

A novel negative photoinitiator-free photosensitive polyimide

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Abstract:

In the most of photosensitive polyimide systems, low-molecular weight molecule such as photoinitiators must be needed to sensitive to UV-light for pattern. In fact, only a little part of photoinitiators can be used up in illumination process, resulting in a large amount of photoinitiator residues, which leads to decrease in thermal, mechanical and electrical properties of photoresist films. Therefore, photoinitiator-free photosensitive polyimides are highly desired to overcome this problem. In this text, a novel negative photoinitiator-free photosensitive polyimide (PFPS-PI) was synthesized through introducing the photosensitive 4,4-bis[(4-amino)thiophenyl] benzophenone (BATPB) into backbone chain and methyl acrylate group into side-chain of the polyimide, respectively (Fig. 1). Photosensitive properties study revealed its good photolithographic properties, with a resolution about $5\mu\text{m}$ and a sensitivity of $150\text{ mJ}/\text{cm}^2$.

Key words:

Photoinitiator-free; Photosensitive; Polyimide

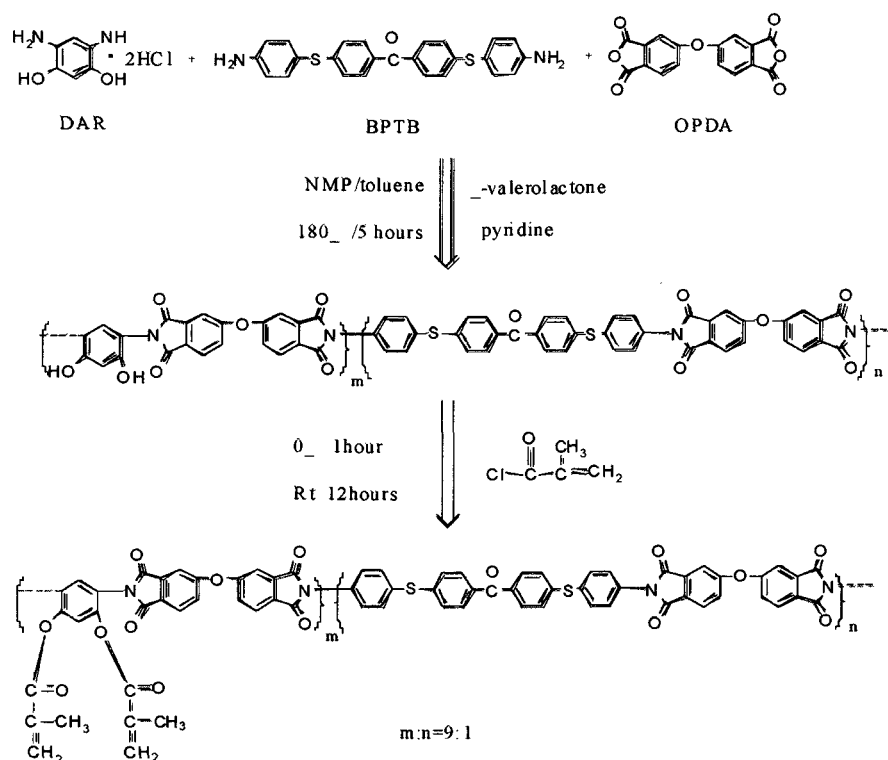


Fig 1 Scheme for synthesis of a novel negative photoinitiator-free photosensitive polyimide