

Photocuring 3D printing of high performance polyimides

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3D printing has attracted extensive attention from various fields due to its powerful capability of turning materials into devices in a completely different way with traditional ones. Among various technologies, photocuring based 3D printing technologies including stereolithography apparatus (SLA) and digital light processing (DLP) are the most precise technologies that have been employed to produce parts and models with arbitrarily complex geometry. However, its applications are strictly limited due to the lack of high performance printable resins. To address, novel 3D printing polyimides were developed. As a typical engineering plastic, polyimide has been widely used in many fields due to the outstanding comprehensive performances including thermal and chemical resistance, mechanical and

electrical properties, etc. Herein, photo curing polyimide oligomers with good solubility in reactive diluents were prepared, which were then used to form solvent-free photocurable resins for DLP 3D printing. The 3D printing polyimides are believed to be promising in constructing parts and models with excellent mechanical and thermoresistant performance.

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