

Gas permeability characteristics of free-standing PDMS thin film



Flexibility and biocompatibility of poly dimethylsiloxane (PDMS) make it widely used in medical and pharmaceutical areas. With porosity in crosslinked PDMS, PDMS thin film can be applied for transdermal drug delivery system. It has been known that thickness of PDMS thin film can be reduced down to about 3.1 μ m with pure PDMS pre-polymer [1]. However, low mechanical strength of PDMS thin films and high adhesions between the film and the substrate make it hard to detach the film from the substrate. In this study, we fabricate free-standing PDMS thin films with various thicknesses by using unique methods. We also measure gas permeability of the films. From these results, we show the potential of PDMS thin film as transdermal drug delivery matrix.