Fabrication of microfluidic device channel using a photopolymer for colloidal particle separation

ABSTRACT

We have developed a method of fabricating microfluidic device channels for bio-nanoelectronics system by using high performance epoxy based dry photopolymer films or dry film resists (DFRs). The DFR used was with a trademark name Ordyl SY355 from Elga Europe. The developing and exposing processes as well as the time taken in making the channels are recorded. Finally from those recorded methods, the accurate procedures and time taken for DFR development and exposure have been found and ultimately been consistently used in fabricating our channels. These channels were patterned and sandwiched in between two glass substrates. In our advance, the channel was formed for the colloidal particle separation system. They can be used for handling continuous fluid flow and particle repositioning maneuver using dielectrophoresis that have showed successful results in the separation.

Keyword: Photopolymer; Dry film resists (DFR); Microfluidic; Dielectrophoresis; Separation and colloidal particles