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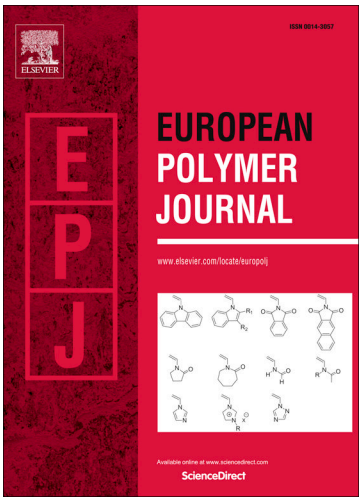

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Polymerization of poly-(amic acid) ammonium salt in aqueous solution and its use in Flexible Printed Circuit Boards

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ABSTRACT

It is highly desirable to combine the solubility of the PI precursor in a non-polluting solvent with the high performance behavior of PIs without sacrificing processability, thermal properties and mechanical properties. In this study, we explored a new strategy based on polycondensation reactions to prepare poly-(amic acid) ammonium salt (PAAS) in aqueous solution. PAAS was synthesized using a mixture of 3,3,4,4-biphenyltetracarboxylic dianhydride and 4,4’-oxydiphthalic anhydride and a mixture of 4,4'-diaminodiphenyl ether and p-phenylenediamine. The molecular weight of PAAS, the inherent viscosity of the PAAS solution, and the thermal and mechanical properties of the obtained PI films were investigated by focusing on the polymer structures and comparing with those of the polymerization in