4-클로로 페놀의 광분해를 위한 무기세라믹 마이크로 채널의 제조 및 응용

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The microfabrication of ceramic materials with thermal, chemical, and tribological stability has created an inevitable demand for devices in the fields of micro total analysis systems (m-TAS) and MEMS (Microelectromechanical systems). This study reports the preparation of nano-sized patterns and microfluidic channels using a soft lithographic technique, followed by UV and thermal curation of SiC preceramic polymer, allylhydridopolycarbosilane. It is believed that the fabrication of microchannels using cured inorganic polymers has enormous potential in the field of microfluidics, where materials with high optical transparency, thermal stability and chemical inertness are in demand as a niche between conventional microfluidics using glass and polymeric materials. Using the fabricated microchannel based on the inorganic ceramic, 4-chlorophenol was degraded into CO_2 and H_2O by TiO_2 catalyst under UV condition and showed higher conversion rate than that of batch reaction.