

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

Fe-MFI zeolite was successfully synthesized via the sol-gel process and microwave technique, using silatrane and TPA as the precursor and template, respectively. The higher heating temperature is preferred for Fe-MFI synthesis due to the higher promotion of iron condensation into zeolite structure. However, this statement is limited by the degradation of the template molecule. In addition, the increase of aging and heating times promotes the increase of iron atom incorporated in the MFI structure. However, too long time decreases the incorporation of iron. All synthesized Fe-MFI zeolites contained irons in two different forms: framework and extra-framework. The fraction of framework Fe increased proportionally with increasing the Si/Fe ratios.

The synthesized Fe-MFI zeolite could not catalyze the reduction reaction of SCR of NO by CO. However, these catalysts could catalyze the oxidation of CO in this reaction. Moreover, framework and extra-framework Fe can catalyze CO oxidation reaction more than only extra-framework Fe does.

5.2 RECOMMENDATIONS

From this work, it is recommended that the other metals or transition metals should be loaded into MFI zeolite so as to compare the efficiency of the catalysts. Moreover, the synthesized catalysts should be tested the efficiency by using the other reaction study, such as selective catalytic reduction of NO by NH₃.