

폴리벤즈이미다졸과 질산의 반응

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Polybenzimidazole (PBI) fiber was nitrated in a conc. sulfuric acid using a conc. nitric acid. The fiber after reaction with the nitric acid was characterized by means of instrumental analyses, including FT-IR spectroscopy. It was found from a series of solubility test results that the nitrated PBI fiber was soluble in various solvents. Moreover, the modified fiber indicated an increased moisture content as compared with the original PBI and this was considered to be due to appearance of new hydrophilic carboxyl group formed during the acid oxidation, exhibiting a polyelectrolyte behavior. A new exothermic peak was found on the differential scanning calorimetric curve for the nitrated PBI fiber and it was characterized by thermogravimetry that the exothermic behavior was attributed to the thermal degradation of the fiber. UV spectra revealed also a new peak in a short wave range for the modified fiber. From the results of elementary analysis and solid state ^{13}C NMR spectroscopy it was concluded that the nitration occurred at benzene ring of the main chain of PBI.