

CHAPTER IV

CONCLUSIONS

From this research, it was found that the engineering thermoplastics all show the ability to be reprocessed. The effects of reprocessing of engineering thermoplastics are dependent on the structure of polymers.

1. The reprocessed nylon samples were all crystalline. The degree of crystallinity was nearly constant through the ten reprocessing passes. A slight decrease in thermal stability and T_g seen by the fifth reprocessing pass may be caused by smaller crystal sizes.

2. The reprocessed POM samples were all crystalline. The degree of crystallinity was nearly constant. A slight decrease in thermal stability was observed from the first through the tenth reprocessing pass which may be caused by the slight decrease in molecular weight.

3. The reprocessed PEI samples were all amorphous in structure. The slight decrease in thermal stability and T_g of the fifth reprocessing pass may have been caused by disentanglements of the polymer chain i.e., molecular weight decreased.

All samples should be characterized the molecular weight to determine the effect of reprocessing in the future work. In addition, the optical microscopy and X-ray diffraction may be helpful to reveal the microstructure of the samples.