

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

The electrospinning process was used to fabricate polystyrene grafted with poly(ϵ -caprolactone) or poly(ϵ -caprolactam) copolymer. The effect of polymer concentration, applied voltage and salt addition on the electrospinning process and morphology of fibers were investigated. Increasing of the polymer concentration significantly expand the diameter and eliminate bead structure in nanofibers. The electrospinning voltage influenced the increasing of fiber diameter and also improved fiber formation. Moreover, addition small amount of NaCl in the solution can improved the spinnability of electrospun fibers.

DSC and XRD show the results that electrospinning process did not induce crystal structure of materials according to T_m of PS-g-PCL electrospun fibers were lower than T_m of as-synthesized materials and the diffraction peak from XRD of PS-g-PCL electrospun fibers were not sharp like that of as-synthesized materials.

TG-DTA demonstrate that the decomposition process of PS-g-Nylon were changed after electrospinning, there is T_d of Nylon appear in case of electrospun fibers whereas it was absent from the thermogram of as-synthesized materials. It means that the condition during electrospinning process (e.g. temperature, high voltage) may affect the modification of the species.