

CHAPTER VI

CONCLUSIONS AND RECOMMENDATION

6.1 Conclusions

The conclusions of the present research are the following:

1. From 1-propanol oxidation at 300°C for 48 h, only co-8Co1MgAl catalyst clearly exhibits deactivation.

2. In case of 2-propanol oxidation at 300°C for 48 h, the co-impregnation prepared catalysts produce only propionaldehyde as the main product. The main products of the sequential loading catalysts are propylene and propionaldehyde.

3. The results of 1Mg8CoTi and co-8Co1MgAl catalysts on 2-propanol oxidation at 300°C for 48 h indicate deactivation of catalysts.

4. The oxidation reaction of 2-propanol at 500°C for 48 h results show that co-8Co1MgTi can remain catalytic performance for longest period when compare with other catalysts.

5. The thermal stability test illustrate that co-8Co1MgAl catalysts calcined at 700°C for 7 days produce both propionaldehyde and propylene as the main product for 1-propanol and 2-propanol oxidation. Nevertheless, only propylene is the main product for co-8Co1MgAl catalysts calcined at 800°C for 7 days on 1-propanol and 2-propanol oxidation.

6. The deposition of carboneaceous compound is a cause of catalyst deactivation.

6.2 Recommendations for future studies

1. In this research, only the catalytic performance is investigated to study the stability of catalyst. Therefore it will be interesting to study mathematical model of the catalyst deactivation.

2. The reactant of reaction should be varied in order to study the activity of the catalysts.