สำนักงานวิทยทรัพยากร
จุฬาลงกรณ์มหาวิทยาลัย

CHAPTER V
CONCLUSIONS

For ternary blends of PA 6/LDPE/Surlyn® 9020 ionomer, Surlyn® 9020 ionomer has been shown to be an effective compatibilizer for PA 6/LDPE blends. The addition of Surlyn® 9020 ionomer as a compatibilizer improved the mechanical properties of the blends by increasing the interfacial adhesion between the phases and reducing the sizes of dispersed phase domains. The clearest evidence of this improvement came from dynamic mechanical analysis. For selected blends having high polyethylene contents, the drop-off modulus (corresponding to the solid-liquid transition) occurred at higher temperatures when ionomer was added. There was no co-crystallization between PA 6 and LDPE. However, co-crystallization might occur between LDPE and ionomer in the compatibilized PA 6/LDPE blends.

For binary blends of PA 6/Surlyn® 9650 ionomer, the PA 6/Surlyn® 9650 ionomer blends were immisicible over the whole composition range. However, chemical reactions occurred between the terminal amine groups of PA and the carboxylic acid groups of ionomer, and hydrogen bonding interaction enhanced the compatibility of the blends and played an important role in determining blend properties. Interactions occurred between the amorphous phases of PA 6 and ionomer. By contrast, there was no interaction or co-crystallization between the crystalline phases of PA 6 and ionomer. Futhermore, the crystallization rate of ionomer was faster in the presence of PA 6 because PA 6 behaved as a nucleating agent for the crystallization of the ionomer. Fracture surfaces of PA 6/ionomer showed indistinct dispersed phase morphologies. A remarkable improvement in impact strength was obtained for PA 6/ionomer blend compared with that of pure PA 6.