

CHAPTER V

CONCLUSION AND SUGGESTIONS

5.1 Conclusion

LDPE and PLA are basically, the incompatible blend. The LLDPE-g-MA is necessary to use as interfacial agent to solve problems of incompatibility. PLA content was varied from 5-20% blended with two type of LDPE differing in molecular weight.

Melt flow indice exhibits incompatibility of LDPE and PLA obviously by it increase when amount of PLA increasing because of poor interfacial adhesion between phases. The MFI measurement did not exhibit the efficiency of compatibilizer. Morphologies of both type of LDPE were improved by LLDPE-g-MA from which PLA better in the high molecular weight LDPE but PLA could agglomerate in the lower molecular weight LDPE because of less branch chains.

However, LLDPE-g-MA did not show influencing effect in melting temperature and crystallinity temperature evidenced by the enthalpy data.

Izod impact strength and elongation at break drop markedly due to the incompatibility of the two polymers. However, its compatibility was improved by LLDPE-g-MA. Due to the higher modulus of PLA, it basically promotes a similar trend in both types of LDPEs all blends.

The enzymatic degradation shows less degradation in the lower molecular weight LDPE as the poorer PLA dispersed phase has less contact areas than the higher molecular weight LDPE. Adding the interfacial agent (LLDPE-g-MA) was found to induce higher mechanical, thermal properties and different degradation due to the coupling reaction. The difference in enzymatic degradation efficiency between the low and high molecular weight LDPEs was observed.

5.2 Suggestion for further work

Soil burial test is interesting to future study degradation of the blends since soil burial will be applicable to the actual condition of plastic waste management.