

Fabrication of Novel Transparent Inorganic Polymer derived Microchannels and Application for Photopolymerization

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The present work describes fabrication of novel inorganic microfluidic channels derived from commercially available inorganic polymer allylhydridopolycarbosilane(AHPCS) by UV imprinting lithography process. The UV transparency and solvent resistance of the microfluidic channels was measured when the polymer was cured at various conditions. The microchannel cured at 160°C for 3 h showed excellent transparency, especially in visible resion. The photopolymerization of trimethylolpropanetriacrylate (TMPTA) in the microchannel took place about 20 times faster, compared to batch process. These preliminary results demonstrated that novel AHPCS derived microchannel can be useful as an alternative platform for optical and photochemical microfluidic devices.