

P-1-16

Synthesis and Characterization of Polyimide Containing Ethynylene Unit in the Main Chain

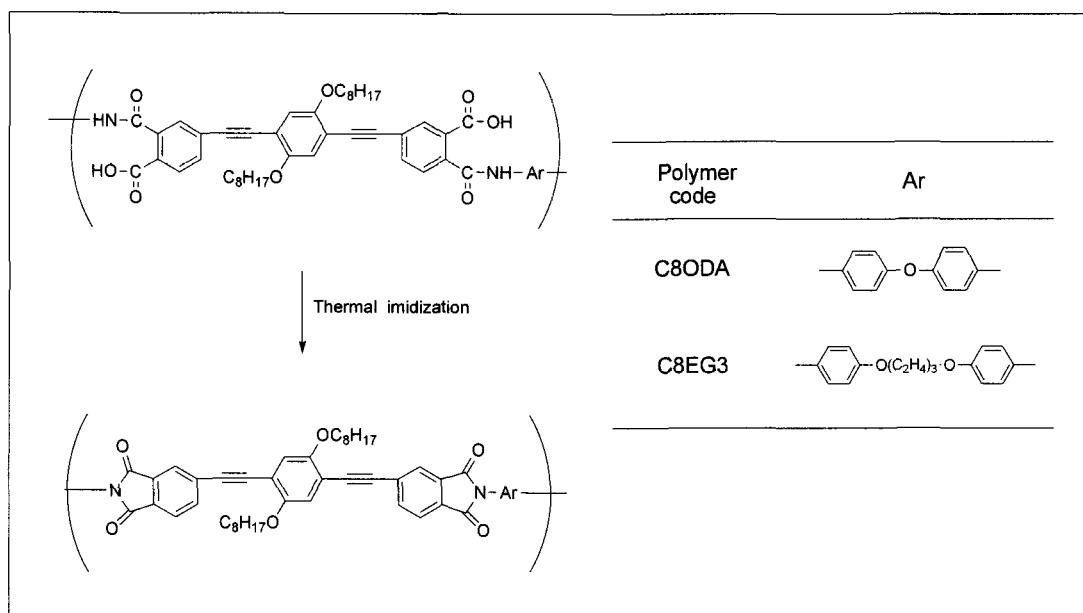
Jun Ho Chi ^a, Chang-Lyoul Lee ^b, Jang-Joo Kim ^b, and Jin Chul Jung ^a

^aCenter for Advanced Functional Polymers and Polymer Research Institute
Department of Materials Science and Engineering, Pohang University of Science and
Technology, san31, Hyoja-Dong, Pohang, 790-784, Korea

^bSchool of Materials Science and Engineering, Seoul National University, san56-1,
Shillim-dong, Seoul, 151-744, Korea

Polymers with extended π -conjugated system are drawing a great attention due to their potential application as luminescent materials¹. We have synthesized the new polyimides containing ethynylene link by conventional two-step polycondensation of dianhydride and counter diamines.²

In the present work, we studied the electro- and photoluminescent device characteristics of novel polyimides containing ethynylene unit in the main chain. The imide link was imported as electron affinity group and ethynylene unit was introduced into the polymer main chain to achieve enhanced luminescence performance. The morphologies of polyimide films were examined by optical microscope. Light-emitting devices of construction ITO/PEDOT/Pis/BAlq3/LiF/Al were fabricated from multi-layer films of the polymer and their electrical performances were measured and discussed with respect to the chemical structure of the polymers.



Scheme 1. Structures of polyimides and polymer code for diamines

1. J. L. Bredas, and R. R. Chance, Eds., "Conjugated Polymeric Materials: Opportunities in Electronics, Optoelectronics and Molecular Electronics." Kluwer Academic Press, Dordrecht, Netherland(1990)

2. C. Weder and M. Wrington, *Macromolecules*, **29**, 5157(1996)