489.
Title: SOLID-STATE REACTION BETWEEN P-BENZOQUINONE AND 4,4 '-BIPHENOL: A THz TIME-DOMAIN SPECTROSCOPIC STUDY
Author: Liu, GF Zhao, HW Liu, XH Wang, WF
Source title: JOURNAL OF APPLIED SPECTROSCOPY
Volume: 78 Issue: 3
pages: 318-325
Publication year: JUL 2011
Abstract: Terahertz time-domain spectroscopy (THz-TDS) was employed to record the progress of the reaction between p-benzoquinone (BQ) and 4,4'-biphenol (4BP) in the solid state. Through the THz-TDS, distinct absorption peaks of reactants and products were obtained. Sample preparations in the solid state, with and without grinding, influenced the conversion kinetics. Several kinetic equations or models were tried to fit the reaction data. A kinetic rate constant was obtained, with the reaction observed to be consistent with diffusion-controlled mechanisms. Differential scanning calorimetry and X-ray powder diffraction analyses were also used to characterize the solid-state reaction and products. The study shows that THz spectroscopy is a promising tool in evaluating the complex formation through solid-state reactions.