

CHAPTER V

CONCLUSIONS & RECOMMENDATIONS

5.1 CONCLUSIONS

This thesis aimed to investigate the impact of zirconia modification on silica-supported metallocene catalyst via ethylene/1-olefin copolymerization including develop a better understanding on how zirconia modification change the nature of silica-supported metallocene catalyst in terms of activities and properties. It was found that the activities of the zirconia-modified supports were much higher (about 4-7 times) than that of the silica support. However, considering only zirconia-modified support, it was found that at low content of zirconia in the modified supports (1 and 2%wt) the activities were much higher than that of the 5%wt of zirconia-modified support. It was suggested zirconia modification can increase the adsorption ability of MAO on silica support.

Zr modification also resulted in increased comonomer incorporation leading to decreased T_m without significant changes in polymer morphologies. In all systems, random copolymer were produced. Furthermore, zirconia modification also resulted in the changes physical properties of copolymers due to the change of $Al_{(MAO)}/Zr_{(cat)}$ ratios in the support.

5.2 RECOMMENDATIONS

The other types of modified-supports should be further investigated in the near future along with the effect of different phases in ZrO_2 somewhat interesting to study as well.