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Abstract Abstract
The first part of this study was synthesize 4,4'-ODA with various mole ratio of PMDA and BPDA via thermal imidzation, and the results show that Tg, tensile strength, moisture absorption, and dielectric constant of (co)polyimide are adequate when the mole ratio of PMDA/BPDA/ODA is 0.5:0.5:1. The value of Tg, tensile strength, moisture absorption, and dielectric constant are 298℃, 141.9MPa, 1.7% and 2.8ε, respectively. Besides, the second part was prepared (co)polyimides/κ-Al2O3 nanocomposites via in situ polymerization. The CTE, Tg, inherent viscosity and volume resistance decrease while the increasing amount of κ-Al2O3, but the thermal stability, thermal conductivity, dielectric constant, tensile strength, elongation at break and moisture absorption increase when the amount of κ-Al2O3 is increase. The value of CTE, Tg, volume resistance, thermal stability, thermal conductivity, dielectric constant, tensile strength, elongation at break and moisture absorption are 43 ppm/℃, 260℃, 1.3×1016Ω-cm, 610℃, 0.43 W/mK, 4.1ε, 292.5MPa, 20.1% and 2.4%, respectively.
Keyword ： (co)polyimides ; nanoκ-Al2O3.
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