol and 1-propanol oxidation, it will be interesting to study the effect of the other basic support such as CaO and ZnO on the oxidation property of the cobalt oxide catalyst.
2. It will be interesting to investigate the oxidation property of the Co-Mg-O catalyst on other alcohol such as unsaturated alcohol or glycol.