

论文

## 原位一步法制备BTDA/4,4'-ODA/4,4'-SDA聚酰亚胺表面银化薄膜

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**摘要** 采用原位一步自金属化的方法制备了具有反射性和导电性的表面银(Ag)化的聚酰亚胺(PI)薄膜, PI是由一种二酐(3,3',4,4'-四羧基二苯酮酐, BTDA)和两种二胺(4,4'-二氨基二苯醚, 4,4'-ODA与4,4'-二氨基二苯硫醚, 4,4'-SDA)三元共聚而得, 系统研究了4,4'-SDA的引入对薄膜性能及相态结构的影响. 结果表明, 4,4'-SDA的加入有助于银的还原和迁移, 并利于薄膜导电性的提高, 薄膜的反射率在两种二胺单体4,4'-ODA与4,4'-SDA的摩尔比为1比1时达到最佳.

**关键词** [聚酰亚胺](#) [银化薄膜](#) [自金属化](#) [反射性](#) [表面导电性](#)

分类号

## SURFACE SILVERED BTDA/4,4'-ODA/4,4'-SDA BASED POLYIMIDE FILMS PREPARED VIA *in situ* SINGLE-STAGE SELF-METALLIZED TECHNIQUE

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**Abstract** Highly reflective and surface conductive silvered polyimide films have been prepared *via* single-stage self-metallization techniques. Polyimide was synthesized by copolycondensation of a dianhydride(3,3',4,4'-benzophenone tetracarboxylic acid dianhydride(BTDA))and two diamines(4,4'-oxydianiline(4,4'-ODA)and 4,4'-thiodianiline(4,4'-SDA)). The information of the silver particle was recorded by XRD. It explained that the silver particles were reduced and then aggregated during curing cycle. The influence on the optical properties. electrical properties and structural morphology resulted from the incorporation 4,4'-SDA has been systematically investigated by UV—Vis, four—point probe and SEM. The results suggested that the introduction of 4,4'-SDA could facilitate silver reduction and migration. also could improve the surface conductivity. The metallized film achieved its optimum reflectivity at a mole ratio(4,4'-ODA and 4,4'-SDA)of 1. The thermal stabilities of the films were investigated by TGA. it showed that the silvered film Was better than its matrix.

**Key words** [Polyimide](#) [Silvered films](#) [Self-metallized](#) [Reflectivity](#) [Surface conductivity](#)

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